

**Bodies of Knowledge: Science, Medicine and Authority in
Popular Periodicals, 1832-1850**

Submitted by Claire Rosemary Furlong to the University of Exeter as a thesis for the degree of Doctor of Philosophy in English, May 2015.

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Abstract

Over the course of the 1830s and 1840s, a professional scientific and medical community was coming into being. Exclusive membership, limits to the definition of science, and separation of the professional from the popular sphere became important elements in the consolidation of scientific authority. Studies exploring Victorian scientific authority have tended to focus on professional journals and organs of middle-class culture; this thesis takes a new approach in exploring how this authority is reflected and negotiated across the content of the popular mass-market periodicals which provided leisure reading for working- and lower-class men and women. It uses as examples *Chambers's Edinburgh Journal*, *Reynolds's Miscellany* and the *Family Herald*. The readers of these publications were consumers of scientific information, participants in popularised science and beneficiaries and subjects of new research, but were increasingly excluded from the formal processes of developing scientific theory and practice.

Examining representations of anatomy and of mesmerism, health advice and theories of class and gender, the thesis argues for an expanded understanding of mass-market periodicals as communicators of scientific ideas, showing how such material widely informs the content of these publications from fiction to jokes to full-length factual articles. However, the role of the periodicals is much wider than simply the transmission of received ideas, and the thesis reveals a plurality of positions with regard to science and medicine within the popular press. The periodicals engage with modern science in complex and varied ways, accepting, modifying and challenging scientific theories and methods from different positions. The form of the periodical is key, presenting multiple sources of knowledge and ways in which readers may be

invited to respond. *Chambers's* broad support for scientific progress is informed by its useful knowledge identity but tempered by its founding editors' own ambivalent relationship to the scientific establishment. The *Herald*, influenced by both the periodical's commercial character and its editor's adherence to a spiritual, anti-materialist view of existence, is strongly resistant to modern science, while *Reynolds's* incorporates it alongside other forms of knowledge in its aim to educate, entertain and empower readers from a socialist perspective.

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Introduction

In his famous 1858 *Household Words* article “The Unknown Public”, Wilkie Collins reports on his discovery of ‘an Unknown Public; a public to be counted by millions; the mysterious, the unfathomable, the universal public of the penny-novel Journals’ (217). This group (purportedly unknown to Collins if not to the millions of people that constituted it), the readership of the new popular periodicals, had emerged in the early decades of the century as literacy rose and working-class demands for reading material became more urgent. Lacking access to expensive publications and elite libraries, the lower-middle and working classes formed a huge untapped market, open to anyone who could produce cheap, interesting publications. Into the gap came first the useful knowledge periodicals of the 1830s and then the ‘penny-novel Journals’ - or the entertaining miscellanies of the 1840s - into which Collins delves, which had different editorial aims but sought the same readers and had in common their affordable cover price. By 1850, hundreds of thousands of periodicals were being sold every week, read and otherwise consumed by unprecedented numbers of men, women and children. While popular periodicals of this type are opening up a fascinating and rich field of study, their role as a communicator of scientific ideas is yet to be fully explored, particularly with regard to the oblique but pervasive presence of these ideas in general content. The articles, fiction, advice, comment and jokes of popular magazines constituted a key source of scientific information for a large part of the population, and are deserving of fuller attention than they have as yet been given. Intervening at the intersection of work on popular print culture, literature and science, the history of popular science and the medical humanities, this

thesis analyses three such magazines - *Chambers's Edinburgh Journal*, the *Family Herald* and *Reynolds's Miscellany* - offering a new understanding not only of the extent to which scientific matters pervaded these mass-market general-interest publications, but also of their importance in transmitting, exploring and constructing ideas of scientific authority and the role of modern science as it began to develop into a profession.

As interest in periodical culture has grown, these publications have started to come into focus and their important place in popular culture recognised. Work by, among others, Andrew King, Anne Humpherys, Aileen Fyfe and Patricia Anderson reveals the many ways that these periodicals may be approached and points to the wealth of literary material and social interest that lies within their covers. Particularly useful have been recent studies exploring the social and political contexts in which they were produced, including Fyfe's enlightening exploration of the commercial, technological and social contexts of *Chambers's Edinburgh Journal's* early years (*Steam Powered Knowledge*). Anne Humpherys and Louis James' collection on G. W. M. Reynolds sets the *Miscellany* in its publishing context and draws attention to its editor's politics. King's study of the *London Journal*, although focusing on a periodical outside the remit of this thesis, offers a wealth of insight into the market and culture in which these publications operated.¹ The *Herald* has received less critical attention, but Sally Mitchell's essay on its fiction offers insights into its readership and market, and Teresa Gerrard reconstructs its readers using the answers to correspondents in the later years of the century.

¹ Other useful studies focus on the general content of these periodicals. Robert J. Scholnick has examined the moral and social purpose of *Chambers's* in its early years; Lorna Huett comments on the same magazine's ambivalent attitude towards fiction. Humpherys' essay on Reynolds' writing and politics provides a useful overview of the *Miscellany*, while King analyses the same publication in detail to explore Reynolds' networks ("Reynolds's *Miscellany*, 1846-1849"). Patricia J. Anderson's book examines *Reynolds's* printed images among other examples of mass culture (*Printed Image*).

However, despite their immense popularity, these magazines remain underexplored by scholars of Victorian culture and much of their content, including the scientific material discussed in this thesis, is yet to be considered in any detail.

Popular science in the nineteenth century

In recent decades popular and non-professional experiences of Victorian science have come into view as the history of science and science and literature have become rich fields of study. Scholars have shed light on the science that took place at exhibitions, public lectures, and mechanics' institutes, in museums, radical meetings, public gardens and zoos, on holidays and at home. The essays in Fyfe and Lightman's *Science in the Marketplace* indicate the breadth of contexts in which Victorian science occurred, while those in Kember, Plunkett and Sullivan's *Popular Exhibitions, Science and Showmanship* emphasise the public nature of popular science and remind us of its importance within the growing entertainment industry.² Popular science emerged as a publishing genre and expanded rapidly during the later eighteenth and early nineteenth century (Topham, "Rethinking the History of Science Popularization" 8-10). The Chambers brothers - founders, editors and publishers of *Chambers's Edinburgh Journal* - were, as I discuss later, important contributors to the field of low-cost scientific education, and their *Journal* at times straddled popular science publishing and the more general periodicals market. Devout Christians and radical groups alike produced affordable publications each promoting their own understandings of the

² Other articles dealing with specific locations of popular science include those by Ian Inkster, Adrian Desmond ("Artisan Resistance"), Aileen Fyfe ("Natural History and the Victorian Tourist") and Jonathan Topham ("Beyond the Common Context").

relevance of modern science to working-class communities (Fyfe, *Science and Salvation*; Desmond, “Artisan Resistance”); more widely, popularisations as a format raise their own questions about ideological interpretations of science for the general reader, which I discuss in Chapter One.

Studies such as those I mention above show the range of scientific activity carried out for and by people and in locations that were well outside the professional scientific and medical sphere. From a slightly different perspective, James Secord’s recent *Visions of Science* examines landmark, accessible reflections on science within the publishing context that made widespread dissemination possible. As Secord observes, ‘During these years, science was changing from a relatively esoteric pursuit into one known to have profound consequences for the everyday life of all men and women’ (*Visions of Science* 1). Victorian science spanned society in the changes it made to the practicalities of life, to people’s understandings of their bodies, their place in society and humankind’s place in the world, and, as the studies above reveal, the sheer range of its presence in everyday life. What is more, science’s own shifting conception of itself was shaped by its relation to non-scientists; our understanding of how it became an elite, exclusive profession is the richer for such studies as Alison Winter’s *Mesmerized*, which takes close account of the popular sphere against which, in different ways, both orthodox scientists and those at the margins of scientific professionalism defined themselves.

The work on popular science I discuss in the paragraphs above opens the door to the science of the Unknown Public, showing the ways in which science was generated by and disseminated in the popular and public spheres. Yet to be explored in detail, however, is the presence of science in the periodicals which formed such important and regular reading material for huge

numbers of working- and lower middle-class men and women.³ Science in nineteenth-century periodicals is a rich and expanding field of study, with the work of the SciPer project, among others, illuminating the range of scientific material provided to periodical readers within and outside the professional sphere.⁴ The recent commencement of a major new project under the directorship of Sally Shuttleworth, tracing the construction of scientific communities through nineteenth-century medicine and science periodicals, attests to the increasing prominence of the field and a growing appreciation of the significance of periodicals in Victorian science communication.⁵ While studies in this area have often focused on professional journals and organs of middle-class culture, this thesis contributes to the developing body of literature by addressing the periodicals aimed at less educated, less prosperous men and women. A defining feature is the class and social status of their readers; they were consumers of scientific information and participants in popularised science, beneficiaries and subjects of new research, but increasingly excluded from the processes and productions of formal scientific activity. Scientific content is sprinkled through the pages of all three of the periodicals on which I focus, from fiction to jokes to full-length factual articles. Science informs and educates and entertains. Readers can learn about the latest experiments going on around the globe, read biographies of great scientists, enjoy a joke at a

³ Some scientific articles in *Chambers's* have attracted scholarly interest primarily as elucidation of the development of Robert Chambers' evolutionary theories (see, for example, James Secord's "Behind the Veil" and his *Victorian Sensation* (91,109), and Schwartz's article on Chambers and Huxley); however, the journal's wider treatment of scientific content is yet to be fully examined, particularly in conjunction with that of rival publications.

⁴ The SciPer project has produced three particularly useful and wide-ranging essay collections, suggesting the wealth of work ongoing in this field: Louise Henson et al., eds. *Culture and Science in the Nineteenth-Century Media*, Geoffrey Cantor et al., eds. *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature*, and Sally Shuttleworth and Geoffrey Cantor, eds. *Science Serialized: Representations of the Sciences in Nineteenth-Century Periodicals*.

⁵ See *Constructing Scientific Communities: Citizen Science in the 19th and 21st Centuries*. <<http://conscicom.org/>>

doctor's expense, cure their ailments, discover how their bodies work, and fill the remaining leisure hours with home experiments and beauty products developed with specialist knowledge.

The three periodicals I address in this thesis were all mainstream publications, offering a range of reader-pleasing material; even *Reynolds's Miscellany* under the editorship of the Chartist G. W. M. Reynolds does not have the single-minded socialist purpose of the radical materials discussed by Adrian Desmond in his review of artisan science. However, as I shall discuss in this Introduction, the provision of knowledge and information was over these decades a charged issue; ideas of authority, legitimacy and knowledge are always conditioned by the media through which they are disseminated, and the three periodicals have different approaches both to the education of working-class people and to the respect that should be afforded to the formal scientific community. This informs their presentation of scientific ideas; my Chapter Four on health, for example, shows how the representation of the medical community and the provision of health advice are influenced by each periodical's approach to the dissemination of knowledge.

Perhaps most significantly, my research reveals that these periodicals take an active role in matters that are more usually imagined as the preserve of the scientific community, and that were key to that group's transition from a community to a profession. As I outline in Chapter One, over the course of the 1830s and 1840s scientific and medical men moved towards professionalisation, aided by a narrowing of membership, debate as to what practices and ideas fell under the malleable term science, and separation of the professional from the popular sphere. I show that these popular periodicals, although read primarily by men and women outside the formal scientific sphere,

set out their own positions on the methods and practices that are used to generate scientific theories, evaluating and questioning the claims to authority of the men that make them against other sources of knowledge. They consider the content of scientific theories, interpreting and reshaping them in accordance with their own social and political preoccupations and their understandings of their readers' lives, and, through the variety and internal debate of the periodical format, provide space for their readers to do the same.

The periodical context is key, allowing overtly scientific content to sit alongside other pieces in ways that create new meanings for each. All three periodicals carry considerable amounts of fiction, which plays an important role in their exploration of scientific themes. The field of science and literature studies has produced rich interpretations of both scientific and fictional texts. Classic studies - such as Gillian Beer's *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction* (1983), George Levine's *Darwin and the Novelists: Patterns of Science in Victorian Fiction* (1988), Peter Morton's *The Vital Science: Biology and the Literary Imagination* (1984) and Sally Shuttleworth's *George Eliot and Nineteenth-Century Science: The Make-Believe of a Beginning* (1984) and *Charlotte Brontë and Victorian Psychology* (1996) - have pointed the way in showing how scientific ideas may be absorbed and interpreted in literary works thematically and structurally and exploring the two-way influences that shape both literature and science. These insights have enriched our understanding of what is now a very wide range of literary and scientific material: the recent essay collection *Uncommon Contexts: Encounters between Science and Literature, 1800–1914* (ed. Marsden, Hutchison and O'Connor), to name but one, points to the considerable and productive diversity of the field, with chapters including studies of engineering, mathematics, natural

history, the novel, verse, and forms of scientific writing, among others. Work on popular literature and science, particularly studies of sensation fiction such as those by Taylor and Garrison, shows how these influences are not limited to highbrow fiction, but work their way through other strands of culture in revealing ways. Much of this work engages with literature published after 1850, in part because science as a mode of thought and scientists as a community took on an increasingly distinct identity as the century progressed, and perhaps also because explorations of evolutionary theory and its implications have exposed some particularly fruitful and interesting connections. My study, exploring the transitional years pre-1850, hopes to draw on the techniques and insights of these explorations in understanding how fiction could be a vehicle for negotiating and representing a contingent but growing scientific authority.

As I discuss in more detail in Chapter One, the definition of science in this period was subject to ongoing debate and movement. The employment of terms such as 'scientist' and 'scientific community' - which I use throughout this thesis - is not without problems in an early Victorian context. The word 'scientist' came into being in 1833, coined by William Whewell during a heated debate at the British Association for the Advancement of Science (or BAAS), and did not gain currency until the later years of the century (Sidney Ross 71-82). The meanings of this and related words were under development in this period to such an extent that it is not possible now to recover and use them in a way that mirrors an early Victorian understanding. Bernard Lightman, in a phrase I have found helpful in considering this question, describes words such as these, used by modern writers in a nineteenth-century context, as 'legitimate anachronisms that convey to a contemporary reader features of Victorian science in the process of coming into being' ("Introduction" 10). Chapter One,

in tracing the move towards professionalisation, specialisation and privileged scientific authority over the course of the century, seeks to understand some of the conditions that created the meanings of these terms as we understand them.

A key argument of this thesis is that popular periodicals took an active part in mediating and constructing ideas of what could be considered scientific and of what it meant to regard particular people, theories and practices as such, thereby revealing their role in a wider ongoing debate about the definition and limits of scientific thinking. Popular periodicals, I show, expose the porous boundaries around what was considered scientific, and themselves take part in defining and shaping ideas of the scientific. The thesis takes as case studies four broad areas of investigation - mesmerism, anatomy, health advice and theories of womanhood - that in each case open up these questions. The wide range of these topics is testament to the pervasiveness of science in these periodicals, but also to the flexibility with which it is treated, and to the interchange they enact between science, medicine, applied knowledge, high theory, and ideas that are not framed as scientific at all.

These are also topics that in their various ways had particular immediacy and impact in working-class lives, enabling my investigation into the construction of scientific authority. As discourses of the body and understandings of its workings became more medicalised, the ability of science to speak about what ordinary people should do with their living and dead bodies for the sake of their own well-being and that of the society around them grew. Medical theory also increasingly intervened in discussions of social role and personal character as older ideas of the natural or providential came together with body-based understandings. However, the body is not just something

talked about by those with scientific expertise: it holds its own evidence, known only through individual experience, and ideas about what its characteristics signify and how it should be treated are shaped by cultural knowledge existing alongside, often inflected by and inflecting, scientific productions. As a focus for tracing how representations of science mediate claims for cultural authority, sciences of the body hold rich possibility. I turn now to the periodicals and their readers directly, asking what was at stake for publishers and consumers of popular magazines, who their readers were, the context in which they read and, indeed, what they read.

The new reading public and the march for knowledge

The early nineteenth century saw a dramatic increase in the reading public. A new mass audience developed, principally among the large group between the traditional middle-class and unskilled labourers, people described by Sally Mitchell as united in their aspiration for respectability: skilled manual workers, shopkeepers, domestic servants, tradesmen and women, dressmakers, artisans and so on (30). As industrialisation and urbanisation changed the geographical and occupational distribution of Britain's working classes, their opportunities for reading and access to education increased. The population was swelling, literacy was increasing and, prompted both by these demographic changes and by social and political unrest, there was a growing appetite for reading material.⁶ The popular periodicals market was both created

⁶ It is impossible to state with any certainty how many people could read at this time. The contemporary test for literacy - the ability to sign the marriage register - does not necessarily indicate an ability to read, although, as David Vincent points out, the ability to write implies 'at least a limited fluency in reading' (18) so the statistics may if anything underrepresent the reading abilities of the general public. Contemporary reports, based on the marriage register, show that in 1840, 67% of men and 51% of women were literate, and that in 1851 this had increased slightly to 69.3% and 54.8% respectively (Altick 170).

by and helped to create this new reading audience. The existence of publications such as *Chambers's Edinburgh Journal* and the *Penny Magazine* 'both addressed and imaged a mass readership' (Klancher 77), turning an increasingly literate and news-hungry public into a market for cheap periodicals (Bennett 237; 227).

The idea of unknown readers reading unknown material, although a fruitful source of comedy (or ridicule) for Wilkie Collins, was a charged issue in the early decades of the century. Radical thinkers, useful knowledge groups and commercial publishers all had their own ideas about how best to divert these men and women. This was about more than just jostling for position in a commercial marketplace. The early years of the Victorian period were ones of economic and social turbulence, and over the 1830s and 1840s reform of the political process, extension of the franchise and discussion of new labour laws were conducted against a backdrop of low wages and severe economic hardship for working-class people. Chartism was an active and growing force and imminent revolution seemed to be a real possibility. Knowledge in this context was a weapon and a tool, at once morally uplifting and potentially disruptive, 'inspirational and irresistible in terms of its potential for social and cultural transformation' (Rauch 1). As the new mass audience came into being, the idea of huge numbers of working-class readers choosing their own material and interpreting it without guidance from religious or cultural authorities was for some a source of great anxiety, and for others a prospect full of promise. The problems, or opportunities, that this situation created were a crucial factor in the development of the popular periodicals market. *Chambers's Edinburgh Journal* and *Reynolds's Miscellany*, two of the periodicals I examine in this thesis, intervened from different perspectives in the questions that surrounded the

march for knowledge, as a useful knowledge and a Chartist-influenced publication respectively. The *Family Herald*, meanwhile, was part of a strand of commercial publishing that, on the face of it, appeared to offer little intellectual nourishment (an appearance that this thesis challenges). Their approaches to the control of knowledge and the different ways in which they envisaged their readers should be educated and empowered influenced, and can be traced through, their approach to scientific matters. Science, as I outline above, carried meanings about men and women's status, their autonomy, the authorities to which they should submit, even their understandings of themselves; it was a particularly potent form of knowledge, and one around which the conflict over knowledge and authority coalesced.

Radical journals flourished in the first three decades of the century, evidence not only of the working classes' desire for social change but also of their unfulfilled need for intellectual stimulation. Scant reading material was available during these years to the three-quarters of the population who were below the middle class (Altick 82) and lacked both money and extensive leisure time. Daily newspapers were prohibitively expensive, as were the more intellectual weeklies and monthlies. The selection of sensational papers and religious tracts was very limited, and 'catchpenny miscellaneous papers', containing old jokes and unauthorised extracts from books, were more or less the only option until the foundation of the 2d. *Mirror of Literature* in 1822, a respectable miscellany made up of assorted extracts from a variety of sources (Altick 319-321). Books were costly: to follow a modern novel required a guinea a year for a literary subscription or a shilling per month for individual parts (Mitchell 29). Working people were not welcome at 'public' libraries; the first publicly-funded libraries, accessible by all, would not open until the second half

of the decade. 'The literature available to [working people]', Jonathan Rose asserts, 'could not fill up their leisure time, even if they read it all' (*Intellectual Life of the British Working Classes* 372). The growing hunger for knowledge and information among sections of the population denied extensive reading material was, Scott Bennett argues, 'the essential precondition for the creation of a mass reading market' (251).

Nevertheless, working-class men found ways to access reading material. There were, of course, the efforts of the mechanics' institutes, who provided worthy and heavily regulated courses of study. As an alternative, working men set up their own schools, mutual improvement societies and reading rooms, pooling their resources to buy shared books and newspapers (Rose, *Intellectual Life of the British Working Classes* 58-64). Both the mechanics' institutes and these less formal arrangements commonly excluded women: 'until the late nineteenth century, autodidact culture was an overwhelmingly male territory' (Rose, *Intellectual Life of the British Working Classes* 18). As for what women read at home, here we have fewer sources to help us. While working-class men produced memoirs and autobiographies detailing, among other things, their reading habits, the equivalents by their female counterparts are few and far between. Working-class women often lacked the time to read, or to write (Flint 231) and they lived in a society that did not endorse them doing so: 'Workingmen of the early nineteenth century rarely acknowledged women as intellectual equals or companions' (Rose, *Intellectual Life of the British Working Classes* 76-77). However, as I discuss below, women are known to have been readers of the periodicals which form the focus of this thesis and the fiction contained in their pages was reputedly particularly popular (James 356-7; Flint 163).

These working- and lower middle-class men and women, then, were Collins' enigmatic magazine enthusiasts, his 'reading public of three millions that lies right out of the pale of literary civilisation' (218). In Collins' piece, the existence of this group is 'a phenomenon worth examining' (218), its members a fascinating and entertaining but harmless new species, and the identification of their tastes and general characteristics a diverting puzzle. This view of working-class readers as a mysterious, unregulated and separate group is a benign version of ideas that had been circulating throughout the first half of the century, reaching a particular intensity during the 1830s and 1840s. The idea of a vast unknown readership, whose reading habits and responses to literature were beyond the knowledge and control of the governing classes, was deeply threatening to some within those classes. In recognition of both the dangers and benefits of reading, the useful knowledge movement was born.

As literacy grew and interest in reading spread, the governing classes were aware that the dissemination of knowledge was slipping from their control. Radical papers extolling the benefits of Chartism and socialism flourished, and there was a fear among the governing classes that the new reading public was falling into the wrong hands. In an attempt to suppress the circulation of these publications, a 'tax on knowledge' was introduced, effectively preventing all penny periodicals, including those explored in this thesis, from reporting on current affairs.⁷ However, the threat of the new reading public did not lie solely in the possibility of their being spoon-fed supposedly destabilising propaganda. Put simply, knowledge bred independent thought, and this was hard to control. A public that could read, and had access to systematised scientific and philosophical theory, had 'the means to question social, religious and political

⁷ The tax was placed on every periodical containing or commenting on news, published at least every 27 days, printed on two sheets or fewer, and priced at less than 6d.

structures' (Rauch 3). The consumption of knowledge privately, one man (for women were not the main concern of those in authority in respect of this particular issue⁸) alone with his magazine and his thoughts, was particularly worrying. There was no way of monitoring the way in which he interpreted and applied the information in front of him, and the results of his reading experience were unpredictable.

The unimpeded flow of knowledge into working-class communities also held the potential to upset the easy allocation of people into clear divisions of class. Knowledge, Rauch observes, added an 'attractive veneer' onto even the lowest-status members of society; more importantly, even in small doses it went a long way towards 'establishing a rudimentary level of authority, credibility and status' (2). It brought with it the right to speak and to be listened to and taken seriously, and it was partly for this reason that the struggle for scientific authority was, as I discuss in Chapter One, so significant during the first half of the century. The useful knowledge movement, therefore, sought to manage the dissemination of knowledge to the working classes. It aimed to provide a wholesome distraction from the perceived evils of radical pamphlets, and, taking advantage of the new enthusiasm for reading, to counteract the circulation of socialist and Chartist ideas with other forms of knowledge. As King and Plunkett describe, proponents of the useful knowledge movement believed that the dissemination of cheap print had the potential to prevent, rather than cause, revolution (11). Prominent utilitarian organisation the Society for the Diffusion of Useful Knowledge (SDUK) produced four 'libraries' of useful knowledge running to 74 volumes, a *Penny Cyclopaedia*, the *Quarterly Journal of Education* and the early miscellany the *Penny Magazine*, all in an attempt to

⁸ Women's reading was a more general ongoing preoccupation of cultural commentators, but one that tended to be centred on middle-class women: for discussion of this, see Flint, Phegley and Beetham ("Women and the Consumption of Print").

provide practical knowledge and instruction to members of the working classes and to counteract the influence of the cheap radical press. The first page of the first edition of the *Penny Magazine* exemplifies the useful knowledge school of thought, declaring a wish to 'fix the [reader's] mind upon calmer, and, it may be, purer thoughts than the violence of party discussion, or the stimulating details of crime and suffering,' and expressing the belief that 'the false judgments which are sometimes formed by the people upon public events, can only be corrected by the diffusion of sound knowledge' ("Reading For All"). Some advocates believed that the dissemination of (certain types of) knowledge was, in and of itself, an inherently moral activity, and that truth in thought would lead to truth in action (Rauch 3). Charles Knight, editor of the *Penny Magazine*, wrote idealistically of his resolve 'to leave nothing undone, until knowledge has become as plentiful and as universally diffused as the air we breathe' (quoted in Bennett 253). Others were more interested simply in convincing readers of the desirability of preserving the status quo, with particular interpretations of scientific knowledge and application to the fore. If working men could be brought to understand the principles of classical economics, God's plan for each individual and the benefits of mechanisation, they would surely recognise the wrongheadedness of Chartism, republicanism, and socialism (Altick 131). Although there was a strong element of social control, this movement was not solely about brainwashing the masses: the possession of useful knowledge was also intended to help working-class men (and, to a lesser extent, women) live happier and more productive lives, benefiting from their new understanding of the laws of nature, science and technology (Rauch 3).

Meanwhile, technological developments made it possible to produce and distribute good-quality publications more quickly and cheaply than ever before.

A new paper-making machine and the rotary steam press both came into widespread use in the 1820s, greatly reducing costs. The railway system, which opened in 1825 and expanded rapidly, enabled efficient distribution across a wide geographical range. By 1850, for example, what had been a three-day journey by road from Edinburgh to London had been reduced to ten hours by rail (Fyfe, *Steam-Powered Knowledge* 103); replicated across the country, this would transform newspaper and periodical proprietors' ability to distribute time-critical publications nationally. William Chambers, bookseller and publisher, was the first to take advantage of these developments, and in the process changed the face of the Victorian popular press.

The new popular periodicals

There was and is so judicious a blending of light and heavy literature in "Chambers's Journal" that their periodical has helped to educate, inform and entertain many generations of the British public. Whenever it came in my way, as it did sometimes, I revelled in its pages. The "Penny Magazine" also was a great delight on the rare occasions that I saw it. But I remember best the "Family Herald", "Reynolds's Miscellany", and Lloyd's penny dreadfuls.

(William Edwin Adams, *Memoirs of a Social Atom*, 1903 (101))

William Adams was born the son of a plasterer, and would go on to become a Chartist, an apprentice printer, and, later, a journalist. His recollections of his favourite childhood magazines offer an insight into how one young artisan reader viewed the periodicals that are the subject of this thesis. He remembers in one breath, as it were, *Chambers's Edinburgh Journal*, *Reynolds's Miscellany* and the *Family Herald*, all of which operated in the same market, seeking to attract working-class men, women and children. These periodicals, along with

the worthy *Penny Magazine*, vied for attention with the eye-catching, blood-curdling penny dreadfuls that were the subject of considerable moral outrage and anxiety among conservative commentators. The juxtaposition of these publications, so similar in price, so various in tone, illustrates what was at stake as ideologues and commercial publishers sought to attract the new market of readers. That the *Herald* and *Reynolds's*, heavy on ephemeral fiction, light on edification, would ultimately prove more memorable than *Chambers's* educative and informative literature would no doubt be a disappointment to the useful knowledge pioneers.

The *Herald* and *Reynolds's* were among the publications satirised by Wilkie Collins, and their readers overlapped with the hundreds of thousands who read *Chambers's*. With important points of resemblance and of contrast, the three together form a case study for my examination of scientific material. The useful knowledge aims of the Chambers brothers were very different from the intentions of the Chartist G. W. M. Reynolds, who filled his *Miscellany* with sensational fiction and radical asides. The *Herald* was driven by commercial ends but nevertheless inflected with the religious beliefs of its founder, James Elishama ("Shepherd") Smith. The variety in editorial intentions and general style leaves us with three very different publications, each with its own approach to the questions of transference of knowledge that were alive during these years.

Chambers's Edinburgh Journal was founded in February 1832, marking the birth of a new type of periodical and paving the way, along with the *Penny Magazine*, not only for an explosion in useful knowledge miscellanies but also for the wave of lighter and more entertaining weekly magazines of the 1840s. It was revolutionary both in its impact upon the periodicals market and in the

technologically advanced methods used to produce it. In his use of stereotyping and steam presses and the unprecedented decision to print two editions from geographically separate locations, Chambers was one of the pioneers ‘who would ultimately transform printing from a craft to a great Victorian industry’ (Fyfe, “Information Revolution” 120). (For a comprehensive account of both Chambers’s groundbreaking use of technology and his revolutionary impact on the print market, see Fyfe’s *Steam Powered Knowledge*.) The periodical was based on the principles of the useful knowledge movement: Chambers designed it for working-class readers with limited education and little spare cash with the intention of helping them to ‘make the transition from daily struggle to adequacy’ (Chambers, quoted in Fyfe, “Information Revolution” 120). Accordingly, it was priced at 1½d. and contained original articles on a wide variety of literary, historical and scientific topics, as well as instruction on issues such as temperance and moderation. While the tone was one of moral guidance and wholesome improvement, it did not object, unlike its rival the *Penny Magazine*, to some carefully selected lighter material, and regularly contained fiction and poetry. It was edited by William’s brother Robert Chambers, who would go on to write the controversial *Vestiges of the Natural History of Creation* (1844) and who occasionally used the journal to explore the concepts underpinning this work (Schwartz 353-360). Weekly circulation reportedly reached 50,000 in the first year of publication and approached a peak of 80,000 during the 1840s (Altick 393; Brake and Demoor 105).⁹ The first edition of the rival *Penny Magazine* followed swiftly in March 1832. Described by William Adams as ‘full of facts, often very dry facts -

⁹ Readership statistics for all the periodicals I refer to here should be taken with caution; as I discuss in more detail below, there are significant difficulties not just in collecting circulation figures, but also in extrapolating readership (and other consumers) from those figures. Nevertheless, I offer here the best estimates of historians, in an attempt to convey at least a sense of the popularity of these publications.

interesting, but not enlivening' (100), it contained quality illustrations and original articles on science, art, literature and history, but no fiction. It survived only twelve years, perhaps because of the emphasis on facts at the expense of fun, but its reported circulation figures (an unprecedented 200,000 in the first year of publication (Altick 393; Wolff et al 827)) are testament to its early recognition of a reading public hungry for affordable literature.

The initial popularity of the *Penny Magazine* and *Chambers's* led to a boom in penny periodicals, taking in the whole range from gory sensational papers to religious weeklies (Altick 338). Most did not last long, but in the early 1840s what would prove to be an enduring new breed of cheap magazine was developed. Building on the miscellany format of *Chambers's* and the *Penny Magazine*, but moving away from their emphasis on worthy content, these periodicals captured the imagination of Collins's Unknown Public. Standing 'at the head,' according to a contemporary commentator, 'both in age and popularity, of all the penny serials' was the *Family Herald* ("The Penny Weekly Press"). It was a hit from the first issue in 1843 and together with the *London Journal* controlled a large part of the penny periodical market (Humpherys 80). By 1849 it was selling 125,000 copies every week and in 1855 reached a circulation of up to 300,000 (Brake and Demoor 214). It was founded and edited by James Elishama Smith and presented as a general interest magazine, containing essays, poetry, correspondence, fashion, occasional illustrations and historical pieces. Its avowed intention was to understand and respond to its readers' wishes: claiming to be in constant contact with them, the editor declared himself 'unable to swerve far from the prevailing taste' ("To Correspondents", 10 Jan. 1846 570). It was characterised at the time by the romantic fiction which forms a large part of its content, and is often viewed by

modern commentators through the same lens. However, there is a second, less well-recognised and somewhat incongruous side to the *Herald*. Smith had been raised as a Presbyterian but in his late 20s became interested in the doctrines of religious visionary Joanna Southcott. He remained committed to millenarian theology, or what he called 'practical mysticism', until his death (Harrison 109-115; Lockley n.pag. (Ch.10)). The influence of his religious beliefs on the *Herald's* content becomes clear in those places where the editor's voice is most prominent, particularly the answers to correspondents and long feature pieces on religion, philosophy and, above all, modern science.

The *Herald* was soon followed by the *London Journal*, an exceptionally successful magazine which went into production in 1845, edited initially by G. W. M. Reynolds, an important figure in the history of the popular press. Reynolds was a radical novelist and journalist, a committed republican and for a short period from 1848 a leading Chartist activist, but the *London Journal* was not intended to be an outlet for his views, promising in its first edition not to 'offend with political bias' ("Notices", 1 Mar. 1845). After a short period at the helm of the *London Journal*, Reynolds left to set up his own magazine, *Reynolds's Miscellany*, which commenced publication in November 1846. Within a year, circulation was reported to be 30,000, and by 1855 may have risen as high as 300,000 (Brake and Demoor 540). It was priced at 1d. and published by John Dicks, who would become one of the most prolific publishers of cheap reading material of the century. Structurally similar to the *London Journal*, the magazine featured a woodcut in every edition, fiction, answers to correspondents, household hints, historical and biographical articles and some improving knowledge. Reynolds used the *Miscellany* to serialise his sensational romantic novels and took the opportunity rather more frequently

than he had during his stewardship of the *London Journal* to air his political opinions either openly or through allusions in his fiction. The journal's combination of populism and political matter make it an interesting counterpoint for the purposes of this study to the worthy *Chambers's* and the unashamedly commercial *Herald*. My thesis focuses on these three periodicals throughout to give a snapshot of the treatment of science in magazines with different editorial aims and character, all operating within the same market and hoping to attract the same readership.

Periodicals and their readers

As I discuss further below, the intention of this thesis is less to reconstruct readers and their responses than to understand how science and scientific authority was presented to an imagined lower-class readership. The focus is on material directed at lower middle- and working-class readers, whether or not the intended and actual readers matched exactly. However, as Victorian periodicals enabled readers to take a particularly active role in their reception of this material (which again I discuss further later in this section), it is helpful to understand as far as possible who, broadly, those readers were. It is not possible to know who exactly bought each periodical, and who other than the buyer would have read each copy; commentators have therefore had to a certain extent to work from informed guesses based on price, the content of the periodical, the contributions made to the readers' correspondence pages and contemporary anecdotal evidence. Those conclusions that extrapolate likely readers from categories of content should be viewed with caution in light of recent studies revealing that readers can and do find interest in unexpected places: Ellegård's theory that the presence of useful information and science

indicates male readers while fiction indicates female readers (36), for example, is challenged by more recent histories of women's reading, including Kate Flint's *The Woman Reader 1837-1914*, which shows Victorian women reading across a wide range of material, and Jan Fergus's *Provincial Readers in Eighteenth-Century England*, which suggests that women of the previous generation rejected light fiction in favour of informative tracts. The delineations imposed by editors may also not be a wholly reliable guide: Fraser, Green and Johnson describe how boys entered knitting and sewing competitions advertised in the *Girls' Own Paper*, while the female readers of that publication persuaded the editor to provide them with adventure stories of the type featured in the *Boys' Own Paper* (64-65).

Circulation figures themselves may not be entirely reliable, as they are usually based on publishers' own contemporary reports, sometimes made for publicity purposes. King points out the 10,000 difference between the sales figures G. W. M. Reynolds used to attract advertisers and those he was forced to declare to the court when he applied for bankruptcy ("*Reynolds's Miscellany, 1846-1849*" 58). Additionally, even when they are accurate, sales figures are not an exact - or even necessarily a close - reflection of reader numbers, as publications were widely shared through reading rooms and more informal networks. We should also take account of the fact that the readership would include a high proportion of people who would not personally read the periodical at all, and King and Plunkett give a number of examples of the sharing of texts "through acts of collective reading" (237). It was not unusual for one member of a group to read newspapers, books and journals aloud for others to enjoy: in *London Labour and the London Poor*, Henry Mayhew describes a number of such gatherings in pubs, private homes, and public places.

Considerable work has nevertheless been undertaken to ascertain the readerships of these periodicals, which is helpful and informative despite the caveats set out above. Chambers believed in the early years of his publication's life that it 'pervade[d] the whole of society' (Brake and Demoor 110), but by the early 1860s was complaining that it 'circulated among the masters rather than the men' (Ellegård 36). Modern commentators tend to agree that the magazine was read primarily by the middle class (Brake and Demoor 110). According to Ellegård, the readers of the *Family Herald* were 'lower- to middle-class, chiefly women, with a large proportion of domestic servants' (36), although other commentators note that its readership expanded over time to include the petty bourgeoisie and the labour aristocracy (Brake and Demoor 214). It appears that *Reynolds's* was read, as its founder intended, by the working and lower-middle classes (Humpherys 82; Anderson, *Printed Image* 138). Patricia J. Anderson further suggests that it had a substantial female readership including working-class women and those of the less affluent parts of the middle class (*Printed Image* 150). Likewise, Hancher argues that 'the butcher's wife' is more likely to have opted for the *London Journal* or *Reynolds's Miscellany* than for useful knowledge publications like the *Penny Magazine* (98).

One thing of which we can be certain is the immense popularity of these magazines. The *Family Herald* was, alongside the *London Journal*, the most widely read British publication of the 1840s and 1850s. Even at their least popular, sales for *Reynolds's* and *Chambers's* were in the tens of thousands. Shattock and Wolff describe how the Victorian press was 'the context within which people lived and worked and thought, and from which they derived their...sense of the outside world' (xiv-xv). The publications discussed above

between them created and shaped the understanding of hundreds of thousands of people of a very wide range of topics, including scientific developments of the time. As I discuss in Chapter One, periodicals at all levels of the market were a key resource for the transmission and recreation of scientific ideas. Scientific topics were formally discussed in magazines ranging from the professional journals and expensive high-brow quarterlies to the radical publications aimed at increasing the political power of the working classes, but also appeared in less predictable places including the jokes and fiction of the entertaining mass-market weeklies. As I set out above, a key aim of this thesis is to expand understanding of popular periodicals as a communicator of scientific ideas, particularly with regard to the presence of scientific themes in general-interest content.

We must be careful, however, not to view periodicals of any kind merely as a glimpse of the past, reflecting contemporary culture in an uncomplicated way. Lyn Pykett describes the press as 'a (or perhaps *the*) constitutive medium of a Victorian culture which is now seen as interactive' (7). Periodicals did not simply serve up information for readers to consume unquestioningly; the ways in which readers engaged with that information within the specific framework of the periodical was a crucial part of its meaning. The focus of this thesis is on the ways in which scientific information was presented and scientific authority managed and negotiated within the pages of these periodicals. I am centrally interested in the range of ways in which these publications could be read - a key concern is the spaces into which alternative readings could fit, and the role of the periodical in providing or closing down those spaces - but I do not attempt to predict or recover reader responses except to the extent that they are published within the pages of my periodicals and form part of each one's

discourse. I do not therefore propose to rehearse in detail the lively debate about the competing virtues of studying texts versus reconstructing responses that is ongoing in periodicals scholarship; Jonathan Rose (*Intellectual Life of the British Working Classes* 4-7) and Margaret Beetham ("Towards a Theory of the Periodical as a Publishing Genre") each provide useful overviews of the principles. This is not, however, to fall into the trap, as Brian E. Maidment puts it, 'of thinking that the readers were powerless victims of the editor' ("Dinners or Desserts" 360). On the question of whether 'meaning is inherent in the text or created by the reader', Rose is helpfully succinct: 'obviously, it is a matter of one working on the other' (*Intellectual Life of the British Working Classes* 7). Readers play an active role in creating meaning within particular rules of interpretation, which change according to context. The points I will discuss in Chapter One about the ability of Victorian working-class audiences of science to interpret and rework information apply more generally to readers of other types of literature. Additionally, special considerations are raised by the periodical format, and the remainder of this section briefly sets out some of the most important.

Most obviously, periodical readers had the opportunity to influence or even directly produce content. Readers' voices appear indirectly, or so it seems, in the popular correspondence pages, in which the editor answered readers' queries on all manner of subjects (although very rarely reproduced the letters themselves). Both the *Herald* and *Reynolds's* featured answers to correspondents in every edition and appear to have been oversubscribed with requests for information.¹⁰ *Chambers's* did not run an equivalent column,

¹⁰ There is some debate about the authenticity of these letters: Altick believes those that appeared in the *Family Herald* were often made up by the editor (360), and King judges those in *Reynolds's Miscellany* to be a mixture of genuine queries and answers planted for the purposes of advertising (*Reynolds's Miscellany, 1849-1849* 57). However, Anderson's survey of several

claiming that it encouraged readers to avoid thinking for themselves and thereby revealing some interesting ideas about its readership, which I explore further in Chapter Four. Reader contributions - by way of letters to the editor and fluctuating sales figures - also directed editorial choices and influenced the development of each publication over time. Maidment argues that, like most other types of Victorian periodical,¹¹ those under study here did not regularly feature items by artisan writers who were not full-time journalists, and notes the dissonance between G. W. M. Reynolds's Chartist leanings and his failure to give working men and women a voice in his journal ("Magazines of Popular Progress" 89). There are clues in the correspondence pages that reader contributions may in fact have been included in the magazine's content on occasion, but if so they appeared anonymously and their sources are unidentifiable, raising questions about the editing out of working-class writers' identities. The *Herald* printed home remedies and domestic tips suggested by its readers, but, like *Reynolds's*, any more substantial contributions from readers, if they exist, are not acknowledged as such.

The personal reaction of readers is a crucial, although less easily recoverable, factor in the making of meaning. A key part of the experience of reading a periodical is in the effect created by the juxtaposition of different items. The journal is both a single unit and a collection of parts, each of which inflects our reading of the other. Louis James writes of the periodical as an

mass-market magazines concludes that the Notices were for the most part 'genuine replies to real letters' ("Factory Girl, Apprentice and Clerk" 65), and Teresa Gerrard treats those that appeared in the *Family Herald* as valid representations of readers' voices. I believe that the majority are probably genuine, interspersed with others inserted for the editor's own purposes; while some appear to be fairly clear examples of advertising or the editor using the column as a place to express his opinions, others seem to serve no purpose if they do not answer genuine questions. I discuss this in more detail in Chapter Four, which looks closely at the provision of medical advice in these columns.

¹¹ Maidment excepts the distinct genre of literary 'popular progress' journals rooted in the traditions of philosophical radicalism, which he argues were unique in their acceptance of artisan contributions ("Magazines of Popular Progress" 89).

entity made up of elements, 'in which each element is modified by the whole' (349); one might also suggest that the whole is modified by its parts, as the plurality of different voices and points of view challenges the corporate identity it seeks to convey. In a useful discussion of the contextualised nature of periodical production, Laurel Brake describes how meaning is produced 'by the specificities of the *location* of writing' (55) - that is, both its inclusion within a particular journal, and its placing among the other pieces in that journal. This process is different every time a periodical is read, for at a structural level the format allows, indeed compels, an individual response. The piecemeal nature of a periodical allows readers to read whichever sections, in whatever order, they want; it 'openly offers readers the chance to construct their own texts' (Beetham, "Towards a Theory of the Periodical as a Publishing Genre" 26). The text that each nineteenth-century individual read is impossible to reproduce (which is one reason why the outbreak of unsupervised reading was of such concern to the SDUK and its ilk).

Finally, although the process of meaning-making is a collaborative one, we should note the power imbalance between the readers and editors of popular nineteenth-century periodicals. Beetham reminds us that '[t]hose who owned, edited and wrote for the nineteenth-century periodical press had more power to define their world and 'make their meanings stick' than did their readers, whose most important power was the choice of whether to buy or not' ("Towards a Theory of the Periodical as a Publishing Genre" 20). It is important to acknowledge that the writer's intentions may not have been effective, and this study aims to look between the cracks and to consider the range of possible interpretations and positionings available to readers, but we should also acknowledge the ability of the person wielding the pen to dominate

meaning. Magazines could impose their own worldview overtly in their content and also in the construction of an imagined ideal reader, by creating a consistent position from which to read and thereby reducing the possibilities of alternative readings: Beetham writes of the 'invoked reader', conceived as, for example, a female middle-class mother, addressed as an individual but also as a member of overlapping social groups ("Towards a Theory of the Periodical as a Publishing Genre" 28-29).

This mixture of factors makes popular periodicals a fascinating repository of scientific ideas in the early Victorian period, as the chief proponents of these ideas hovered on the brink of professionalisation and exclusivity. Chapter One traces the increasing professionalisation of science and medicine over the early years of the Victorian period and seeks to understand the involvement of working-class communities in scientific activity. Following this, Chapter Two begins my case studies with the representation of mesmerism, interesting both because of its contested place within the scientific community and because it had the potential to be experienced as spectator, as subject and, crucially, as practitioner, by ordinary people such as the readers of these periodicals. The chapter reveals how the periodicals stake out their position in relation to the scientific and medical professions through their discussion of mesmerism in factual pieces and fiction, articulating distinct and divergent understandings of what science is, its worth, the role of scientists and the way in which their work is conducted. The elements around which scientific authority is constructed and challenged - specialist terminology, the word of eminent men, the role of superstition and trickery, the presence of classed and gendered scientific subjects, appeals to readers' moral, spiritual and political beliefs - repeat as we move through other topics. Looking further at figures of contested authority,

Chapter Three examines the representation of anatomy, a practice viewed very differently by the scientific community and the general public. Human dissection had traditionally been regarded with revulsion and outrage, a view reflected and fed by the familiar presence of the hideous anatomist in cheap Victorian horror fiction, but its importance within the scientific community as a mark of professionalism and expertise was increasing. The popular periodicals negotiate conflicting views of anatomists as modern public servants, reflecting the profession's priorities and perceptions of itself, and as sinister figures of folk memory, registered in the lurking presence of the gothic anatomist, particularly in imaginative writing which struggles to accommodate representations of the modern surgeon. Chapter Four moves on to consider more closely the role of the periodical, and how each one's format and style comes together with the approaches to science I trace through mesmerism and anatomy. Their provision of health advice speaks directly to the reader about him or herself, constructing in the process an imagined relationship between the reader and the medical profession, alongside other sources of treatment. They also hold out a role for the periodical itself, not only as a mediator of scientific authority but an authority in itself, as the editor's desired relationship with his readers comes into view. Finally, Chapter Five offers a view of science and its cultural authority in the construction of gender norms, exploring pieces in which its influence is present but rarely expressed directly. Despite being well outside the formal scientific sphere, magazines of this type were part of a cultural conversation that helped support the social and scientific norms this chapter addresses. Questioning how prevailing theories of the female body and character applied to working-class women, the chapter draws out the interplay of social and medical thought, their impact on each other's legitimacy, and how

medical ideas are shaped, absorbed and resisted by other elements of the periodicals. Through different approaches to the representation of science, medicine and scientific authority, we see in each chapter how these popular, non-scientific periodicals take an active part in evaluating and questioning scientific theories and the authority of the community that produces them.

Chapter One: Early Victorian science, scientific authority and working-class communities

In late 1847 the *Family Herald* received a letter from a female servant concerned about the progress of Halley's Comet. The editor's response tells us nothing about the comet, but reveals a considerable amount about his view of his reader:

"A Servant Maid" is rather scientific, we think. What department does she take in household affairs, that she can afford to study the paths of the comets, and to fear the collision of Halley's comet with the earth? What a smash it would cause among her pots and pans - what breakage among her earthenware! ("To Correspondents" 18 Dec. 1847 522)

The idea that a 'Servant Maid' could take an informed interest in science is, to him, laughable. Her class and gender status preclude the possibility: her sphere is the domestic one, upon which scientific learning does not impinge. From this point of view, science is something that is studied, a body of specialist knowledge quite separate from the goings-on in the scullery, regardless of the place that applied science may have had in the servant's work. What is more, it is clear that the editor expects other readers of the column to understand and appreciate the absurdity of a scientific serving maid. These common - although not uncontested - mid-century assumptions about what science is, and who can practise it, lend themselves easily to a bit of casual fun at this reader's expense, but they went to the heart of questions that were very much alive within the scientific and medical communities throughout the nineteenth century, and in constant focus during the early and middle years of the century as those communities began to transform themselves into professions.

The Victorian period saw the emergence of a class of scientific professionals that became, over the course of the century, increasingly separate from amateur scientists and the general public. This would have profound implications not only for the practice of science but also for the social authority enjoyed by the members of this group. The question of who could practice science, the increasing importance and constant negotiation of the definition of science, and the extent to which the class, gender and professional status of practitioners affected whether their output was to be considered scientific were central points around which professional identity developed. The interest of the “Servant Maid” in astronomy points to a popular engagement with science for leisure and learning, a sphere of activity that has attracted scholarly attention in recent years as the overlap between popular science, entertainment and current affairs has come into view. These issues are fundamental to the questions this thesis asks about the presentation of science and scientific authority in the popular magazines read by the scientific servant maid and her contemporaries, both male and female.

Critical to our understanding of how groups outside the scientific elite engaged with and were affected by scientific ideas is an appreciation of the shifting cultural authority of science over this period. Writing of the second half of the century, Bernard Lightman has described the authority and intellectual prestige held by people who could speak on behalf of science:

They could assert that they spoke truthfully, and they could argue that they understood the broader significance of scientific ideas. Since the modern worldview was held together by scientific ideas, they essentially maintained that they could pronounce with authority on all issues.

(“Introduction” 5)

The authority of science over the first half of the century (and indeed into its later years) was subject to constant negotiation, altering according to the source of knowledge, recipient, social and geographical context and medium (to suggest but a few factors), and by its very nature cannot be definitively located or measured at any given point. However, as Lightman suggests, scholars have traced a broad pattern which sees science taking on increasing levels of cultural authority, particularly from the mid-century onwards, and the people who could speak on its behalf gaining in status accordingly. Martin Fichmann notes that science in the early Victorian period 'did not enjoy the cultural and institutional security it acquired after midcentury' (100). However, this period saw professional, intellectual and cultural developments that were important elements in the increasing authority enjoyed by scientific discourse and its proponents. They include the creation of an elite scientific community, the sheltering of and control over the knowledge produced by that community, and shifts in the definition of science. The types of work that could be considered scientific, and the weight that should be given to the ideas and practices produced in scientific spheres against other forms of knowledge, were the subject of ongoing debate. This chapter examines the scholarship around these issues, exploring the process of professionalisation and separation and the extent to which women of all classes, and working-class men and women, were participants in nineteenth-century science before and during the creation of a scientific elite. It explores the ways in which the general public could experience and consume popular science and what this meant for their own contribution to the creation of scientific knowledge. Finally, within the context of the increasing social authority of scientific discourse as the century progressed,

it considers the issues that modern scholars face in understanding Victorian definitions of science.

I do not take an elitist view of the people who could be scientific practitioners, or seek to prioritise the output of one group over another. However, it is important, in the interests of historical accuracy and to enable discussion of scientific authority, to be aware of the emerging existence of a group of full-time professional scientists whose voices in scientific discussions grew louder and more influential as the century went on. My use of terms such as 'scientific community' or 'scientific elite' is intended to reflect this group's understanding of itself and its growing separateness and status in society, without necessarily endorsing the view that theirs was the only science, and they the only producers of scientific knowledge.

The development of a profession

Eighteenth-century natural philosophy was a broadly inclusive discipline, within which there was no clear distinction between amateurs and full-time researchers. It encompassed a range of subjects; these were not viewed as separate fields, and practitioners and students moved freely between them. In the early years of the nineteenth century, science was integrated with general culture within what has been described by Robert M. Young as a 'common intellectual context' (131). It was treated within major periodicals as part of 'a broad intellectual framework which included theology, literature, philosophy, and political economy', based on an assumption of an informed readership (Yeo 9). Scientists were not seen as a class apart from the general public. They used the same language as other educated men and women, worked within a

shared cultural framework and theorised at an accessible intellectual level, and an educated lay reader could expect to understand much of their output. Over the course of the nineteenth century a new class of research scientists emerged and science began to take on a clear identity as a distinct field of study. This group of researchers, which would be clearly distinguished from the wider public and increasingly divided into specialist and exclusive disciplines, was in development over the early and middle years of the century. By the middle of the century a division between expert theorists and amateur observers was identifiable: Lightman describes how by the mid-nineteenth century, 'popular science was becoming increasingly marginalized, and clergymen, women, artisans, and "nonprofessionals" in general were excluded by professionals' ("Voices of Nature" 205). The years 1830-1850 were ones of transition in which scientists began to take on a clear identity and a number of key developments in the process of becoming a high-status profession took place.

The separation of professional scientists from amateur enthusiasts and the general public was linked to a gradual change in the concept of the mental processes of scientific discovery, with a move from the assumption that new insights were open to all to an idea that they were the result of scientific genius, limited to the few (Topham, "Scientific Publishing" 560). With this came a new theory of scientific methodology. Increasingly, the type of background work considered capable of producing valid scientific knowledge could not be done through everyday observation and commonplace experience: instead a process of dedicated scientific research under conditions sanctioned by scientific institutions was required (Yeo 24). Together these developments tended to limit the constituency of people who could create valid scientific knowledge, restricting the role of the general public.

As the century progressed, science divided increasingly into specialist disciplines, becoming in the process less accessible to the general reader. William Whewell (a scholar admittedly renowned for the diversity of his interests) published in the first half of the nineteenth century on mathematics, mechanics, mineralogy, natural theology, history of science, philosophy of science, the theory of the tides, dynamics, and electricity. By the end of the century a scientist specialising in a particular field would generally not have more than an educated layman's understanding of other areas of science: Peter Bowler notes the demand among working scientists at the turn of the twentieth century for substantial overviews of developments across the whole range of disciplines, written in non-technical language (167). As scientific publications became more specialised, reflecting the rapid development of new fields and sub-fields advanced enough to exclude scientists from other disciplines, most general readers were also left behind. Similarly, the scientific societies in existence at the start of the nineteenth century, which included the Royal Society and the Royal Institution, functioned as general clubs where researchers and amateurs could hear papers on all types of science. Although their social makeup, as I will go on to discuss, was narrow, their interests were broad and they were not exclusively for professional scientists. The first half of the century, however, saw the establishment of specialist societies, each focusing on one area of science alone. These included the Geological Society (f. 1807), the Astronomical Society (f. 1820), the Botanical Society (f. 1836), the Meteorological Society (f. 1836) and the Institution of Mechanical Engineers (f. 1847). By the end of the century almost all societies limited themselves to one type of science and were open only to qualified specialists in that discipline. The establishment of these societies made an important contribution to the

professionalisation of science and the creation of an elite scientific community, supporting advanced scientific education and encouraging the development of research as a recognised full-time career.

The importance of scientific societies extends past the practical help they extended to scientific men, however; their existence was also an important aspect of the growing sense of professional identity and community among elite scientists. T. W. Heyck describes how the proliferation of these organisations, and their dominance by men who regarded science as their vocation, also points to the growing self-consciousness of the early Victorian scientific community (59). Indeed, the coining of the word 'scientist' in 1833 indicated a need to identify men of science as a body, united by their study of the 'knowledge of the material world' (Whewell 59). The concern was not only to limit the participatory boundaries of the emergent scientific profession, but also to create a distinction between legitimate and non-legitimate knowledge within the broad range of scientific activity taking place. This was part of a wider intellectual and cultural shift, led by the developments I discuss in this chapter, in the public and professional perception of scientific knowledge. The BAAS was set up partly to enable the experts, the men who devoted themselves fully to scientific work, to 'direct, systematize, and interpret the work of the enthusiastic amateurs' (Heyck 61). While in the first decades of the century, according to Whewell, the value of the amateur's contribution was 'nearly upon a level' with that of 'more profound thinkers' (Topham, "Scientific Publishing" 559), Richard Yeo argues that the mid-century philosophy of science 'gave authority to those whose work had been sanctioned by scientific institutions' (24). In controlling the flow of knowledge, scientists sought also to protect the conditions under which scientific information was generated; Paul White notes

that the scientific society and the laboratory were private sanctums in which uncertainties could be resolved before knowledge was made public (77), increasing the ability of scientists to frame their work as objective, authoritative truth.

The reception of *Vestiges of the Natural History of Creation* (1844) by Robert Chambers, amateur geologist and co-editor of *Chambers's Edinburgh Journal*, illustrates the issues at stake as questions of who could create legitimate knowledge took on increasing urgency. *Vestiges* proposed an early theory of evolution, attempting to bring together the natural sciences with a history of creation. Chambers, aware that his book was likely to be controversial, had published anonymously to protect his own reputation, and the author's identity was not revealed until after his death. Chambers' relationship with the emergent scientific profession was a complex one; his simultaneous respect for and frustration with science, and his consciousness of the weight of received scientific opinion in the contest for legitimacy are, I argue in Chapter Two, evident in his magazine's cautious treatment of mesmerism. The book was hugely popular among the general public: as James Secord observes, 'in a period when science was increasingly seen as a masculine arena and a highly technical one, *Vestiges* crossed boundaries of gender and expertise. No wonder it was so widely discussed' (*Victorian Sensation* 39). These self-same qualities also contributed to its forceful rejection by the scientific community on the grounds that it was unscientific. Yeo interprets leading scientists' attacks on the book's methodology and evidence as 'indicating a concern about the maintenance of [the] boundary between true and false science' (11), and argues also that the most trenchant criticism of this work relied on the assumption that the author was an amateur, attacking his ability as well as his

right to produce original scientific work (23-24). Chambers' apparent violation of the code that kept research within the community until it had been fully examined further undermined his claims to scientific status: *Vestiges* was strongly criticised by Whewell and others for taking 'a tentative hypothesis from the safe circle of scientific debate and proclaim[ing] it "*to the world*" as a dogmatic doctrine' (Yeo 23; italics in original). John M. Lynch observes that Darwin and other evolutionary theorists worried about the reputational impact of their ideas being adopted and publicised by less credible thinkers: asking a correspondent for secrecy, Darwin referred specifically to writers 'like the Author of the *Vestiges*' incorporating his theories, which he feared would force him to 'quote from a work perhaps despised by naturalists & this would greatly injure any chances of my views being received by those alone whose opinions I value' (quoted in Lynch 138).

If the sense of a professional identity was in part created by the gradual exclusion of amateur practitioners, it was also dependent upon a particular conception of a huge category of people that were construed not to be creators of scientific knowledge at all. As I discuss in a later section, popular science was a familiar and importance presence in Victorian life, appearing in diverse locations and media across the nineteenth century. Scholars have shown how one particular form of popular science, the publications known as popularisations, show the presence of an imagined audience that in turn helped to construct figures of scientific authority. Fyfe outlines the changing meaning of the term 'popularise' over this period, explaining that in the 1830s it meant 'for the people' and described the intended audience of a work (*Science and Salvation* 56). While in the 1820s and 1830s a work might be labelled 'popular' because of its pricing, by the 1840s publishers aiming to reach a working-class

audience were focused on literary accessibility and choice of language, so that 'popularise' became associated with making 'abstruse and technical subjects generally accessible' rather than simply with making work available to the populace (*Science and Salvation* 56). Jonathan Topham observes that the idea of popularised science came into being at the same time as the word 'scientist' was coined to describe the new breed of experts, and argues that 'this notion of popularization was a crucial element in the self-fashioning of the emergent scientists of nineteenth-century Britain' ("Scientific Publishing" 560).

Popularisations delivered scientific ideas in accessible, often simplified forms, frequently using a question-and-answer model; their structure implies an expert, able to understand and explain difficult or technical subjects, and a less knowledgeable or sophisticated general audience. Many popularised works created a dynamic in which non-specialist readers were positioned in a passive role, with knowledge handed out on the writer's terms. Greg Myers, for example, has shown how scientific popularisations established a clear delineation between teacher and learner, with the reader positioned as a consumer, lacking the knowledge and experience to take an active role in the transaction, while Fyfe notes that popular science books of the early nineteenth century presented science to adults as a body of knowledge to be absorbed, rather than inviting the reader to take part in scientific activity him or herself ("Natural History and the Victorian Tourist" 372-73). Thus the literature described by Myers and Fyfe reinforced the image of scientists as the holders of privileged knowledge. The periodicals I examine in this thesis made their own intervention in the popularisation of science (although the extent to which they may have been viewed by their editors and readers as operating in that field varies considerably across the different publications); I return later in this

chapter to important theoretical questions of how we as scholars can usefully approach the question of how non-scientists receive and relate to scientific materials.

During the first half of the century, then, cultural and institutional developments began to transform the broad scientific community into a narrow, highly trained professional group. However, this would not be fully consolidated until at least 1870 (Yeo 8-9; Lightman, "Introduction" 10), and although their ability to make an original contribution and be part of the scientific community was becoming more limited, educated readers at the middle of the century could expect to have both the understanding and the access to appropriate material that would allow them to stay up to date with science. However, the readers of the periodicals explored in this thesis were not, on the whole, well educated or within financial reach of the expensive intellectual quarterlies explored by Young and others. The next section therefore goes on to explore in more detail the diversity of the scientific community and the means of access to it and its productions for working-class communities. The position of women is a recurring theme in this project and so I also examine the ability of women (of all classes) to participate in science.

Working-class communities, middle-class women and scientific activity

It is important to understand the professionalisation of science as a crucial factor in the development of scientific authority, but a focus on this process tends to obscure the social makeup of the emergent scientific elite and the scientific activity of those outside this community. Historians of science have also turned their attention to the roles that working-class individuals

(usually, in practice, men) and middle- and upper-class women played in the production of science. There is little overlap between these areas: as the following outline shows, the relationships that these two groups had with the formal scientific community and the nature of their contributions were quite different. However, as I discuss later in this chapter, work relating to the public consumption of science applies more readily to both groups.

A substantial part of the early critical commentary on science in society focused on the extent to which science was part of a broader intellectual culture. Although this debate was framed in terms of science's place in a wider British society, little attention was generally given to the membership of this wider society. In his analysis of the integration of science into early Victorian culture, for example, Heyck considers the involvement of the landed gentry, landlords and industrialists (52) but not of groups further down the social order, while Robin Gilmour writes of how people 'of all classes' would bring home specimens from the family walk to examine under the household microscope, but does not give any indication of the affordability of this item (115). In studies such as the two just cited, the 'wider society' in question is often a middle-class, educated and largely male group, with little consideration given to the engagements of people outside this world with science and scientific culture. Young's influential study of the common context, to take another example, is based upon 'certain major works and the debates surrounding them in the more sophisticated periodicals and intellectual circles' (132). Young argues that as these channels were routinely accessed by non-scientists as well as professional scientists, they show a shared language, cultural context and intellectual grasp of scientific issues (156). However, the media in question were usually patronised by and accessible (both financially and in the level of

education demanded) primarily to middle- and upper-class people. As I discuss below, science was certainly made available to working-class people, but early discussion of the common context was based upon media produced and consumed by groups in society that did not as a rule include them. Heyck describes the scientific community itself as upper- and middle-class, those with 'access to political, social or economic power' (76). There were some very successful and highly-respected scientists of working- or lower middle-class origin at this time - notably William Whewell and Michael Faraday - but in numerical terms they were exceptional. It is also worth noting that, according to Frank Turner, the 'official scientific view' of the achievements of working-class men such as Humphrey Davy and geologist Hugh Miller was that they were 'the result of their individual special genius, which distinguished them from the social class of their origin' (285). These studies, then, while providing important insights into the development of the scientific community over the early part of the century, reveal only a partial view of science within society and leave open the question of the engagement of a large majority of British people.

Studies focusing on working-class histories, however, have uncovered what has been referred to as a 'low' scientific culture operating alongside the increasingly formal processes described above. Anne Secord, for example, explores the botanical study and research that was carried out by artisan men at Sunday meetings in the pub. Susan Sheets-Pyenson describes how popular science periodicals of the early Victorian period helped to create a distinct scientific culture which included the working-class readers and writers of those periodicals; more recently, James Mussell has examined the existence of an alternative, or 'rival', scientific culture in the early nineteenth century *Mechanic's Magazine* (107). This culture, he argues, drew its power from its separateness,

or marginality, from middle-class scientific discourses. From a slightly different angle, Adrian Desmond has examined the ways in which radical writers interpreted mainstream science and created scientific theories to support their own agenda (“Artisan Resistance”). However, although the boundaries around authoritative knowledge were porous, shifting and to a certain extent in the eye of the beholder, questions remain about the extent to which contributions generated by ‘low’ science were welcomed, respected, and accorded the status granted to work done within the structures of the emergent scientific community. The reception of middle-class women’s contributions, discussed below, has been considered in a number of studies, but the impact and status of work carried out by working-class men is less clear.

Middle-class women also found it very difficult to integrate into and be taken seriously within elite scientific circles. However, their access to the conditions necessary for dedicated scientific study was far greater than that of working-class men and women. A certain level of education, the inclusion of family-friendly scientific reading and discussion within the routines of domestic life (Topham, “Beyond the “Common Context” 255), and, crucially, significant amounts of leisure time, made it possible for many middle-class women to develop their interests to a high level of expertise. Opportunities for women to participate in the professional world of science often came through support roles, including as instrument makers (Morrison-Low), illustrators (Gates) and specimen gatherers (Le-May Sheffield, *Revealing New Worlds*). However, the main work carried out by women of science was in producing popularisations. By 1830 this was an established female tradition, with a host of women writers producing introductions to science aimed at women and children, often in a conversational or dialogue format. Gender was not seen as an impediment -

indeed Whewell believed women produced better work in this field than men (Gates 37) - and throughout the century their work sold as well as that written by male popularisers. Popularisations were serious books by authors with an impressive understanding of their field and represented a rare opportunity for women to participate publicly and professionally in science.

The contribution made by women to the body of early Victorian scientific knowledge should not be underestimated, and nor should the importance of studies illuminating the achievements of such women. Without women's work, 'Victorian scientific endeavour would have been considerably diminished, although often this help went sorely unacknowledged' (Gates 67). The collection of specimens required both practical expertise and a knowledge of the subject wide and deep enough to enable the collector to recognise and identify special finds, and the significance of the work of nineteenth-century collectors such as Mary Anning is now widely recognised. However, the professional status of scientific women and the extent to which their work was recognised raises important questions about the definition of legitimate scientific knowledge that apply more broadly to the issues I explore in this thesis. In spite of the skills and experience needed to recognise and prepare specimens, collection was regarded not as a science, but as a process that enabled scientists to do their work (Gates 70). It was in this light that work by women collectors was viewed: Catherine Cutter and Amelia Griffiths both had species named after them in honour of their work, but they did not have the right to name the new species they discovered (Le-May Sheffield, *Revealing New Worlds* 31). Meanwhile, books containing the work of talented illustrators would commonly fail to identify or acknowledge the artist (Gates 74). Ann B. Shteir suggests that popularisations enabled their authors to 'authorize themselves

within a consolidating science culture' (192), and Gates, too, refers to the 'considerable authority' with which women spoke out as popularisers (3). However, other scholars suggest that popularisers were seen by elite scientists as performing a role separate from their own; they did not have the same status as researchers, and eminent scientists were anxious to differentiate between original works of new knowledge and the disseminated knowledge found in works of popular science (White 85; Yeo 15). Popularisations, then, played a dual role in the assertion of scientific knowledge as of special value, as they facilitated differentiation not only between scientists and the public, but also between the professional research scientists and the disseminators of knowledge. Women were considered particularly suited to popularising because it linked relatively easily with moral teaching (Gates 50) and did not present a challenge to the distinction drawn by Huxley, among many others, between 'the female mind's ability to accumulate knowledge and the male mind's ability to generate new knowledge' (Malane 52). Revealingly, as James Secord argues, the possibility that the author of *Vestiges* was female was another important factor in the poor reception it received from scientific luminaries (*Victorian Sensation* 20-21).

This discussion, along with the majority of studies on Victorian women scientists, applies to middle- and upper-class women. There is little scholarship on working-class women's involvement in formal scientific activity outside work on the exceptional case of Mary Anning. This does not necessarily prove that it did not exist: after all, the range of scientific work carried out by middle- and upper-class women remained relatively unknown until recent decades and its recovery is an ongoing project. We are also restricted to working with the sources that are available to us: Higgitt and Withers note 'the improbable

survival of the archives of [women] who were neither well known themselves nor connected to those who were well known' (4). However, given the time, financial and social constraints on women of this class it seems likely that their collective involvement in science was mainly as consumers. Gates, acknowledging that her case studies of Victorian female scientists are limited to 'privileged' women - 'highly literate, often well-to-do, and in touch with the intellectual currents of their day' - argues that '[h]ad they not been, in Victorian and Edwardian Britain they would not have been able to speak about nature even in the limited contexts available to women then' (7).

The exclusion of women and working-class men from the formal structures and outputs of science was closely connected with the process of professionalisation described above. Amateurs were gradually excluded from the scientific societies, in the process narrowing the social group from which participants were drawn.¹² The increasing requirement for particular qualifications and full-time professional practice in order to be taken seriously within elite scientific circles did not encourage working-class participation, requiring a level of funding and education outside the reach of many working-class people. The focus on full-time researchers also worked against the involvement of middle-class women. As Marina Benjamin observes, institutionalised science grew up in the public sphere at a time when women's roles were increasingly defined in terms of the domestic; given the conditions of its evolution, it is not surprising that it developed as a male domain (11). There

¹² The Botanical Society admitted women as full members from its founding in 1836, although at a later age than men and mainly on the basis of their social standing or a family interest in science (Gates 36). The Zoological Society had admitted female members from 1827, but Allen suggests that 'it was as elegant paraders through its grounds, not as scientific contributors, that the women were seen as deserving of this innovation' (247). The BAAS admitted a very small number of women after 1850, but other societies, including the Royal Geographical, Geological and Royal Astronomical Societies, continued to exclude women until well into the 20th century, with the Royal Society finally opening its doors in 1945 (Higgitt and Withers 8-9).

were opportunities for marginalised groups to participate in and produce science, but it would be inaccurate to suggest that these groups made up large numbers of the formal scientific community or were generally recognised as creators of legitimate scientific knowledge. Nevertheless, science was enormously popular and a source of great interest across all parts of society; people wanted to take part, to learn about new developments and to enjoy the spectacle of public science. This being the case, popular participation at the level of active, engaged consumption becomes all the more significant. With this in mind, the next section considers how science was communicated and experienced outside the scientific community, and what this can tell us about the relationship between the popular and professional spheres.

Communicating science, consuming science

There is an increasing interest among scholars of Victorian science in examining the places and spaces in which science was made available (see, for example, the recent collections by Fyfe and Lightman, Livingstone and Withers, and Kember, Plunkett and Sullivan). David N. Livingstone and Charles W. J. Withers suggest the importance of understanding such scientific sites ‘not simply as locations but as social spaces and epistemic venues’ (21); the place in which science happens has symbolic meaning and affects how and why it happens. Scientific information was made widely available in the mid-nineteenth century: exhibitions, museums and galleries, public lectures and demonstrations, zoos and public gardens, as well as a wide variety of printed materials, all conveyed new scientific ideas and practices to an enthusiastic popular audience. The annual meeting of the BAAS was a popular event

across all sections of society: each meeting was attended by several hundred women, and its audience was drawn from a broad range of social groups (although this inclusiveness was not welcomed by all its most illustrious members: scientific writer and inventor Sir John Robison expressed regret that the company was not 'more select' (Higgitt and Withers 7)). Mechanics' institutes were established across the country by the SDUK and similar organisations specifically to impart scientific knowledge to working-class men (although women were usually excluded) in pursuit, as I discuss in the Introduction, of quelling dissent and offering alternatives to radical knowledge. As Desmond has shown, radical groups themselves recognised the transformative potential of scientific learning, organising their own lectures offering socialist interpretations of scientific theory and providing practical knowledge ("Artisan Resistance" 84). Fyfe observes that tourism provided one way in which non-scientists could play a practical role in scientific activity, for instance in fossil- or fern-collecting, or by visiting sites of scientific interest to apply knowledge picked up from printed sources ("Natural History and the Victorian Tourist"). We should note that, while these opportunities were increasingly marketed across all sections of society, working-class people's ability to access them was limited by lack of money and leisure time until after mid-century. However, as Fyfe shows, publishers devoted a growing amount of space to tourist activity, accompanied by related scientific information, in specialist cheap publications and general periodicals ("Natural History and the Victorian Tourist" 375-76).

Scientific developments were summarised in popularisations, radical works, Christian books (on which, see Fyfe, *Science and Salvation*) and low-cost works of useful knowledge including Charles Knight's *Penny Cyclopaedia*

and the Chambers Educational Course published by William and Robert Chambers. Periodicals, including those aimed at working-class readers, played a hugely important role, representing 'some of the most significant material and cultural forms through which the sciences were communicated and debated in nineteenth-century Britain' (Dawson, Noakes and Topham 25). While many of these media dealt explicitly in popularising science, content did not have to be of an overtly scientific nature to educate readers or to intervene in scientific discussions. This is particularly relevant to periodicals: as Sally Shuttleworth and Geoffrey Cantor observe, 'Not only did many general periodicals carry a significant proportion of articles specifically on science, but science often informed and infiltrated articles ostensibly devoted to other topics' (2). Science, technology and medicine appeared 'not only in avowedly scientific articles, but also in other forms of narrative including fictional representations, glancing asides in political reports, and caricatures and allusions in comic magazines' (Dawson, Noakes and Topham 1). These other forms of narrative are of particular interest in this thesis because the periodicals upon which I focus were not specifically scientific publications, and yet, as I argue in the following chapters, are permeated with discussions not only of science and medicine, but of what those terms mean and the questions of legitimacy and authority I explore in this first chapter.

Until fairly recently, scholars focused upon the content of scientific communications, taking as read the straightforward transmission of that content from an informed producer to uninformed recipients. Roger Cooter and Stephen Pumfrey outline the history of this way of thinking in their important article on popular science and popular culture (239-42). In this so-called 'diffusionist' model, it is assumed that the knowledge generated by an elite

culture is shaped into a form palatable to a wider public (possibly losing content or shades of meaning in the process) and then fed to and consumed by that public. It is based on an understanding that the scientific class exists apart from the wider public and, critically, that knowledge is produced by the scientific elite and consumed passively by its popular audience. In this framework, science is not created by the apparently non-scientific recipients, nor recreated or reshaped in their encounters with the content delivered to them. In 1994 this was still, according to Cooter and Pumfrey, 'by far the most pervasive' school of thought (248). However, the adequacy of this model as a way of comprehending the creation and communication of science was challenged by these authors on the grounds that it ignores the original knowledge and the variety of responses to disseminated information generated by popular culture (249). Since the publication of their essay the diffusionist model has been widely questioned, with science increasingly understood as culturally situated, and scientific communications being seen in terms of engagements between the parties rather than as a direct transfer of knowledge.

Studies examining the scientific knowledge generated by popular or radical culture suggest the existence of creative intellectual working-class communities rather than merely passive recipients of knowledge generated by the elite. However, such studies have tended to find that the knowledge generated by these communities differed from or even opposed elite science (Cooter and Pumfrey 249). While alternative scientific cultures and specifically female ways of engaging with science undoubtedly existed, and the studies of these areas cast an invaluable light on non-elite contributions to nineteenth-century science, people outside the scientific elite (including the readers of popular periodicals) did not relate to the productions of mainstream science

only from either an oppositional or an entirely passive position; for the purposes of this thesis it is necessary to look more closely at how non-scientists may have consumed more conventional popular science. Scholars have in recent years sought to move on from the diffusionist model and to find new ways to understand the relationship of consumers of science to the creation and transmission of mainstream scientific knowledge. A number of useful studies examine the ways in which men and women from outside the nineteenth-century scientific elite responded to the scientific content offered to them. Work on the failure of mechanics' institutes, for example, has shown that the intended audience may simply have refused the messages the producers wished to convey (Inkster 297; Russell 156; Shapin and Barnes). The founders of the mechanics' institutes believed that the provision of scientific knowledge would make working-class men more productive and happier, as well as reducing their susceptibility to the influence of radical agitators (Shapin and Barnes). However, many attendees found the lecturing tone condescending and sought entertainment rather than instruction at the end of the working day (Altick 190), while those that attended in search of instruction and education came equipped with their own views of useful knowledge and were not convinced by what was on offer (Shapin and Barnes 56). Working-class audiences' lack of enthusiasm for dry instructional material may also be indicated by the failure of the SDUK's publishing operation, which made considerable financial losses before closing in 1848 (Fyfe, *Science and Salvation* 45).

More widely, the meanings that readers take from knowledge may be very different from those intended by the writer. This is not to suggest that Victorian readers misunderstood the content of scientific pieces, but rather that they took from them what they found interesting or useful and added it to a

store of knowledge already shaped by experience and learning. Writing of audiences as consumers, Fyfe and Lightman argue that '[i]ndividuals select from the sources available to them to create their own amalgams of knowledge about the natural world' (4). There is activity and autonomy implied in these acts of consumption: as Cooter and Pumfrey observe, working-class audiences were capable of 'treating the products of elite culture as resources which are appropriated and reconstituted' (249). Studies of periodicals, meanwhile, warn against assuming that the content of periodicals must reflect the views of their readers (Rose, "Workers' Journals" 303; Dawson, Noakes and Topham 3). Reader response to popularised science, then, should be seen not as a straight choice between acceptance or rejection, but rather a more dynamic process in which readers were 'active in making their own meanings, drawing on a wide range of beliefs and practices about the nature and object of meaning' (Topham, "Scientific Publishing" 599). We should also take into consideration the role that consumers of science may play in shaping the content of scientific works. Historians of science previously worked on the basis that 'the productions of scientific knowledge were insulated from non-scientists and from the public at large' (Cooter and Pumfrey 240). This does not take due account of the influence that the public had (and has) on the direction of scientific study: Topham notes that 'the publics for science have sometimes had considerable impact on the scientists who sought to 'enrol' them, and ultimately on the nature of science itself' ("Scientific Publishing" 563), while Richard Whitley has shown, in an article considering the eighteenth century to the present day, how the demands of the public shape and are shaped by scientific output.

There are a number of ways, then, in which the supposedly passive recipients of scientific communications were active in creating meaning and

influencing content. However, while acknowledging the agency of non-elite groups as consumers and producers of science, we must not go so far as to work from a 'false assumption of a plurality of legitimate discourses' (Cooter and Pumfrey 254). As we have already seen, working-class individuals and women were largely excluded from the elite scientific community, and it would be unhelpful to imagine that there was a level playing field when it came to the production of authoritative knowledge: then, as now, certain voices spoke more loudly than others, and certain forms of knowledge and ways of expressing that knowledge were privileged. How, then, to approach the mutually informed communication of scientific theory and practice without assuming a historically inaccurate free and equal exchange of ideas? Ralph O'Connor, in his excellent review of the field, offers some helpful suggestions. He notes that a flow of information from the elite to the popular sphere can be 'perfectly compatible with the idea of active, creative, varied audiences and contexts' (343). Fyfe and Lightman similarly argue that acknowledging the position of popular audiences as consumers 'does not mean retreating to an older view of such audiences as passive sponges' (4). O'Connor goes on to suggest that it is possible to accept influence in the other direction and to perceive a substantial overlap between expert and non-expert knowledge without ignoring the power structures of early Victorian culture, paying careful attention to the 'discontinuities, conflicted power relations and alignments involved' (343). He notes also the lack of any objectively defined boundary between elite and popular sites and the need to attend to the ways in which competing interest groups constructed these boundaries (343); I explore this idea in the following chapter, which shows how mesmeric demonstrations were variously framed as worthless entertainment

and groundbreaking scientific research according to the social or scientific investment of the writer.

James Secord proposes a model that focuses on knowledge as communication (“Knowledge in Transit”). ‘It means eradicating the distinction between the making and the communicating of knowledge,’ he argues; ‘It means thinking about statements as vectors with a direction and a medium and the possibility of response’ (661). This is a productive suggestion in terms both of reconceptualising the boundaries between the creation and the dissemination of knowledge, and of offering potential new insight into how different forms of knowledge lay claim to cultural authority. As Topham puts it, within the framework proposed by Secord, ‘science *for* the people, the science *of* the people, and science *by* the people’ are all considered ‘legitimate objects of historical inquiry, contributing to a common project of understanding how knowledge comes to be constituted and reconstituted within culture’ (Topham, “Introduction” 317). The material that I examine in this thesis is frequently not presented as overtly scientific within the periodicals, but we shall see in the coming chapters articles and stories which nevertheless fall into each of the three broad categories outlined by Topham in his article building upon Secord’s model. My analysis aims to show, using this material, how the science of popular periodicals can be understood as part of the making and remaking of knowledge, while remaining attentive to the power imbalances and the assertion of (and challenges to) boundaries around forms of knowledge.

The idea that some discourses are more legitimate than others is a key point of investigation throughout this thesis. Accepting that socially and scientifically privileged individuals and groups were at an advantage in making claims to authority, but rejecting a top-down view that denies agency to those in

receipt of knowledge, I seek to identify what, in the different periodicals I examine, is presented as legitimate knowledge, and to explore the grounds on which legitimacy is constructed, claimed and resisted. Fundamental to this work is my ongoing attention to how particular topics are - or are not - represented as scientific, and the effect this has on their meaning and the cultural weight accorded to them. I explore the qualities that appear to confer scientific identity upon people, theories and practices, from periodical to periodical and article to article. As I discussed in the Introduction, there is a great deal of significance in what the writer chooses to include within or exclude from the definition of science, bearing in mind issues of social authority and scientific hierarchy. Framing certain ideas as scientific may empower readers or place them in a subordinate position; it may imply that readers can be part of the scientific community or it may exclude them from the production of elite knowledge. Like scientific authority, categorisation of knowledge is heavily contingent upon context; my aim is to discover what we can learn from the ways in which the editors and writers of popular periodicals chose to define and present their scientific content.

By the final decades of the nineteenth century, then, an elite scientific class had established itself, with the institutional trappings of a profession and the authority to make claims to a privileged category of knowledge. The early to middle years of the century were a time of transition and negotiation, in which the conditions for this professionalisation would be established. This included not only the practical steps to put in place institutional support allowing scientific research to become a professional career for its practitioners, but also a shift in the way that the emergent scientific community viewed itself and its relationship

with the general public. The meaning of science and the questions of how it could be produced and by whom remained highly contested issues. These developments would increasingly position amateur scientists and members of the public as audiences of science produced by professional scientists. The extent to which working-class men and all women were able to participate in science on an equal basis with other practitioners, even in the age of amateur contributions and a 'common intellectual context', is debatable, and the channels through which science flowed were not always equally accessible to all members of society. The effect of the developments that took place over this period was to exclude these groups further from making original contributions to what was increasingly being recognised as legitimate science. They had, however, an ever-growing range of opportunities to participate in science as active, engaged consumers, creating meaning through their own encounters with scientific knowledge. This study will go on to examine how these issues are addressed in the pages of popular mass-market periodicals.

Chapter Two: Mesmerism and the creation of legitimate knowledge

An 1833 piece in *Chambers's Edinburgh Journal*, published while knowledge of mesmerism was still, in Britain, in its infancy, described the practice as a 'scientific wonder' ("Popular Information on Science. Animal Magnetism" 146). Modern scientific thought was full of such wonders: this was, as Alison Winter has observed, an age of discoveries 'so new that they would have been wild fantasies a generation earlier', experienced by a generation 'surrounded by astonishing changes wrought by science' (*Mesmerized* 34-35). Mesmerism, with its remarkable diagnostic and healing properties, its associations with clairvoyance, heightened or relocated sensory perception, and communication across space and even time, was to some too improbable to be taken seriously; to others, its very implausibility was evidence of its worth as a subject of serious investigation. Some found it credible to explain its phenomena in material, physiological or physical terms, others saw it as a manifestation of metaphysical or spiritual truths, while to its most vocal critics it could only be the result of unscrupulous trickery. This fluidity, the ability of mesmerism to shift between sham, spirituality and science, shaped its presentation in the cheap periodicals of the day as they engaged with this extraordinarily popular, hugely controversial practice.

By the 1840s the medical profession generally viewed mesmerism as discredited, but among the general public it remained popular (and would become more so over the following decade), both for its therapeutic possibilities and, increasingly, for its theatrical aspects. Medical historians, particularly as mesmerism first came back into view during the 1970s, often set the practice

against medical orthodoxy and characterised it as marginal, fringe, or a so-called 'pseudo-science'. Logie Barrow, for example, describes mesmerism as 'oppositional' to the medical profession (166), while Terry M. Parssinen writes of how 'the wrath of orthodox medical men' increased the 'controversy of the subject' (101). The antipathy of medical men to mesmerism, its populist, alternative character, and the fulsome enthusiasm of many of its champions all appear to support this construction of mesmerism as contrary to orthodox medicine. However, more recently scholars have taken a different and promising approach, suggesting that mesmerism should be seen not as a marginal discourse defined in relation to 'legitimate' medicine but as a practice through which such categories were contested and constructed. As Winter's landmark *Mesmerized: Powers of Mind in Victorian Britain* convincingly argues, 'mesmerism became the occasion for contests over authority in science, medicine, and intellectual life alike, and these contests revealed the location and character of such authority to have been more insecure than historians appreciate' (4). Hilary Grimes warns against the temptation to regard mesmerism merely as a fashionable craze, echoing Winter in asserting that it is instead 'a crucial means of understanding Victorian ways of thinking' (62). This chapter builds on Winter's insight that the subject became 'a means for Victorians to explore and even to forge definitions of authority, wherever they were open to question' (*Mesmerized* 9), finding that non-scientific popular periodicals engage with mesmerism in ways that allow them to develop and articulate clear ideas about the definition and value of science, the role of scientists and the terms of scientific method. The material I explore reveals an ongoing discussion about the value of different ways of thinking and the different modes of evaluation open to readers. As I argue throughout this

thesis, ideas about scientific authority, the role of modern science and the extent to which it should be respected alongside or against other ways of thinking about the natural world are negotiated within the pages of popular general interest periodicals to an extent not previously noted; their coverage of mesmerism shows this taking place with considerable urgency and commitment.

This chapter examines discussion of mesmerism in the three periodicals that are the focus of this thesis: *Chambers's Edinburgh Journal*, *Reynolds's Miscellany* and the *Family Herald*. Following a brief overview of mesmerism in medical and popular culture in the first half of the nineteenth century, I review in detail the way that each publication presents the subject in articles, opinion pieces and responses to correspondents, before exploring fictional treatments in *Reynolds's* and the *Herald*. Each of the three periodicals takes an unusually consistent approach to the subject; although plural voices appear in each one, repeated arguments and language are so frequently employed within each journal as to produce distinct editorial lines. *Chambers's* is tentatively positive, seeking to bring its reports of mesmerism within a scientific framework, but stops short of outright validation. The *Herald* is convinced of the truth of mesmerism and the benefits it offers to humanity, but unlike *Chambers's* locates it within a spiritual, anti-materialist framework. *Reynolds's*, meanwhile, considers it to be a sham from start to finish, a trick by fraudsters to prey on the gullible. Both the *Herald* and *Chambers's*, additionally, use discussion of mesmerism as an opportunity to offer their thoughts on the profession of science, showing, in very different ways, how its treatment of mesmerism reveals the flaws not in mesmerism but in modern scientists' method and purpose. Finally, my reading of stories in the *Herald* and *Reynolds's*

(*Chambers's* not carrying fiction on the subject) shows how imaginative representations offer alternative perspectives on the subject. While non-fiction pieces seek certainties of explanation and reliance on particular authorities, fiction explores the construction of authority through representations of mesmeric interaction between individuals and suggests multiple, inconclusive ways of viewing its phenomena.

In common with many modern scholars, I prefer not to use the term “pseudo-science” in this context, and as is my practice throughout this thesis with other now discredited ideas, I take Victorian believers in mesmerism and their critics equally seriously. Importing modern categories of science would, I believe, hinder my attempt to examine the negotiation of scientific authority and to consider different ways in which the idea of the scientific was constructed. For many Victorians it was entirely possible to view mesmerism as a science; examining the strategies through which this idea was built and challenged is part of the work of this chapter.

Mesmerism in early Victorian Britain

Mesmeric phenomena were usually - although not always - the result of a communion between two people, the mesmeric operator and the subject. The nature of this communion was subject to much debate, but its results were attributed by many, explains Winter, ‘to imperceptible emanations from one person to another - emanations similar or identical to the imponderable fluids of electricity or magnetism’ (“Mesmerism and Popular Culture” 319). The operator induced a trance state in the subject, most commonly by a series of mesmeric passes, or sweeping movements across the subject’s body, but sometimes

simply by his (for it was usually his rather than her) will alone; some, including Charles Dickens, appeared able to mesmerise subjects from a distance of hundreds of miles away. The trance state gave rise to a wide range of effects, including clairvoyance, remarkable diagnostic ability, relocated sensory perceptions (such as seeing through the stomach), complete submission to the operator's will, loss of inhibition, ability of the mind to travel outside the body, and even the capacity to converse with the dead. Mesmerism was regarded by many devotees as being medically therapeutic, and simply being placed in the mesmeric trance seemingly had curative effects on many subjects.

The practice was prominent in France and Germany during the first three decades of the century, but despite a brief flurry of interest around 1800 it gained little traction in Britain until the late 1830s, when it crossed the Channel with the Baron Dupotet de Sennevoy, author of *An Introduction to the Study of Animal Magnetism* (1838). By 1838 the subject was under consideration by the Medical Society of London; it was far from being universally accepted, but leading intellectual figures, both sceptics and believers, saw fit to take it seriously and to debate how its phenomena were produced (Winter, *Mesmerized* 56-57). Dupotet was introduced to John Elliotson, a well-known and respected doctor at University Hospital, who took up the subject in earnest, becoming English mesmerism's most prominent and enthusiastic champion and sacrificing his hospital career and his medical reputation in the process. He conducted a series of public experiments on his hospital patients in 1837 and 1838, which initially appeared to show the groundbreaking potential of mesmerism but ended in allegations of fraud and sexual impropriety, vociferous condemnation in the *Lancet*, the hospital's rejection of mesmerism as a medical treatment, and Elliotson's resignation. His star patients were a pair of working-

class Irish sisters, Elizabeth and Jane O'Key. Finding that they responded spectacularly well to mesmeric treatment, appearing both to gain medical benefit and to exhibit extraordinary powers in the trance state, Elliotson staged a series of demonstrations in the hospital's medical theatre using the O'Key sisters as subjects. A sceptical Thomas Wakley, founding editor of the *Lancet*, tested the O'Keys himself and found the purported effects of mesmerism to be nothing more than convincing acting; both mesmerism and Elliotson were denounced in the *Lancet*, and, as sexual slander was added to the accusations of fraud, Elliotson was forced to resign from his position at the hospital. (Both Winter's *Mesmerized* and Fred Kaplan give a full account of the O'Key experiments and the events that followed.) Elliotson did not give up on mesmerism following the events of 1837-38, however; on the contrary, he continued his researches, put on private demonstrations, and established the leading periodical on the subject, the *Zoist* (1843-1856).

Following the discrediting of Elliotson's experiments, the elite medical community - collectively never wholly convinced - hardened its position against mesmerism. Wakley's *Lancet*, when it deigned to notice the subject, was unsurprisingly vociferous in its denunciation.¹³ A piece unambiguously titled "The Animal Magnetism Fraud and Humbug" describes medical mesmerism as 'immoral quackery' and a 'heinous enormity against common sense and female delicacy', and accuses mesmeric practitioners of 'insulting public decency, and abusing the confidence [of parents and guardians]'. Meanwhile, a public demonstration was dismissed as 'a disgusting and quackish exhibition' ("The Frauds of Mesmerism" (18)). The *Lancet* was particularly outraged by

¹³ Between Wakley's notorious experiment of 1838, and Harriet Martineau's "Letters on Mesmerism" of 1845, the *Lancet* gave the subject little space. Its review of Martineau's work suggests that it had been deliberately ignoring it, complaining that 'we did not consider that it would again be necessary to notice such a piece of arrant trickery and scandal in our columns' ("Mesmerism, Miss Martineau, and the Great New Idea").

mesmerism, but the complaints it voiced - the accusations of 'quackery', concerns about the threat to women's virtue, suspicion of mesmerism's public nature - were raised across the medical profession and were arguments that would become familiar features in attempts to characterise it as an outcast from the sphere of legitimate medicine. As I observed in the previous chapter, and will discuss further in Chapters Three and Four, an important aspect of the rise of the medical profession was an identity developed in part around constructing a growing range of practitioners and their forms of knowledge as illegitimate or second-rate. The extent to which these categories are accepted, challenged, and confirmed in popular periodicals is explored throughout this thesis.

As I set out at the start of this chapter, critical discussion of mesmerism has productively moved on from a straightforward construction of the practice as marginal or oppositional to the medical establishment. It cannot be denied, however, that during the 1840s and 1850s its standing among the general public was very different from its reception by the elite of the medical profession. If by 1840 mesmerism was on the whole disregarded or dismissed by London doctors, it was in the ascendant in public life. Enthusiasts included Wilkie Collins (Garrison 57), Dickens, who found that he was endowed with mesmeric powers and carried out a prolonged course of treatment on a female acquaintance (details of which are given in Kaplan 74-105), and Harriet Martineau, whose cure by mesmerism is discussed later. It became very popular and familiar across all classes of society, with huge lectures catering to a variety of social groups (Parssinen 97) and mesmeric societies established in all the major manufacturing towns (Winter, "Mesmerism and Popular Culture" 334). By the 1840s, Winter argues, 'most Victorians would have had some idea of what went on in a mesmeric séance' (*Mesmerized* 2). The correspondence

columns of the *Family Herald* and *Reynolds's Miscellany* show considerable familiarity with and interest in the subject on the part of readers, who wrote in to ask for book recommendations, information on practitioners, and advice on mesmerising at home.¹⁴

Elliotson continued his experiments from his own home, attracting a select and fashionable audience including at least one of the Chambers brothers ("Visits to Dr. Elliotson's"). Less exclusive exhibitions were offered by the itinerant lecturers who toured the country, showing off the varied possibilities of mesmerism in demonstrations that combined accessible lectures with displays of clairvoyance, seemingly impossible acts of healing and other remarkable feats. Unlike the mesmeric practitioners of the 1830s, the lecturers were not usually medically trained, and were often from working- or lower middle-class backgrounds; prominent lecturers included a gardener, a carpenter's apprentice, a cabinet-maker, and a lace-maker (Parssinen 96; Winter, "Mesmerism and Popular Culture" 334). There is little evidence of women of any class in their midst, women's role being, it seems, limited largely to acting as the subject of experiments and demonstrations. Particularly as clairvoyance came to be a central feature of mesmeric display, the theatrical aspects of these demonstrations became more pronounced and the line between scientific investigation and entertainment increasingly blurred. Parssinen argues that popular audiences of mesmeric phenomena demanded more excitement and less theory (90), wanting not only an informed lecturer, but also 'a performer who could produce convincing demonstrations' (95). This slippage between science and show is another ground on which the legitimacy

¹⁴ See *Reynolds's* "Notices to Correspondents", 12 May 1849 704, 24 Nov. 1849 288 and 25 May 1850 287; for the *Family Herald*, see "To Correspondents", 2 Oct. 1847, 18 Aug. 1849 250, 15 Dec. 1849 522 and 6 Apr. 1850 778).

of mesmerism was disputed. However, the desire on audiences' parts to see a *convincing* display suggests another side to mesmeric demonstrations, one that is rarely addressed in the periodicals I examine: alongside the detailed discussion of scientific method, truth, valued knowledge and fraud that I analyse below, it is worth remembering that many attendees may have gone along simply to enjoy the performance, possibly without minding a great deal how the effects were produced or even whether they were genuine, as long as they were convincing enough to make a good spectacle. The public nature of all these demonstrations was, like the background and credentials of the lecturers, a ground of contest: both the provincial exhibitions carried out in front of thousands and Elliotson's soirees invited a non-medical, non-scientific audience to watch and participate as professional science and medicine were beginning to withdraw from public view.

Launched in 1832, *Chambers's Edinburgh Journal* was in circulation as mesmerism progressed from obscurity to aspirations of acceptance in mainstream medical practice, to the discrediting of Elliotson's experiments and scientific scepticism. The *Family Herald* and *Reynolds's Miscellany* were established during the mid-1840s, by which time mesmerism had largely been dismissed by the medical profession but remained prominent, and contested, in the public sphere. The continuing popular interest in the practice is reflected in steady coverage across all three magazines throughout the 1840s, including reports of demonstrations, book reviews, opinion pieces, and accounts of mesmeric phenomena. Beyond this, however, the three periodicals take distinct, and unusually internally consistent, approaches to the subject of mesmerism, which range from the fierce scepticism of *Reynolds's*, through the understated support of *Chambers's*, to the enthusiastic faith of the *Herald*. As I

observe above, this serious and committed intellectual engagement with mesmerism is not the only possible response; that the periodicals I focus on here appear to have so much invested in categorising mesmerism as revelatory truth or heinous imposture, and in treating it as a vehicle for serious discussion about the making of legitimate knowledge, is in itself worthy of notice. Rather than reporting on it primarily as entertainment, as many popular audiences would have received it, each publication was keen to enter into the significant questions raised by the practice and to stake out a position. Their coverage shows them deeply engaged in far-reaching discussions of science, truth, knowledge and belief.

A ‘speculative science’: Mesmerism in *Chambers’s Edinburgh Journal*

Chambers’s expressed great initial enthusiasm for mesmerism several years before the subject came to prominence. Its first piece on the subject, published in 1833, treats mesmerism as an important scientific development, placing it alongside three discoveries ‘among the most valuable that ever were developed for the service of mankind’, these being ‘The Cowpox, Galvanism...and Gas’ (“Popular Information on Science. Animal Magnetism” 146). The piece is explicitly located in a context in which scientific discovery was making the extraordinary normal; the seeming implausibility yet truth and utility of these other valuable discoveries sets the pattern which, it is claimed, mesmerism will follow. Like them, it is a useful development ‘eminently serviceable to mankind’ (147). It is characterised specifically as medical knowledge: the piece includes case studies of treatment and cure and makes reference to it as power exercised by ‘a healthy [person] over a diseased’ (146).

If its apparently magical properties make it a matter of suspicion, this is only because of a lack of knowledge among the general public of how it really works, 'seeing that the French Academy, the most respected body of scientific men in the world, have satisfied themselves, *by experiments*' that it is all true (146; italics in original). The support of scientific authorities, derived from their objective investigations, is repeated in the conclusion, along with a warning of regret should 'common minds, *without* those means of judgment ['observation and experiment']...be allowed to deny the theory' (147; italics in original). As a mark of the journal's enthusiasm there is, unusually, a second brief item at the very end of the edition, advising readers to make sure they read the article on animal magnetism, it being of 'an uncommonly interesting nature' ("Animal Magnetism"). In later years, *Chambers's* would cool its fervour, but the ideas laid out here - the framing of mesmerism as medical knowledge, the appeal to the authority of eminent scientists, the gulf between the understanding of those scientists and the public, dissociation of mesmerism from the supernatural, and the importance of the experimental method - would recur repeatedly in its coverage of the subject. *Chambers's* relies on these key ideas in its presentation of mesmerism as legitimate scientific activity; this presentation is the crucial underpinning to its (tentative) support of the practice, and it also enables mesmerism to become a key focal point through which arguments about scientific legitimacy can be rehearsed.

A sequel to this piece was promised but never materialised, and the subject was largely left alone for the next six years. In 1839 it was re-introduced to *Chambers's* readers with a supportive eyewitness account of private mesmeric demonstrations by Elliotson, who had by this point resigned from University Hospital following the discrediting of his public experiments.

Articles on mesmerism appeared regularly over the following fifteen years. They take a cautiously positive approach, consistently suggesting sympathy for the belief that mesmeric phenomena are genuine and point towards important undeveloped truths. However, the explicit commitment of the first piece of 1833 was never repeated, a point I will return to later in this section.

A key aspect of *Chambers's* approach is its treatment of mesmerism, across the 1830s and 40s and into the 1850s, as a medical discipline. There are several elements to this: the framing of the mesmeric experience as a transaction between a doctor and a patient, the identification of mesmerism's effects as happening within the body (rather than speculation as to the freeing of the soul), a focus on its therapeutic properties, and emphasis upon these effects as measurable and worthy of careful observation. Many pieces deal specifically with mesmerism's use in medical matters, including its value as a treatment and its potential as a form of anaesthetic¹⁵ including a clinical report by Elliotson of a famous and controversial amputation carried out on a labourer named James Wombell ("Amputation in the Mesmeric Sleep").¹⁶ Considering how contested this particular procedure was, and indeed the number of doctors willing to speak against mesmerism more widely, it is significant that *Chambers's* does not reproduce the arguments of medical men who would have nothing to do with mesmerism in their practice.

Pieces such as this clearly identify mesmerism as a medical matter, but even in reports of mesmeric exhibitions taking place outside hospitals and

¹⁵ For example, "Cancer Said to be Cured by Mesmerism", "Miss Martineau's Case" and "A Painless Surgical Operation".

¹⁶ The Royal Medical and Chirurgical Society of London, to whom the full report was read, refused to publish it, and later expunged the reading from its minutes. Elliotson produced a summary, from which the *Chambers's* piece is excerpted. The operation itself was objected to by a sizeable number of doctors and many refused to believe that sensation had in fact been suspended, accusing Wombell of an extraordinary ability to suppress outward signs of pain (Winter, *Mesmerized* 165; Podmore 135).

focusing on the extra-sensory elements of mesmeric trance rather than on its clinical applications, the mesmerised person is almost always referred to as a 'patient'. Take, for instance, "Recent Demonstrations in Mesmerism", in which the mesmerised subject is variously a 'patient', a 'healthy young female', and a 'female'. Even though this is an account of mesmeric clairvoyance in a private house, where the mesmeriser is not identified as being a medical professional, the terminology is as one would expect from a procedure taking place in a medical theatre or laboratory. This is common to most *Chambers's* pieces on the matter.¹⁷ Likewise, the emphasis on observable changes in the body appears in both medical and non-medical pieces: public and semi-public displays of clairvoyance frequently see the mesmerist and eminent members of the audience poking the mesmerised subject with pins, pinching them or pulling their hair, and gravely noting the absence of physical reaction.¹⁸ Observations are also made about the movement of the limbs, the positioning of the body, and the openness or otherwise of the eyes, all suggesting close attention by an audience seeking - and finding - measurable results. Whether in a medical or non-medical setting, the emphasis on mesmerism's therapeutic properties is another consistent feature. A patient afflicted with catalepsy is considered to be a good subject for mesmerism by her 'medical attendants', who 'feel assured she will be ultimately and permanently cured' ("A Visit"), while the O'Key sisters may hope for 'a final and complete restoration to reason' at Elliotson's hands ("Visits to Dr. Elliotson's" 250). The features I describe here not only place the practice within a medical context but also frame the subject as a beneficiary of necessary treatment, drawing on the medical profession's claim to public

¹⁷ Other examples include "A Visit to a Magnetic Patient", "Popular Information: Animal Magnetism" and "New Magnetic Doctrines", to take a small selection.

¹⁸ See, for example, "Recent Demonstrations in Mesmerism", "Recent Experiments in Animal Magnetism" and "Recent Experiments at Manchester".

service and care for others. More broadly, the focus on medical applications and close, apparently objective, observation creates a sense of mesmerism as being scientific knowledge, and of this conferring legitimacy on the practice. An anonymous pamphlet circulated after Elliotson's resignation from University Hospital (fig. 1) indicates the importance of controlling the meaning and nature of mesmeric experiment for both advocates and critics. In its suggestion of unspeakable practices and assaults upon a vulnerable yet sexualised subject, it offers a very different interpretation of similar events, turning what is presented in *Chambers's* as serious medical work into tawdry spectacle.

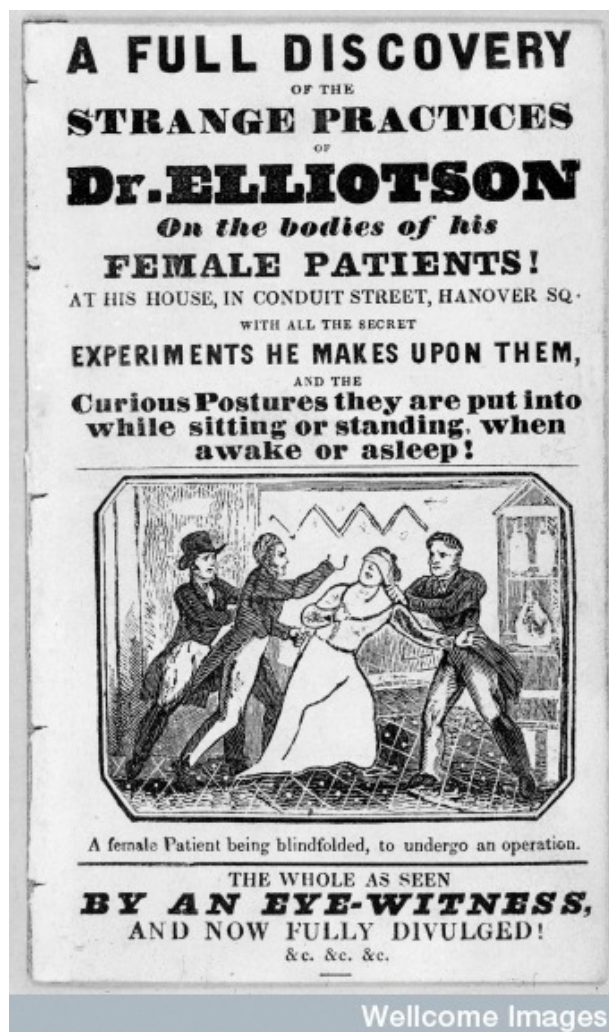


Figure 1: Title page. *A full discovery of the strange practices of Dr. Elliotson on the bodies of his female patients!: At his house...with all the secret experiments he makes upon them...The whole as seen by an eye-witness, and now fully divulged!* 1842. Wellcome Library, London. Web. 2. Feb. 2015.

Central to, yet also curiously effaced by, these observations, demonstrations, and claims of medical efficacy is the subject herself. Her construction forms an important part of the investment of legitimacy, status and expertise in the mesmeric practitioner. In the accounts I analyse here, the subject is overwhelmingly female, and usually young; very occasionally a working-class man or boy may also appear. "Visits to Dr Elliotson's", an eyewitness account of Elliotson's experiments on the O'Key sisters written by one of the Chambers brothers, illustrates the work done by the figure of the mesmerised woman to legitimise the mesmeric practitioner and his experiments. Elizabeth, the more celebrated and controversial of the sisters, is presented as a model of refined, attractive femininity: she is 'a beautiful girl of a dark complexion, with finely moulded features...who had been amusing herself meanwhile in running over the keys of a piano'; as she is mesmerised into stillness, she adopts 'the most graceful attitude for several minutes' while 'an innocent smile play[s] on her countenance' (249). The depiction of this civilised and gentle young woman is part of the substance of the experiment, the success of which rests on observers being able to believe the evidence of their eyes. However, while Elizabeth's personal qualities establish the women as suitable subjects for demonstration, the experiment itself rests on reconstructing them as scientific material on which objective truths can be demonstrated. This is emphasised in the second part of the piece, an account of a demonstration taking place in front of a group of thirty to forty men and women (although the only subsequent references are to the 'gentlemen' present). The writer now focuses solely on recording the experiments and their effects, and on rebutting potential accusations of fraud. The women are passive, touched and moved

about by Elliotson and the spectators, their responses studied in detail. As the experiment proceeds, they recede from the narrative, reduced to body parts acting in response to the operator's commands: 'the fingers touched with mesmerised water moved and pointed outwards, but the other fingers continued fixed as they happened to lie. Upon touching both thumbs with the mesmerised water, they shortly moved in the same manner.' Even these body parts seem to detach themselves from Elizabeth, becoming not 'her' fingers but 'the' fingers.

As the sisters disappear from view, the men operating on them, and the writer in particular, take centre stage. Chambers, determined to prevent collusion between Elliotson and Elizabeth, 'solicited the office of performer':

All was expectation. Fancy the girl reclining in an easy chair, with a thick pasteboard held sloping upwards close round her neck, so that she could see nothing but the roof; I sitting on the chair in front of her; the crowd of spectators behind me on seats; and the doctor, by my request, placed out of sight near the door. (250)

Having begun as a spectator alongside the reader, the writer inserts himself into the narrative and invites us to imagine him at the centre of the experiment, directing the crowd, the reader and Elizabeth. Much of the remainder of the piece focuses on his actions - 'I told the girl to open her hand...I told her to close her hand...I thus rubbed her palm thrice...I now streaked the back of the first and third finger' and so on. This is part of his emphasis on scientific method and evidence; his operations are the experiment, and her responses the result. In contrast to the active, authoritative, effective writer is the vulnerable Elizabeth: she is immobile, unable to see, lying down while the men are sitting and standing, imprisoned in a pasteboard collar. Descriptions of further experiments show the men circulating around the sisters, using them to

try out their own mesmeric skills. The writer describes how, ‘unperceived by Jane, [I] waved my hand behind her, and it uniformly and constantly fixed her into rigidity. Other gentlemen present took similar opportunities of magnetising her by a pass of the hand, and always with the same result’. Examples of the men operating upon the girls without their knowledge are used by Chambers to assert the credibility of the experiments and the objectivity of the evidence gathered, but they also create a clear structure of power and authority, with educated, expert men controlling the actions of apparently oblivious young women. These accounts frame the female body as a canvas upon which men can display their scientific skill and knowledge. Of course, the possibility, widely aired at the time, that the O’Keys knew exactly what was happening and manufactured their responses accordingly sheds a very different light on the questions of power, control and knowledge that the *Chambers’s* piece raises (and indeed offers a different interpretation again from that of the anonymous pamphlet’s image). The *Chambers’s* piece closes down this possibility, but the influence of an active, knowing subject is explored in the articles and fiction of the other periodicals.

Chambers’s *Edinburgh Journal*, *mesmerism and the boundaries of science*

As I observe above, despite consistently positive coverage and repeated suggestions that the subject is worthy of further investigation, *Chambers’s* writers are reluctant to express outright belief in mesmerism. All through the late 1830s, 1840s and early 1850s they claim that they have not yet made up their minds on the matter. This hesitancy does not entirely accord with the journal’s content, which overwhelmingly gives the evidence for one side only. Indeed, this disclaimer often comes at the start or end of a piece which

otherwise argues for mesmerism's validity. The eyewitness account I discussed above clearly indicates that the writer has faith in what he has seen; indeed he concludes that 'I cannot believe that any deception was practised,' and comments on the impossibility of Elliotson carrying out any tricks, but the same paragraph professes his inability to form an opinion on the matter ("Visits to Dr Elliotson's" 250). Writers will frequently begin by excusing themselves for discussing mesmerism, claiming that they 'merely' wish to gratify those who may be curious about it, belying the serious, detailed account of mesmeric phenomena that invariably follows.¹⁹ *Chambers's* writers appear very conscious of the status of mesmerism within the scientific and intellectual community: it is repeatedly argued that the subject has not been properly explored because men of science are too concerned about the damage to their reputations if they are seen to engage with it,²⁰ while one piece expresses admiration for the 'moral courage' of men of science who are willing to put their names to detailed studies of mesmerism ("Electro-Biology (So-Called)" 44). The possible reaction of readers to unconventional scientific ideas is acknowledged in an 1851 piece, which describes the writer's belief in electro-biology (a close cousin of mesmerism) as 'an ingenuous confession, which I fear will cause many to turn away with disdain from this paper' and anticipates the 'contempt of the reader' ("Experiments in Electro-Biology" 81). This concern with credibility, readers' opinions and the scientific status of mesmerism, is, I suggest, a factor in the need to express caution on the subject even in pieces which otherwise either explicitly or implicitly express faith in it.

¹⁹ Examples include "Mesmerism", 29 Mar. 1851 195, "Recent Demonstrations in Mesmerism" 205 and "Some Recent Experiments in Mesmerism" 332.

²⁰ "Experiments in Electro-Biology", "Thoughts of an Invalid", "A Visit to a Magnetic Patient", "On Some Late Vexations of the Public".

We cannot be sure of the editors' own views on the subject, but they were certainly acquainted with prominent advocates of mesmerism: Robert Chambers' close friendship with Harriet Martineau was sparked by his visit to her home in Tynemouth after her wonderful recovery 'for the purpose of investigating the subject [of mesmerism]' (Martineau 140) and, as I have discussed, their interest was great enough for at least one of them (probably Robert) to attend Elliotson's private demonstrations after he had left University Hospital in disgrace. Winter suggests that Robert's attitude to mesmerism 'changed from skepticism to belief after experiments at Martineau's séances' (*Mesmerized* 391 fn. 73). Unfortunately Winter gives no reference for this intriguing hint, and William Chambers' memoir of his brother sheds no light, but if Robert did undergo a conversion of sorts, this is not reflected in *Chambers's*, the attitude of which to mesmerism is consistent from the late 1830s to the end of the period studied here. Whether the editors were privately convinced or not, a certain amount of reserve is in keeping with the journal's progressive, sensible, rational image, considering the contested and controversial standing of mesmerism. Robert Chambers was generally careful about the possibility of his own beliefs damaging the reputation of his family and his business interests. This is, as I discussed in the previous chapter, most famously demonstrated in his decision to keep his authorship of the controversial *Vestiges of the Natural History of Creation* secret during his lifetime. James Secord also argues that, although he was philosophically and scientifically convinced by phrenology, Chambers was reluctant to express this publicly in the earlier years of his publishing career lest sales of the Educational Course and *Chambers's Edinburgh Journal* were harmed by association with a doctrine equated by some with 'materialism and the denial of man's immortal soul' ("Behind the Veil"

174). Mesmerism, too, was attacked for the ammunition it offered to materialist conceptions of the relationship between the mind and brain (Shuttleworth, *Charlotte Brontë and Victorian Psychology* 238), although, as Oppenheim notes, it was also advanced in support of anti-materialist beliefs (213). As we shall see, the *Family Herald* engaged deeply with these questions about the materialist implications of mesmerism from a millenarian perspective. More widely, as I have discussed, its detractors associated it with sexual licentiousness, gullibility and fraud. For all of these reasons, it was perhaps advisable for *Chambers's* to maintain a certain distance from the subject.

We may also see in this pattern traces of Robert Chambers' own relationship to the scientific establishment, as a deeply interested and engaged critic whose views were unorthodox enough to raise hostility. Following the rejection by men of science of his *Vestiges*, Robert Chambers appealed directly to the public, upholding the right of the layperson to participate in scientific work (Lightman, *Victorian Popularizers of Science* 26). In his anonymous response to his critics, he drew a principled distinction between 'a narrow, pragmatic physical science limited to specialists, and a broad, speculative natural philosophy in which all people could participate' (Yeo 27). I suggest that the ideas behind this approach can be seen in the *Journal's* treatment of mesmerism, which articulates and addresses deep concerns about the direction in which modern science was travelling, but at the same time seeks to draw upon the authority that scientific identity could provide.

Chambers's cautious support of mesmerism into the 1850s put it at odds with the medical establishment on the subject, yet the journal also attempts to construct mesmerism as a scientific practice. It recognised from the start the need to bring what it saw as the 'facts' of mesmerism within an ordered

scientific method, arguing that when more facts are amassed ‘it will both be more easily reduced to a system, and more generally and readily believed’ (“Popular Information: Animal Magnetism” 147). Interpreting mesmeric phenomena using scientific methods would draw upon the increasing authority of science and help to legitimise mesmerism’s claims to truth and human benefit. However, as scientific men declined to adopt mesmerism as a subject of investigation, it became for *Chambers’s* a medium for discussing wider ideas about the purpose and methods of modern science. If, *Chambers’s* argues repeatedly, mesmerism cannot be examined and potentially proved using scientific methods, this is not because it is inherently ill-suited for scientific investigation: it is because the terms of scientific investigation are wanting.

As I mention above, *Chambers’s* depicts men of science as being afraid of novelty, suggesting that the fear of losing one’s reputation encourages scepticism about bold and surprising ideas. One reason men of science cannot take risks on new ideas, according to *Chambers’s*, is that the requirements of experiment and proof restrict the range of subjects that will yield acceptable results. An 1848 review of Catherine Crowe’s *The Night Side of Nature*, while sceptical about her reports of prophetic dreams and ghostly happenings, praises its resistance to ‘the materialism to which we are tending’ (“The Night Side of Nature” 125). The *Herald*, as we shall see, is also concerned about the move towards materialism, believing that scientific thinking is not the right way to understand the world. However for *Chambers’s* the scientific sphere has too narrow a conception of what is worth exploring, ‘afford[ing] encouragement to sciences strictly experimental, where probation is readily attainable...while all the speculative sciences are in a manner starved and dwarfed’ (125). The emphasis on physical experiments and immediate material proof drives out

matters which cannot be tested so easily, or may not yield results interpretable by laboratory scientists, but which nevertheless are facts of our world and worthy of scientific investigation.

The second problem is the starting point of scientists, which is negative and sceptical where it should be open-minded. Scientists dismiss mesmerism as clearly unbelievable, but for *Chambers's* its implausibility 'ought rather to lead to scientific investigation than induce us to regard as impossible what cannot immediately be made comprehensible to our understanding' ("New Magnetic Doctrines" 147). Scientists should be curious about new facts of nature rather than dismissing them as too extraordinary to be true: a 'genuine lover of natural investigation, and one who is at the same time candid and honest' would not scoff, but would instead see 'traces of some important though unascertained natural laws' and would be disposed to enquire further ("Some Recent Experiments in Mesmerism" 333). This does seem to rest on an understanding, as alluded to above, that the phenomena at least are genuine; it is impossible to imagine the furiously sceptical *Reynolds's* deeming mesmeric performances worthy of investigation, except perhaps by a court of law. Phrenology, claims *Chambers's*, held potential for mankind; had it only been properly studied, its tenets might have been substantiated, but as it was not, they were not ("On Some Late Vexations of the Public" 218). This is the catch-22 into which mesmerism falls, prevented by the fear and scepticism of modern scientists from being investigated, and therefore remaining unproven and unable to be taken seriously by modern science. *Chambers's* is a publication that believes in the value of scientific development; the will to have mesmerism brought within scientific structures is an expression of belief in those structures even as it challenges the boundaries the scientific establishment sets around its

work. Mesmerism, then, becomes a medium through which *Chambers's* articulates wider ideas about scientific purpose and scientific method, questioning the basis from which scientific authority is asserted as it seeks to draw upon it.

A 'vast miracle': Mesmerism in the *Family Herald*

The *Family Herald* is far less ambivalent than *Chambers's* on the subject of mesmerism. 'The phenomena of mesmerism we believe and affirm - we have witnessed them repeatedly', it asserts ("Mesmer"). 'Every day reveals new evidences of the reality of the Mesmeric power'; 'Mesmerism is a power; there can be no doubt of it' ("Mesmerism", 13 Apr. 1844; "To Correspondents", 2 Jan. 1847 553). Not only is its existence beyond doubt, it is a force for good: Mesmerism is 'an agency wondrous as new...a new joy for the woe-stricken - a new hope for the despairing' ("Mesmerism and Phreno-Mesmerism", 12 Aug. 1843). There are occasional pieces on the medical uses of mesmerism (for example, "Miss Martineau and Mesmerism", "Varieties: Mesmerism" and "The Mesmeric Influence"), but the greater interest is in mesmerism's contribution to a much wider study of human nature and the spiritual aspects of existence. Elliotson's *Zoist*, claims the *Herald*, must be acclaimed for 'bringing forward facts respecting the spiritual or psychical world' ignored by the 'chemical and physical philosophers' ("Literature and Art"). Exhibitions of clairvoyance and mesmeric cure offer examples of the 'living power' of humanity and the possible beginnings of 'a new spiritual medicine' ("To Correspondents", 8 Sept. 1840 298; "Mesmerism", 17 Feb. 1849). For *Reynolds's*, as we shall see, exhibitions of this type signal the complete absence of any claim mesmerism may have to

be taken seriously. Not so for the *Herald*; mesmerism is very definitely within the remit of serious thought, not just a parlour game or a deception practised by the unscrupulous. It accepts the presence of charlatans, but sees them as bad apples rather than a universal feature, arguing that ‘the detection of individual quackery is no proof of collective quackery’ (“Mesmer”). This turns around the argument - employed, as we shall see, by *Reynolds’s* - that to take mesmeric phenomena at face value defies common sense and indicates an unthinking belief in the apparent evidence of one’s eyes. Instead, the *Herald* argues, it is more fanciful to believe that all the many, many displays of mesmerism are fraudulent than that the basics of the practice are legitimate: ‘that animal magnetism is altogether a delusion, and its practitioners imposters, or fanatics, or fools, is an assertion which only betrays want of inquiry, or want of judgment, on the part of him who utters it’ (“Mesmerism and Phreno-Mesmerism”, 27 May 1843 46).²¹

However, the *Family Herald* does not, as a rule, rely on rational arguments of this kind to deconstruct the case against mesmerism. Not does it often appeal to medical or other outside authorities to give weight to its conclusions. Its accounts of clairvoyance, unlike those in *Chambers’s*, are not framed as medical procedures; for example, an account of a display by Elliotson and his celebrated subject Alexis Didier refers only once to the ‘patient’, who is otherwise named as ‘Alexis’ or ‘the Somnambulist’ (“Mesmerism”, 6 July 1844). It does not usually reproduce the testimony of doctors or other eminent persons to prove that the accounts it describes are valid. Its support is of a more instinctive, personal kind; writers evince a faith in

²¹ Not all opponents of mesmerism necessarily believed it was all an illusion (Taylor and Shuttleworth 6) but the *Herald* evidently found the appeal to readers’ good sense an effective strategy (as did *Reynolds’s* from the opposite standpoint), and returns to it a number of times (for example, “To Correspondents”, 2 Jan. 1847 553, “Miss Martineau and Mesmerism”, “To Correspondents”, 19 July 1843 and “Reichenbach’s Discoveries”).

the evidence they have seen and read, and the benefits mesmerism may bring. This goes further than merely a rush of personal enthusiasm or the heartfelt explanation of a good in which writers want their readers to share. As I explore in Chapter Four, the *Herald* is deeply sceptical about the capability of the medical profession and the personal integrity of doctors. This scepticism is grounded in serious questions about the scientific establishment and its productions, the terms of which can be traced through the periodical's discussion of mesmerism. Contested as it was, the subject offered an opportunity not just to voice an opinion about the emergent scientific profession but also to articulate and interrogate a conception of what scientific thinking entailed and to put forward an alternative approach, based on personal commitment and belief rather than rational argument. The *Herald* advocates taking faith and positivity as one's starting point, arguing that 'All negatives should pass for merely what they are worth - a profession of ignorance on the part of the narrator...the denier affirms nothing, and can teach nothing' ("Mesmerism", 6 Apr. 1844 765-766). It has this in common with *Chambers's*, but its strongly anti-materialist approach is different in nature from *Chambers's* concern, and its scepticism about scientific professionalism takes an entirely different line. These points appear again and again in the *Herald's* discussion of mesmerism in the 1840s and early 1850s, and feature consistently in the To Correspondents column and opinion pieces, in both of which the voice of the editor is particularly distinct.²² As I discuss later in this section, the *Herald's* pronouncements on the failings of science should be understood within the

²² According to a contemporary, Smith wrote every answer to correspondents himself (W. Anderson Smith 4); this claim cannot be proved, but there is a distinctive voice running through the *Herald's* correspondence column, teasing, chastising, joking and debating with readers, which seems to suggest that Smith dealt with at least a considerable proportion personally. The mesmerism answers certainly express a consistent and strongly-held point of view, as do the responses to health queries that I discuss in Chapter Four.

context of James Elishama Smith's religious beliefs, which were connected to an anti-materialist understanding of the relationship between mind, brain and spirit. I will take just two pieces here, which exemplify and illustrate the *Herald's* ideas.

An 1844 piece, "Miss Martineau and Mesmerism", takes the controversy surrounding Harriet Martineau's account of her cure by mesmerism as an opportunity to express some forthright views on the medical profession. Martineau, a chronic invalid, was mesmerised first by a self-trained practitioner and later by her maid, and found her illness greatly relieved. "Letters on Mesmerism", her report of her treatment and cure, was received with scorn by the medical press: the *Lancet* witheringly described it as an 'essay on mesmerism by an aged maiden lady' ("Mesmerism, Miss Martineau, and the Great New Idea"). The *Herald*, though, had very different ideas about Martineau's piece. It characterises the scathing response of the medical press as the resentment of arrogant men at having their certainties challenged: the *Medical Gazette*, asserts the *Herald*, adopts 'the pompous tone of affected scientific infallibility', while the profession as a whole, in 'the usurped or affected absolutism of scientific omniscience, pronounce[s] at once an outrage on common sense - the delusion of a disordered fancy' (542). It is not just the fact of the challenge, the *Herald* suggests, that has caused such outrage, but that the medical profession has been shown to be wrong about mesmerism: it contrasts the 'sound wisdom, clearness of intellect, logical precision, and charity of feeling' in Martineau's work with the doctors' 'farrago of science' and erroneous opinions 'upon subjects which are beyond their sphere' (542). Even further, it is not just that the doctors have been shown up; it is that they have been shown up by two unqualified women, one of whom was barely educated.

The women's success, if accepted as such, challenged the idea, increasingly dear to the medical profession, that medical treatment was the preserve of highly qualified men. As I discussed earlier, the democratic possibility of mesmerism was one ground on which its legitimacy was contested; here, the *Herald* applauds the natural, instinctive nature of the mesmeric influence, which need not be acquired by 'reading, 'riting, and 'rithmetic' (542). Suspicion of modern medicine, a feature I explore in detail in Chapter Four, is expressed with fervour here. Mesmerism is infinitely preferable to the treatments offered by doctors: 'Now, so far do we differ from this materialist [the writer of the *Gazette's* review] that we prefer, in all cases whatsoever, the immaterial to the material medicine...Anything is better than scientific drugs and surgical operation' (542).

Three years later, taken to task by a reader for an article extolling the merits of mesmerism, the editor defended at length both the reality of mesmeric phenomena and his view of the inadequacy of modern science. The idea that men of science are essentially nothing more than collectors of facts is a key argument, appearing both here and in the Martineau piece. Scientific men 'know nothing' about natural powers:

Their province is to record facts or observations. In this sphere they are very useful; but whenever they go into their theories and pretensions to understanding they are lost and bewildered...experimental science [is] the science of skill and memory (not of positive knowledge and wisdom). ("To Correspondents", 8 May 1847)

Scientific knowledge, the editor claims, consists mainly of nomenclature and technical vocabulary. He goes further, even: the knowledge produced by men

of science is not only meaningless, but actually unhelpful, threatening to obscure more significant truths:

[It] explains none of the secrets of Nature at all - no, not even one. In their enthusiastic search after material facts men have for some time been neglecting facts of a higher order...chemistry is rather estranging the mind from the study of pure nature. ("To Correspondents", 8 May 1847)

The value of independent thought in preference to reliance on the words of scientific authorities is emphasised, with the editor leading by example: 'We never suffer our eyes to be closed to evidence merely by the ephemeral crudities of modern chemical philosophy'. In the piece on Martineau, this prioritisation of individual evaluation extends to the value of personal instinct as well as one's own reasoning: a rejection of doctors' orders 'lifts the patient above the sphere of mere controversial logic into that of intuitive certainty' (542). Modern science here is accused both of drawing the wrong conclusions, and of pursuing the wrong lines of enquiry in the first place.

As these pieces make clear, the *Herald* values the study of 'pure nature' above the investigations favoured by experimental scientists (mechanical and chemical scientists in particular). Precisely what this subject of study consists of is unclear; in the correspondence piece discussed here, it is also referred to as 'the secrets of Nature' and 'natural productions', while other pieces talk of 'universal nature' ("Mesmerism", 13 Apr. 1844 782) and 'natural truth' ("Mesmerism", 17 Feb. 1849). That it does not lend itself to easy definition appears to be part of the point; a significant complaint is what is perceived to be

modern science's insistence upon defining and categorising and reducing everything in nature to physical and chemical processes. Understanding is not a matter of material facts; it is 'pure abstract thought' ("Reichenbach's Discoveries"). By contrast, in a polemical piece about public rejection of new ideas, *Chambers's* speaks of the potential of phrenology to 'place the more important and interesting parts of our nature on the basis of a natural science, and make the complexity of our thoughts and emotions almost as intelligible as an experiment in chemistry' ("On Some Late Vexations of the Public" 218). *Chambers's* describes this as 'a great favour upon mankind'; for the *Herald* this sort of thinking - the removal of mystery and spontaneity from human nature, the reduction of our thoughts and emotions to their constituent parts - is exactly where modern science is going wrong. Even some mesmerists come in for criticism when they focus too much on the 'craniological and cerebral aspect of the subject' ("Mesmerism", 6 Apr. 1844 765; see also "Six Lectures"). This is curious when we consider the *Herald's* unfailing support for Elliotson, who sought to explain 'everything - including human thinking...through the laws of the physical universe' (Ruth 305), but perhaps Elliotson's work in the service of mesmerism and his status as an outcast from the medical profession were in his favour.

We should note that although there is a clear concern with spiritual matters, the *Herald* does not characterise science as a threat or opposition to Christian orthodoxy (God is mentioned occasionally in the pieces discussed here, but there is no reference to Jesus or to biblical doctrine). As I discussed in the introduction, Smith was a believer in millenarian theology, or what he called 'practical mysticism', and references to natural powers and the spirit show the effects of this influence. The *Herald* does not accuse science of

attempting to disprove this or any other religious view; its concern is that it invites students to view the world in the wrong way by focusing on truths that can be shown to have a material basis. This is in evidence in the *Herald's* preoccupation with the mystery of mesmerism. In common with *Chambers's*, the *Herald* takes contemporary lack of understanding of mesmerism as important evidence of flaws in the scientific approach to the practice. However, where for *Chambers's*, unexplained but seemingly widespread phenomena demonstrate the need for further serious scientific study, for the *Herald* they highlight the futility, indeed the wrong-headedness, of aspects of the scientific project. What is required is not scientific investigation that will solve these mysteries, but for scientific investigators to respect that whatever obscure powers mesmerism draws upon cannot and need not be subject to rational explanation. The *Herald* comfortably juxtaposes science and unsolved - perhaps unsolvable - mystery: mesmerism is 'the mysterious science', 'one of the greatest as latest achievements of science - a new and promising opening into the most exalted, yet obscure, departments of human knowledge', and 'one of the most curious and mysterious of modern scientific pursuits'.²³ While the writers of *Chambers's* believed that a great deal of the mystery must be solved before mesmerism could hope to take its place as a legitimate scientific discipline, the *Herald* advocates for the acceptance of the curious and the mysterious *within* modern notions of scientific thought. The word 'miraculous' comes up several times in the context of mesmerism's unsolved mysteries: it produces the 'most remarkable and almost miraculous results'; it is 'in short, a vast miracle, and source of miracles' ("Mesmer", "Mesmerism and Phreno-Mesmerism", 12 Aug. 1843). *Chambers's* 'scientific wonders' become the

²³ "Mesmerism", 17 Feb. 1849, "Mesmerism and Phreno-Mesmerism", 12 Aug. 1843, "Somnambulism".

Herald's 'miracles'; one is further evidence of the amazing uses to which scientific knowledge can be put, while the other suggests that known phenomena can exist outside the reach of formal scientific classification and understanding, and that this need not trouble us. Mesmerism is a fact of nature, like the elasticity of india-rubber and the whiteness of milk, and the *Family Herald* is content to leave it at that ("To Correspondents", 4 Dec. 1847).

'The greatest imposture of modern times': Mesmerism in *Reynolds's Miscellany*

Unlike *Chambers's* and the *Herald*, *Reynolds's Miscellany* is unequivocally opposed to mesmerism. In contrast to *Chambers's*, it locates mesmerism so far outside the scientific sphere that medical and scientific practice are barely mentioned in connection with it. However, while the *Herald* lauds the practice's spiritual, anti-materialist possibilities, for *Reynolds* it is located squarely in the material world because it is, simply, a fraud.

Reynolds's carried far fewer articles on mesmerism than either *Chambers's* or the *Herald* during the 1840s. Its most significant engagement with the subject was a series of articles on the controversial French mesmerist Louis-Alphonse Caghanet, or, more accurately, his celebrated subject, Mademoiselle Adele. Caghanet was a leading exponent of the idea that mesmerised subjects' souls could detach from their bodies and enter the spirit realm (Monroe 71). The *Reynolds's* pieces consist of long extracts from Caghanet's 1850 book *The Celestial Telegraph: Or, Secrets of the Life to Come Revealed Through Magnetism*. The extracts illustrate Mlle. Adele's abilities to converse with spirits, find lost items and other remarkable feats, and are bookended with scathing remarks if not written then certainly endorsed by G. W.

M. Reynolds (“Notices”, 1 June 1850 303). In contrast with *Chambers’s* and the *Herald*, which in their different ways focus on the social and personal good of mesmerism, *Reynolds’s* locates it squarely in a commercial world in which the only benefits are to the finances of mesmeric practitioners. They are frauds whose main interest is in relieving the gullible of their money: Cahagnet is described as a ‘quack’ and Mlle. Adele as an ‘imposter’ (“Clairvoyance; Or, the Secrets of the Future Penetrated”), and on learning that Mlle. Adele ‘threatens the English with a visit’ the writer warns his ‘credulous countrymen or women to take care of their pockets’ (“Clairvoyance”, 20 Apr. 1850 204). Far from bringing comfort or enlightenment, mesmeric displays are in themselves dangerous, ‘frightening and confusing timid minds [and] disturbing the rest of old ladies and little children’ (“Clairvoyance - Apparitions”). For the *Herald*, the spiritual manifestations of mesmerism indicate its ability to offer more profound truths than materialist sciences; for *Reynolds’s* they are the primary evidence for its complete falsity.

In *Reynolds’s*, the mesmeric act is not presented as a medical process. While the *Chambers’s* accounts give careful descriptions of the procedure used to induce the trance and detailed observations of its effects, these matters barely merit a mention by Cahagnet: ‘I magnetised Adele’ (“Clairvoyance: Secrets of the Future”) or “I sent Adele to sleep” (“Clairvoyance”, 27 Apr. 1850) is the full extent of the discussion. Instead, the focus is on the tales of clairvoyance and communication with the dead. These stories have elements of a colourful and well-told narrative, with fortunes lost and found, villains exposed and grieving relatives comforted with messages from beyond the grave. They are quotations from Cahagnet’s book, not the words of a *Reynolds’s* writer, but it is of course an editorial decision to select excerpts that

capture the most eye-catching, entertaining aspects of mesmerism in both their style and their content, rather than the sober, detailed accounts favoured by *Chambers's*. The effect of drawing upon these elements so heavily in factual accounts is to present mesmerism not as a science but as a sideshow; if the preliminary cautions about fraud are not enough (which, as I discuss shortly, appeared frequently to be the case), this helps to diminish its legitimacy, suggesting the authority of medical science by positioning Cahagnet and Mlle. Adele entirely outside its reach.

A key aspect of this is the directing of attention to Mlle. Adele. I explored earlier how the positioning of the subject as passive, aligned with scientific apparatus rather than human subjectivity, could help to frame the experiment as objective and the mesmerist as a legitimate scientific practitioner. Mlle. Adele is never referred to as a patient; in fact, she is hardly treated as a mesmerised subject at all. Similarly to the *Herald's* report on Alexis, she is referred to as 'the clairvoyant' or simply 'Adele', presenting her as an actor in her own right and indeed as the central figure in all these accounts. Despite being the narrator and the mesmerist, and therefore supposedly in control of the narrative and the séance, Cahagnet all but disappears from view once he has mesmerised Mlle. Adele; the narrative is a report of her flow of words, seldom interrupted by the mesmerist. This contrasts strongly with *Chambers's* reports, which show the conversation directed by the mesmerist's questions. The practitioner here is, to all intents and purposes, Mlle. Adele, rather than the man who mesmerises her; indeed he describes her work as 'above my knowledge and strength' ("Clairvoyance", 27 Apr. 1850 220). The investment of agency in the subject, and not only that, but a female subject without any claims to medical knowledge, inverts the doctor-patient relationship so carefully created by

Chambers's and further removes the experience from the medical sphere. The central role of Mlle. Adele is also important to the construction of the mesmeric experience as a charade. As I discuss above, the presentation of the subject as trustworthy is an important part of a practice which relies to a considerable extent for its legitimacy upon witnesses being able to believe in what they see. The *Reynolds's* commentary refers pointedly and repeatedly to Mlle. Adele's 'performances'; although Cahagnet is also a fraud, it is her deliberate and skilful acting rather than his pretence at mesmerising her at which the accusations of fraud are directed.

The pieces are peppered with the endorsements of eminent men; not doctors, but lawyers, army men and the nobility. The effect of Mlle. Adele's mesmeric adventures on these men of distinction is evidently troubling to the writer, who is of the opinion that they should know better: 'Intelligent, rational, and educated men have deluded themselves into a belief' in clairvoyance, 'persons whose words are entitled to every credence, but whose brains we fear have been sent wool-gathering or ghost finding, by Mademoiselle Adele and her clever confederates' ("Clairvoyance: Secrets of the Future"). Mlle. Adele's performances have duped even the usher of a court of justice who should be 'too "wide-awake" for M. Caghanet and his ecstatic somnambulist' ("Clairvoyance", 20 Apr. 1850 205). Unlike *Chambers's*, which uses the endorsement of authority figures to legitimise mesmerism, for *Reynolds's* a belief in mesmerism draws into question their reliability as sources of authority. It is suggested that their mistake is down to the clever and convincing duplicity of Mlle. Adele rather than on their own inherent credulity or stupidity, but still, because they have drawn the wrong conclusions, on this issue their words carry no weight.

As they approach the subject of mesmerism, then, on what authority should readers rely? Eminent, educated, intelligent men have been proved fallible. There are no medical experts here either supporting or undermining mesmerism. The writer of the Mlle. Adele pieces is very clear that the whole thing is a fraud, but advances no evidence at all to support this point of view. Rather than alerting readers to the tricks that mesmerists might use and giving them ways to see through them, these *Reynolds's* pieces assert the existence of fraud and leave it at that. This could be read as the writer positioning himself as the most reliable source of knowledge - he says it, so it must be true - but also suggests an implicit belief in the reader's common sense and capacity for independent thought. The narratives are offered to allow readers "an opportunity for judging" these apparent marvels for themselves ("Clairvoyance: Secrets of the Future") - with the evident expectation that they will recognise that it must be a sham. The writer appears to be confident that readers will see what the eminent men could not, that they do not take things at face value, that they do not need what appear to him to be obvious tricks pointed out. The outcome of one's own reasoning is a valuable source of authority, assuming it leads the reader to the same conclusion as the writer. This tension between encouraging readers to rely upon their own judgment and a strongly worded opinion as to what that judgment should be is clearly reflected in the Notices to Correspondents column.

While *Reynolds's* was alternately ignoring and denouncing mesmerism, its readers, it seemed, were keen to learn more about the practice, and did not always accord with the magazine's sceptical approach. Other than the pieces on Mlle. Adele, the place in which mesmerism most often appears is the correspondence column, which contains regular enquiries from readers about

the practice: what it is, whether it is to be believed in, where they can find out more information. There is a cluster of queries around the time of the Mlle. Adele pieces, and Reynolds' commentary here - the queries themselves are not reproduced - suggests that readers were not responding to these pieces in the way that he had intended. Rather than absorbing the idea that these accounts related nothing but exhibitions of fraud, readers were writing in to ask whether Reynolds believed in Mlle. Adele's clairvoyant abilities: 'The remarks we have ventured to make, perhaps a little ungallantly...might have enlightened you in respect to our opinion with regard to that young lady's performances,' ("Notices", 1 June 1850 303) he observes in response to one letter. As I mention earlier, the accounts of mesmerism are entertaining and have strong narrative drive; perhaps it was these elements rather than the introductory warnings that caught the attention of readers. The editor uses the Notices column to repeat the views expressed elsewhere: 'we believe to a certain extent in phrenology, but not in mesmerism' ("Notices", 5 Dec. 1846), 'we have not the slightest faith in clairvoyance' ("Notices", 21 Dec. 1850), 'Keep your money and do not be diddled out of it by impostors calling themselves clairvoyants' ("Notices", 8 Mar. 1851), 'we look upon mesmerism as the greatest imposture of modern times' ("Notices", 30 June 1849), to quote but a few. Business is business, however, and although Reynolds steered readers away from consulting clairvoyants he was not above accepting one or two advertisements enabling readers to avail themselves of such services, should they choose to ignore his advice ("Prognostic Astronomy", 19 Aug. 1854 and 26 Aug. 1854; "Advertisement: Henri the Clairvoyant").

Some readers took issue with *Reynolds's* scepticism, offering alternative opinions and presenting their own experiences as evidence. One reader's

account of mesmeric clairvoyance at Peterhead is dismissed as a coincidence, of the sort that may take place once every few years, but which 'in no ways proves the truth or infallibility of mesmerism' ("Notices", 22 June 1850 352). As this example suggests, the column is not a space in which readers' opinions can be aired equally with other writers in the magazine: it does not repeat questions and comments verbatim, and by the nature of the column the editor always has the last word. One reader is told, "We have read your letter with respectful attention; but we are not disposed to alter our opinion of mesmerism; nor did we come to that opinion without due reflection' ("Notices", 28 July 1849 16). The points the reader presumably made in favour of mesmerism are erased and replaced by the editor's opposing opinion; the emphasis on independent thought does not appear to extend as far as offering readers the chance to enter into debate within the pages of the magazine. However, the editor is willing to help them to become more informed about the subject; he steers readers away from consulting clairvoyants but, when asked, points correspondents in the direction of books about mesmerism ("Notices", 12 May 1850; 24 Nov. 1849; 25 May 1850) without passing comment on their worth. As I will discuss in Chapter Four, the Notices offer readers the opportunity to request content not otherwise volunteered by the editor, using the magazine to support their own interests, and to a certain extent the editor does enable this. The column offers a potential space for individual exploration and response, and holds out the possibility of becoming one's own source of authority, but alongside an editorial voice which can be raised or lowered at will.

As the preceding sections demonstrate, each periodical takes an unusually clear and single-minded editorial approach to mesmerism. Later chapters will show that in other areas of science - as one might expect in the

multi-vocal arena of the Victorian periodical - a wider range of views are given prominence; even in matters of health advice, where the influence of editorial aims becomes particularly apparent, there is more variety. It is not that there were *no* alternative ideas about mesmerism expressed in any of these periodicals; but each publication does offer a consistent perspective which is in each case associated with the editorial voice. A central feature of each periodical's factual discussion is a preoccupation with the means of explaining (or, in the case of the *Herald*, self-consciously *not* explaining) mesmeric phenomena, and a key aspect of this is a commitment, in each case, to a set of authorities and ideas that legitimise ways of understanding mesmeric phenomena. *Chambers's* and *Reynolds's* are both at pains to explain mesmerism within clear frameworks: in *Chambers's* case, by bringing a revised, inclusive scientific method to bear, and in *Reynolds's*, by dismissing it as a fraud. Even the *Herald*, which makes a virtue of mesmerism's mysteries, takes a position, in that it presents rational explanation as a problem, which in itself articulates a view about how one should set about interpreting and evaluating what we see before us. Both *Chambers's* and the *Herald* use mesmerism, also, to consider and reject modes of evaluation other than their preferred approaches; *Reynolds's*, too, implicitly rejects every conception of mesmerism that views its phenomena as real, but without taking the reader through its reasoning. The attempt to find a clear basis from which to explain mesmeric phenomena is a key part of asserting or denying its legitimacy. However, as the rest of this chapter goes on to show, the fiction of the periodicals disrupts and challenges this search for certainty.

Mesmerism lent itself well to fiction of a dramatic, speculative and sensational nature, opening up the questions the subject raised about the

release of social control and the relationship between the spiritual and the physical self: in her study of *The Woman in White*, for example, Laurie Garrison shows how mesmerism is central to the erotic connection between Laura and Count Fosco. The range of essays in Willis and Wynne's collection on literary mesmerism attests to the important role that mesmerism played in nineteenth-century fiction; in its cultural prevalence and slippage of boundaries it raised issues including sexuality and gender (Budge), moral responsibility (Henson) and economic risk (Willis, "George Eliot's *The Lifted Veil*") as well as ever-present questions about science and the supernatural, the material and the spiritual. Fiction was also a channel through which the workings, function and value of mesmerism could be explored. Martin Willis, examining science fiction of the nineteenth century, shows how mesmerism interrogates the interplay between magic, science and the mechanistic (*Mesmerists, Monsters, and Machines*, chapter 2). Robert Lee Wolff argues that Edward Bulwer-Lytton's "The Haunted and the Haunters; or, The House and the Brain" makes an important distinction between the truth and the value of mesmeric activity (254). These questions of how different understandings of the workings of mesmerism interact, and that of whether it *should* be done, just because it can be done, challenge the settled positions adopted by each of the periodicals I examine, and are central to the periodical fiction I will explore in the following section, which situates mesmerism at the intersection between science, the supernatural, medicine and fraud. *Chambers's* fiction tended to be rather worthy, realistic and not remotely sensational, and perhaps for this reason it did not extend to the subject of mesmerism in the period covered by this thesis. *The Herald* and *Reynolds's*, though, featured short stories and serials dealing with the subject, including comic, dramatic and romantic fiction. I focus here on

how fiction exposes different ways of viewing mesmeric phenomena, offering forms of knowledge and applications not aired elsewhere in each periodical's respective pages, complicating the certainties of explanation that more factual pieces appear to seek and exploring the construction of authority through imaginative depictions of the mesmeric exchange. Fiction offers an alternative to *Reynolds's* relentless scepticism and draws the *Herald* away from its commitment to mystery and spiritual language and into the sphere of medical application and personal interaction. In both periodicals, it resists the editorial boundaries and controls otherwise in place around the subject, pointing to other ways of understanding the mesmeric experience.

“Illumination; Or, the Sleep-Walker”: Spiritual knowledge and the role of the subject

As I discussed in the Introduction, the *Family Herald* was known for its emphasis on light fiction. Short stories and mini-serials made up a large part of its content, often following generic patterns that create their own momentum and structures. This fiction was shaped by the demands of a market that expected and enjoyed romance and suspense, and is of a more conventional nature than the pronouncements made on science and spiritualism by its editor. The story I examine in this section offers an account of mesmerism within an escapist romance, set in the glamorous world of the European aristocracy. It moves through thwarted love and dramatic personal sacrifices to resolve in marriage and children and as such follows a familiar pattern, but, unusually for the *Herald's* fiction, incorporates elements of the spiritual language used elsewhere in the journal. Mesmerism here functions not only as a medical treatment, but also a spiritual communion between two people and a driver of

the romance plot, offering an examination of the nature and operation of mesmeric influence that is a counterpoint to the *Herald's* championing of mystery in the pieces I discuss above.

Published in 1846, "Illumination; Or, the Sleep-Walker" is a three-part series excerpted from a longer work by German writer Heinrich Zschokke. Its hero, an impoverished young artist named Faust, is employed by the nobleman Count Hormegg to treat his daughter Hortensia's mysterious illness, which takes the form of trances and sleepwalking as well as physical ailments. During one of these episodes Hortensia identifies Faust as a special healer and instructs her father to engage him, even though he has no medical training or previous experience. Nevertheless, he finds himself able to mesmerise Hortensia, upon which her condition begins to improve and she is eventually cured. In her normal existence, Hortensia hates and resents Faust and is an imperious, aggressive and unpleasant person. In the trance state, though, she is compliant and charming, devoted to and trusting of Faust, and as her illness recedes, this latter personality becomes her dominant character. As one might expect, against the Count's wishes the two fall in love; Faust is forced to flee the country, Hortensia admits herself to a nunnery and it is not until many years later that they are finally married. The story is propelled by a series of mesmeric transactions between an amateur practitioner and a subject with a critical role in shaping events; the status of both parties is, I will argue, key to the story's exploration of what mesmerism is, and how it works.

Hortensia is 'a sick, unfortunate creature' ("Illumination", 28 Mar. 1846 740). In the course of her unexplained trances and sleepwalking episodes she carries out actions and holds conversations that she cannot remember in the waking state; during these conversations she appears to have clairvoyant

powers and refers to the waking Hortensia as 'she'. These trances are connected to, and perhaps the cause of, the physical sickness which Faust is engaged to treat. She suffers from cramps, spasms, convulsions and an encroaching weakness which her father believes is 'leading unto her death' ("Illumination", 28 Mar. 1846 739). Faust is asked to help because Hortensia, in a trance, has identified him as the only person who can cure her illness. Other medical treatments have failed and the Count believes that 'she could not be restored to perfect health unless through [Faust's] mediation' ("Illumination", 28 Mar. 1846 739). Faust's treatment is mesmeric in nature, directing his 'will' and his 'light' towards her by holding out his hands in her direction. (Fig. 2, an image from a contemporary French newspaper, shows how the elemental forces were understood to flow through the mesmerist's hands into his subject.)



Figure 2: Wood engraving. *A practitioner of mesmerism using animal magnetism on a woman who responds with convulsions.* 1845. Wellcome Library, London. Web. 2. Feb. 2015.

After one session, Hortensia is 'stronger and more animated than she had been for a long time' and after several months of treatment is 'sufficiently recovered to enable her, not only to receive the visits of strangers, but to reciprocate them, and even to go to balls, or the theatre' ("Illumination", 4 Apr. 1846 754; 757). The trajectory is that of the convalescent patient moving from illness through to bodily recuperation. Mesmerism is used here as a medical treatment, its success measured by its effects on the patient's physical health. Indeed, Hortensia comes to regard Faust as a doctorly figure. As her bodily health returns it brings with it 'a considerate, deferential respect...She treated me as if I really were her physician, willingly asking my advice, my permission, when it concerned any enjoyment or pleasure, fulfilled punctually my directions...' ("Illumination", 4 Apr. 1846 758). Faust, however, is not a doctor; he is, as I have noted, an impoverished artist with no medical training whatever. His reaction, on being asked to treat Hortensia, is bafflement: 'I am, or I was, but an artist; I understand nothing about physicking' ("Illumination", 28 Mar. 1846 739). He agrees to try in the hope of being helpful, and because he is without employment, but even as he first enters the sick chamber he does not know what he can do for her. His ability to cure her does not seem to be within doubt, but it arises from a natural, innate power rather than a learned skill. All that is required is for his will to be sincere.

Hortensia's insights in the trance - 'rightly denominated', according to Faust, as 'a Clarification or Illumination' ("Illumination", 28 Mar. 1846 741) - are the only access we have to the nature of her illness and the powers that can cure her. She explains her condition thus:

"The body is only the shell of a spiritual body. The spiritual body is called the soul. The soul is only the covering or recipient of the Infinite. Now, in

regard to the present sufferer, the earthly shell is broken, and its light streams out, her spirit flows into union with the All...it is not the body that perceives, since that is only the lifeless casement of the soul, without which eyes, ears, and tongue are like stones. Ah, if this earthly shell cannot be repaired by [your] aid...it will break entirely and fall to pieces. She will then no longer belong to humanity, since she will have nothing in common with men". ("Illumination", 28 Mar. 1846 741)

The connection between her bodily and spiritual ailments is, it seems, circular: the cracks in her physical self allow an escape of the spirit, which itself renders the body useless. Somehow the influence of Faust's own spiritual force - the 'flames of gold', the 'streams of silvery light' that flow from him - can heal those fissures ("Illumination", 28 Mar. 1846 741). Faust himself is not entirely clear on what all this means: 'I understood nothing distinctly, yet I understood what she thought' ("Illumination", 28 Mar. 1846 741). What is clear, though, for our purposes, is that this explanation suggests a metaphysical understanding of the relationship between the self and a higher power, relying on the concept of an individual and a universal spirit to explain Hortensia's disorder, and requiring communion with another individual spirit to heal. This is much closer to the *Herald's* focus on mesmerism as an expression and a function of human spirituality than to a more conservative medical attempt to understand it in material terms.

However, and importantly, Faust does not know how to make use of this natural power; it falls to Hortensia to direct him. "Me she commanded to stand right before her, to stretch out my hands towards her, and to turn the tips of my fingers in the direction of her heart' ("Illumination", 28 Mar. 1846 741). I mention above that Hortensia's entranced and waking personalities are rather different, and that the former, which gradually takes over her whole personality, is much

less abrasive and difficult. It is important to note, though, that mesmerism does not simply transform her into a passive, submissive woman. In fact, the entranced Hortensia has extraordinary insights into her own condition and dictates the course of her treatment, with Faust carrying out her instructions. This goes further than simply alerting him to his natural powers; she prescribes detailed and specific remedies for him to carry out upon or relay back to her when she awakes. 'Five minutes before three the cramps will again begin to seize [the waking Hortensia]: stretch thy hands towards her, as if blessing her, with an earnest determination to become her healer' ("Illumination", 28 Mar. 1846 743); 'In the vapour baths of Battaglia...Every morning, immediately on waking, one bath' ("Illumination", 4 Apr. 1846 759). The direction by the subject of how the mesmerist should proceed, either in the treatment of illness or in the next stages of the trance, was a not uncommon feature of mesmerism: an example can be seen in *Chambers's* "Recent Experiments in Animal Magnetism" (367). Here, although the source of curative power appears to reside in Faust, the role of physician is effectively Hortensia's; she has all the knowledge of that power and how it must be employed. The advice of her family physician is apt: 'You must look upon him as a drug, which you have prescribed for yourself' ("Illumination", 28 Mar. 1846 740). Faust is a passive party in the mesmeric exchange, while the doctor himself is of use neither as agent of cure nor as prescribing physician.

This is a very different model of knowledge and influence from that conceived within professional medical structures. As Winter has argued, the increasing displays of agency by Elliotson's mesmeric subjects contributed to the medical establishment's suspicion of the project (*Mesmerized* chapter 4), and we have seen in the *Chambers's* eyewitness accounts the contribution

made by the passive subject to the construction of the mesmerist as legitimate scientific practitioner. Conversely, in the *Reynolds's Mlle. Adele* pieces there is a strong connection between an active, powerful subject and accusations of fraud and pretence. "Illumination" does not seek to suggest that Hortensia is a fraud; her potentially disruptive intervention is defused both by its characterisation as an apparently genuine spiritual experience, and by its location outside conventional medical and scientific structures. Faust's authority as mesmeric practitioner is provisional from the start; he lacks knowledge, experience, self-confidence, and, as a poor man and essentially a servant of the house, social power. His value is not in his expertise or his skill but in a personal, natural power, and it comes to the fore only because Hortensia is able to recognise and command it. The standard mesmeric power relationship is undercut from the start, leaving space for Hortensia to act within it. The framing of mesmeric knowledge within a spiritual tradition also draws upon a source that relies upon a different idea of authority. Success may be measured by the impact on the patient's health, but the most important knowledge is of an indefinite but spiritual and instinctive nature. This echoes the construction of mesmeric knowledge and authority elsewhere in the *Herald*. The detailed depiction of the relationship between Faust and Hortensia allows us to see some of the implications of this way of understanding mesmeric power. The emphasis on medical benefit is touched upon but not developed within other articles in the *Herald*; this story explores its practical application but also shows how different ways of categorising knowledge shape how, and by whom, that knowledge can be developed and used. By depicting the mesmeric experience in detail, by considering both its practical applications and its spiritual dimension, and by raising questions about the source of mesmeric

power, “Illumination” ranges across several of the key discussions by which the mutual influences of mesmerism and scientific authority were drawn out.

“The Mysterious Phial”: Faith and credulity

“Illumination” expands upon the metaphysical aspects of mesmerism, and its exploration of its medical benefits and the connections between sources of knowledge and the authority of practitioners takes it into territory not generally covered in the *Herald’s* non-fiction. In this final section, I turn to *Reynolds’s* to examine a short story which further interrogates the sources of knowledge and authority. G. W. M. Reynolds had himself addressed the subject of mesmerism in his long-running *Mysteries of London* through the character of Ellen Monroe, who, in one stage of a long career of making money from her body, becomes a fraudulent mesmeric subject. In representing mesmerism as trickery and showing the collusion between mesmerist and subject in deceiving a gullible audience, the storyline strongly reflects the opinions expressed by Reynolds in the *Miscellany*. The fiction in the journal itself, however, is from a range of writers and is more varied in its approach, questioning the causes and consequences of mesmeric trance and seeking to understand the psychological state of the mesmerised subject. “The Mysterious Phial”, a short story by Edwin F. Roberts, challenges the very idea of certainty about and reliance on authoritative knowledge, contrasting with the absolutist approach adopted elsewhere in the magazine.

“The Mysterious Phial” appeared in June 1850, a couple of months after the Mlle. Adele pieces and at the same time as Reynolds was discussing her with his readers in the Notices column. It tells the tale of Stanhope, a noble

young Englishman who, seeking a cure for his dying betrothed (also called Hortense), seeks the help of a mysterious stranger. The stranger turns out to be Count Cagliostro or Joseph Balsamo (1743-1795), a historical figure of considerable notoriety. He provides Stanhope with a potion which, apparently owing to the Count's mesmeric powers, has curative properties - although, as I will discuss, the source of its effects is ambiguous. The potion appears to relieve Hortense's symptoms, but as she puts her hand to her head it becomes fixed and can only be removed by a gruesome ripping of the skin, leaving her scarred for ever.²⁴ Although she forgives Stanhope, the lovers part, and on her deathbed many years later she makes a most remarkable but undisclosed revelation associated with the events described. The main focus of the story is the means by which the potion works and the question of Stanhope's own belief in its efficacy. It undermines the certainties offered by a sceptical view of mesmerism and raises, but does not resolve, competing explanations of its effects.

The Count is reputed throughout Paris to have extraordinary powers. His 'wondrous gifts' can cure disease and mental ailments and allow him to see into the future. We know that these powers are of a mesmeric nature - he is believed to have unlocked 'the great secret of nature - a comprehension of that mysterious chain of sympathy to which has been given the name of magnetism' (316) - but beyond this, the means by which his powers operate is unclear. The story draws on both the medical and the mystical traditions of mesmerism. Stanhope seeks out the Count's help to cure Hortense's illness only because conventional doctors have failed her. Her malady is described in medical terms

²⁴ Limbs becoming immobile or fixed in unnatural positions was a known effect of mesmerism and a familiar sight at demonstrations (see "Recent Experiments in Animal Magnetism" and "A Mesmerized Man of Letters" for examples).

and requires a physical, not a spiritual, cure: 'The whole of the nervous system was deranged, and she suffered at times from terrible pains in her head...It was to bring the nerve to a state of proper equilibrium that he now sought the assistance of the Count Cagliostro' (316). However, the Count's gifts may be of a supernatural nature: he is reputed to be a 'sorcerer' whose powers are likened to 'the marvels of antique magic'. By 'a touch, a whisper, a wave of the hand' he can separate the soul from the body, 'thus releasing the faculties of mind, thought, spirit, and what not, and plunging these into a magnetized sea,' giving the subject 'access to supernatural sights, and places, and persons, by which the destiny of a man's life may be known' (316). These supernatural ideas are conveyed to us as gossip by guests at a party and their veracity (as suggested by the inclusion of 'what not' in the Count's reach) is questionable. However, as we shall see shortly, the reliability of the narrator's own judgment is itself undermined by the narrative, levelling the possible sources of authoritative information. A further possibility is that the Count draws his powers from dark forces. This is suggested by the narrator, who tells us that the piece relates to a subject connected with Mirandola, Agrippa, Faustus and Paracelsus, each of whom is associated with summoning of the devil or occult forces. Signor Altotas, the Count's associate, dismisses the idea with a smile and a shrug 'of so equivocal a kind, that Stanhope...was informed by a certain inner instinct that he was being bantered' (316).

Before we have even met the Count, then, we are contending with several potential explanations of a power that we have yet to see in action. The story also offers the distinct possibility that he is a charlatan, an explanation that chimes with pieces elsewhere in *Reynolds's*. Set in 1784, it presents itself as a tale 'founded on the credulity of the last century' which 'swallowed with avidity

the most astounding impostures' (316). As mesmerism, so familiar to readers in 1850, is drawn in, the parallel with the credulity of the current century is evident. Stanhope and Signor Altotas talk of the 'abstruse mysteries of the alchemists, the Roscicrucians, the readers of the planets, the elements of fire, and a heap of crude, undigested nonsense, which, when seriously spoken of, has a powerful effect upon the credulous' (316). The narrator pours scorn on new sciences that, by his account, have no basis in fact and merely serve to trick the gullible. However, the narrative tells a different story. Stanhope is in conversation with Signor Altotas because he cannot resist his compelling influence:

[Stanhope] found himself bound by some mysterious sympathy to an individual in the chamber whom he had never before met...He continually bent the full force of his flashing orbs on [Stanhope], and the young man, feeling himself wearied and jaded...felt an involuntary sensation of stupor coming over him which perhaps placed him under its influence with less of resistance than he would have exerted at another time. (316)

Suddenly, and without knowing how, he finds himself in conversation with Signor Altotas. The feeling of connection or communion, the sensation of stupor, the submission to another's will, the loss of control over one's actions: these are all recognisably elements of mesmeric influence. This is repeated at their second meeting, when again Stanhope falls under his spell: 'It seemed as if there was a stream of magnetism emitted from the stranger, which permeating through every fibre of the young man's frame, subjected him, during the time, to a kind of passive and unresisting submission to his will' (317). The mesmeric influence appears to exist and to have a powerful effect on Stanhope even as

the narrator highlights the nonsense and rubbish peddled by mystical scientists. The narrative requires an investment in the idea that mesmerism works at the same time as the narrator asks the reader to remember that it does not.

Stanhope is accompanied on his visit to the Count by a friend, a blunt and opinionated old soldier, 'one of those who laughed at the count as a *charlatan*, a cheat, a knave, and so forth, who ought to be put in the pillory, and then whipped out of the city' (316; italics in original). The soldier becomes the voice of the narrator's scepticism within the narrative. 'While credulity reigns, that is to say, while man lives, the charlatan will never fail,' he declares, as he resolves to protect his young friend from trickery; "'I'll watch - I'll watch, and if there's jugglery - hum!'" (317). Various proofs are offered, which he finds convincing against his will, and he begins 'to think there is something in all this, more than I can see' (317). His certainty is shaken, and it is he that convinces Stanhope to apply the potion to Hortense's head; at the moment of treatment he does not believe in its power, but is immediately convinced by the results. The character with whom the narrator is aligned is brought round to belief, and his former scepticism comes to look rather foolish in the face of the potion's effect on Hortense. The soldier's change of heart is another undermining of the committed scepticism that the opening remarks suggest should shape our reading of the story.

The uncertainty about mesmeric operation is increased by the result of Stanhope's attempted treatment of Hortense. As I described earlier, the potion removes her symptoms but also brings about a strange and disabling injury. This final section of the story focuses upon the role of belief in healing, and is its most ambiguous aspect. The Count impresses upon Stanhope the importance of his faith in the Count's abilities. 'Between the agent and the sufferer,

between each one who forms the link, and completes the circle of communication, between the patient and myself,' he declares, 'there must be a unity of purpose, an unbroken connection both moral and physical; and above all...you must have faith in the efficacy of this fluid, and my skill' (317).

Stanhope, agitated and miserable, cannot commit himself: "I am anxious to believe...I cannot say so with full confidence in myself: I cannot say that I do *not*" (317; italics in original). Regarding the effects of the potion if there *is* a non-believer in the chain of connection, Stanhope must rely on the Count's assurances that it will do neither harm nor good, and, more ambiguously, that Hortense 'will not suffer more than she does now' (317). At the moment when the potion is applied, neither Stanhope nor the soldier fully believes in its powers. Stanhope is guilty of a failure of attention, his mind being concentrated on Hortense, rather than positive disbelief. Is this enough to disrupt the workings of the potion? Is the once-cynical soldier to blame? Was it Hortense, who is 'half-amused, half-incredulous' about the entire procedure? And how did it cure her symptoms without full belief by everyone present? Then there is the Count's assurance that no harm would come of such a lack of belief: was he lying? Is the devil at work? Is he not in full control of his powers? Is his skill lacking? The story allows all of these possibilities to hang in the air without hinting at a preference for one or another. The effect that faith in a cure can have is central to the story's conclusion, yet its role in the operation of the fluid is not resolved. That something has gone wrong is obvious, and we are encouraged to connect this with matters of belief without knowing what, exactly, the story is pointing us towards. There is also a final possibility that has nothing to do with belief or metaphysical matters. At the moment Stanhope applies the potion, he realises that he took no instructions on how it should be used. "I

know not how to use it,” he cries, “and during all this time her agony must be insufferable.” The soldier suggests that he rubs it on her head, as “it may have some power outwardly, though I suspect it is to be taken inwardly” (318). While the narrative invites speculation about the role of personal belief and the potential influence of dark forces, running alongside is a possibility based on the potion’s material properties: perhaps Stanhope simply applied it incorrectly.

The story holds within it, then, several possibilities as to the nature of the Count’s powers and why the procedure brings about the disastrous results it does. At no point, though, are these possibilities explicitly offered as competing explanations, or even overtly explanations as such. They are raised but not followed up or articulated to the point that they become clear theories; instead they build into a mass of ambiguous information and unresolved, half-developed ideas. The only potential explanation that is clearly expressed is the narrator’s reference to credulity, and as we have seen, this is undermined by the narrative. The story seems at the outset to offer certainty, through this direction by the narrator, but as all certainty dissolves, this confident voice must take its place among other equally persuasive ways of seeing the events described. The attempt to command authority gives way to an inconclusive, slippery narrative which the reader must do his or her best to work out for him or herself. “Faith and credulity are two very different and distinct things,” says the Count (317). The story explores the nature and power of the two, the effects of science and of occult forces - but without ever making it entirely clear which we are dealing with at any one time. The certainties offered by wholehearted belief, by scepticism about other people’s beliefs, by the tangible effects of medicine and of magic, are fractured. We are left with equivocal evidence and lacking an authoritative voice on which we can rely to interpret it for us. This

short story, in its refusal of conclusion and undermining of its own purported convictions, proposes a different, more open, view of mesmerism than that found in the factual reports and editorial opinions elsewhere in *Reynolds's*, and challenges the idea of reliance on would-be guiding voices in the interpretation of evidence.

Each of the three publications I have discussed is engaged in characterising and attempting to categorise mesmerism as it became a ground of contest in the 1830s and 1840s. It was in such popular media, rather than the productions of the medical profession, that large numbers of working- and lower middle-class people found reports of mesmeric demonstrations, medical procedures, and considered and thoughtful pieces on its legitimacy and worth. In these periodicals, none of which had a strongly scientific character, discussion of mesmerism opens the way to larger arguments about where that legitimacy might be found and what qualities make particular practices worthy of respect and value. Mesmerism moves between science, spirituality and pure humbug, allowing us to see the different ideas that were in popular circulation in these decades, and offering an insight into the sources of authority on which the writers of these periodicals drew and their reflections on the place of individual belief and experience in constructing legitimacy.

Both *Chambers's* and the *Herald* were supportive of mesmerism into the 1850s, but their respective grounds for belief in its worth reveal different approaches to the study of the natural world. *Chambers's* believes that mesmerism could be at the forefront of discovery, taking its place among the 'scientific wonders' all around, but that this can only be proved or disproved with proper investigation. This is an expression of faith in both mesmerism and

scientific investigation; it wants to see mesmerism reviewed within a scientific framework but suggests the terms of the framework need to be reconsidered to be more accommodating of phenomena that do not fit easily within contemporary methods of experimentation. There must be room made, it argues, for 'speculative' sciences. The *Herald* is preoccupied by what it sees as a move towards a materialist understanding of human nature, exemplified in rational examinations of mesmeric phenomena. It is less concerned, though, about the incompatibility of modern scientific method and its own spiritual conception of mesmerism, which incorporates metaphysical ideas about universal nature, intuition and the spirit. It questions instead what it sees as modern thinkers' need to 'reduce all knowledge to the form of a science' ("Mesmerism", 6 Apr. 1844 765). Both *Chambers's* and the *Herald*, then, use discussion of mesmerism to articulate their wider ideas about scientific purpose and method. The scientific community's approach to mesmerism, as interpreted by these publications, exposes the flaws in its study of natural phenomena. While *Chambers's* seeks ways to bring mesmeric practice and scientific orthodoxy into accord, discussion of mesmerism is one way in which the *Herald* articulates its conviction that scientific authority is not always valid or worth seeking. The debate around mesmerism was invested in questions about the dangers and possibilities offered by materialist understandings of the body; with regard to these questions, Oppenheim observes, mesmerism could be 'all things to all people' (213). *Chambers's* and the *Herald's* interventions on different sides of this argument, although coming from the same position of belief in mesmerism's legitimacy, shows how these popular periodicals engaged with important debates about new understandings of the human body and the role of scientific thinking. *Reynolds's* takes a

different approach, failing to find validity in any aspect of mesmeric phenomena. For *Reynolds's* it serves no useful purpose; even its entertainment value is compromised by the opportunities it gives unscrupulous fraudsters to take advantage of the credulous. However, like the others, *Reynolds's* treatment of mesmerism offers an insight into how it directs readers to approach and evaluate the world around them, suggesting that one's own common sense and considered opinion is the best source of authority - although the editor reserves the last word for himself. Meanwhile, the fiction of these periodicals offers alternative interpretations of mesmeric phenomena. Sources of knowledge not given prominence elsewhere come to the fore, challenging the clear arguments set out in articles and opinion pieces. Fictional depictions of the trance state and mesmeric influence explore the roles of the subject and practitioner in the construction of authority, and allow links to be made between intellectual and spiritual theories of mesmerism and the lived experience of its effects.

Chapter Three: Anatomy, men of science and popular history

In 1855 *Reynolds's Newspaper*, a weekly publication founded and edited by G. W. M. Reynolds, documented a case of "Illegal Dissection and Disgusting Exhibition". Reporting in ghoulish detail, the story describes how a surgeon illegally obtained a body for medical research and, having dissected it, took the heart and lungs to his local public house - where the deceased had worked as a potman - and displayed them 'streaming with blood on the counter in front of the bar'. There was, the reporter notes, a 'thrill of disgust through the court' at the most gruesome details. The story, with its grim and ghastly surgeon, images of blood and gore, and mix of prurience and respect for the dead, is testament to the fascination that the subject of human dissection continued to command, decades after the body-snatching outrages and the passage of the controversial Anatomy Act 1832, and to the tenacity of traditional images of the anatomist in popular culture. Human dissection was traditionally viewed with horror. Its association with the dark doings of resurrection men long outlived their usefulness to the medical community, while the act of dissection itself was popularly perceived to interfere with burial rituals and compromise the dignity of the dead. The events leading up to the Anatomy Act 1832, and the outcry that followed its passage, had a deep hold on popular memory. Reynolds himself made good use of the horrible and potent possibilities of the subject in his *Mysteries of London*, while their staying power is suggested through the presence of the troubling, darkly comedic resurrection man Jerry Cruncher in the 1859 *A Tale of Two Cities*; indeed, Lisa Rosner has traced the fictional presence of the Burke and Hare murders through the nineteenth century and

beyond (256-259), while Caroline McCracken-Flesher's *The Doctor Dissected* argues for their importance in Scottish culture up to the present day.

The *Reynolds's Newspaper* story is also, however, an important reminder of significant changes in medical practice over the first half of the century. 'As a surgeon he ought to have known better,' commented the prosecuting barrister, comparing the enlightenment of 1855 to the practices of three decades previously, when people were afraid to bury their dead for fear of desecration. By 1850 the worst horrors of the body-snatching days were in the past, and the medical community had laid claim to the anatomist as a key symbol of the move towards professionalisation. For doctors, anatomy was becoming a by-word for good scientific practice and the allegiance of medicine to new discoveries and better treatments. The surgeon in the *Reynolds's Newspaper* piece offers these very ideas in an attempt at self-justification, claiming that he did what he did 'merely for the sake of suffering humanity,' seeking a cause of death and a cure for future victims. However, his monstrous disregard for the dignity of the body destroys his claim to moral authority and de-legitimises his attempt to assert himself as a respectable medical researcher. In anatomy, a professional commitment to scientific method conflicted with popular traditions, and the extent to which the arguments of doctors held weight against long-held beliefs and customs is, I will argue, a focal point for the negotiation of scientific authority over these years.

The sensational use to which the body-snatching trade could be put has been explored in studies of penny dreadful fiction (for example, see the articles by Hackenberg and Powell). My focus, however, is on the figure of the anatomist himself, as a locus for questions about the competing claims of popular feeling and scientific discipline, cultural memory and professional self-

presentation. Ruth Richardson's landmark *Death, Dissection and the Destitute* brings to light the cultural importance of the body trade and subsequent legislation across the popular and professional medical spheres. Studies that focus on these events in the medical context, such as those by Bates (*Anatomy of Robert Knox*), MacDonald and Hurren, offer important insights into the role that resurrection men played in early Victorian medical networks, and the significance of anatomical study in the development of medicine and its practitioners, while the examinations of popular culture I refer to above draw upon developments in medicine to understand how body-snatching and the anatomy murders came to happen, and to hold such an important role in the collective memory. This chapter seeks to add to these histories and to existing work on popular fiction by looking specifically at the representation of anatomists in mass-market periodicals. Over the 1830s and 1840s, coverage of anatomists is inextricably intertwined with stories of body-snatching, and I argue that the focusing of attention on resurrection men makes its own contribution to the way that these periodicals manage the competing ideas about anatomy in circulation. The contrasting identities of body-snatchers and serious scientific men are mutually reliant, but the distinctions between them hard to sustain.

The sinister anatomist, drawing upon all the grisly associations I mention above, was a stock character in early Victorian cheap horror fiction (Bates, *Anatomy of Robert Knox* 163). The periodicals I consider here were more reputable than the cheapest fiction; although the three varied in tone, all shaped their subject matter within the loose bounds of respectability (although one should note that those bounds were considerably roomier for *Reynolds's* than for *Chambers's*, particularly when it came to fiction). Using three different

representations of the anatomist - the man of science, what I term the 'invisible anatomist' and the romantic hero - I ask to what extent and with how much success the traditional fictional stereotype is challenged by newer ideas of the discipline endorsed by the medical profession. I examine letters to the *Lancet* published around the time of the Anatomy Act 1832 and its aftermath, which explore the grounds on which the anatomist was becoming established as symbolically and practically important within the rapidly professionalising medical community. Turning to popular periodicals, I find that a series of short pieces on anatomy and anatomists reflect the arguments advanced by the medical community, with the idea of the research surgeon as modern public servant pushed to the fore. However, I argue, elements of the traditional sinister anatomist continue to make their presence felt, disrupting arguments made at an intellectual level. The miscellany format of the early Victorian periodical creates its own meanings, as fictional and anecdotal pieces drawing on long-held traditions interact with articles that reproduce the arguments of the emergent medical profession. I also examine G. W. M. Reynolds' most famous treatment of the subject of anatomy and body-snatching, which appeared in his long-running serial *The Mysteries of London* and offers both a counterpoint to positive representations of the anatomist and a more complex view of resurrection men than his journal usually permits. Finally, my close reading of a domestic romance examines a rare imaginative representation of the anatomist as a realised character, arguing that the attempt to fit this character within the fictional conventions of a family magazine reveals the cultural tenacity of the gothic stereotype and the difficulties and contradictions inherent in portraying the modern surgeon, and raises questions about the boundaries between the two.

Anatomy, the public and the medical profession

The public perception of anatomy

If certain whispers current in the Kingsgate Street circles had any truth in them, she had indeed borne up surprisingly [upon the death of her husband]; and had exerted such uncommon fortitude as to dispose of Mr Gamp's remains for the benefit of science. (Charles Dickens, *Martin Chuzzlewit* 378)

Training in anatomy was a requirement of many of Britain's medical licensing bodies, and as the nineteenth century progressed it became increasingly difficult for medical students to qualify without having had practical experience of dissecting cadavers. However, prior to 1832, corpses for dissection could lawfully be obtained only via voluntary donations, or from the gallows. The former was essentially of no use, as very few people were willing to offer their own bodies or those of deceased family members. General distaste at the idea of oneself or one's loved ones being dissected was heightened by a strong feeling that to allow this would be to interfere with the proper process of burying the dead with respect and to violate what was seen as the sanctity of the grave. Burial rituals were of huge importance among all classes: whether at great expense or very little, it was a solemn duty to ensure that loved ones were laid to rest with due ceremony. As well as this being a mark of respect, there was a popular belief that the customs surrounding a 'good death' were important to safeguard the soul (see Ruth Richardson, *Death, Dissection and the Destitute* 3-29 for a detailed discussion of popular burial traditions). The suggestion that the heartless Mrs Gamp willingly sold her

husband's body for dissection is an early introduction to the greed and lack of human feeling that characterises her. It suggests a gross disrespect both for social codes and for her husband's entitlement to dignity and care, traits which are borne out in the development of this notoriously unsympathetic character.

In his attack on the Anatomy Act 1832 (an important piece of legislation which I will discuss shortly), radical writer William Cobbett appealed to what he claimed as the universal understanding that the human corpse is sacred: 'the bare sight of a dead human body fills us with serious thoughts, and...even a funeral, passing by, has, in some degree, the same effect' (279). The same piece expresses a visceral disgust at the idea of handing over a human body to 'the butchers' to put 'their knives in his belly, and be hacking and chopping him to pieces like the carcase of a dead dog' (280). Cobbett's is a polemical, political piece deliberately expressed in colourful language, but the feeling that human dissection was demeaning and dehumanising remained common long after the practice had been legislated into supposed respectability. The feelings of disgust and violation associated with anatomical practice are brought to life by a court report of 1851, decades after the body-snatching scandals and the passing of the Anatomy Act 1832. Published in *Reynolds's Newspaper*, it gives a moving account of one man's terror that his late wife's body will be taken for dissection if he cannot afford a funeral; as the bereaved husband weeps openly, the magistrate rules that the parish must bury her 'instead of permitting the old man's feelings to be lacerated by the fear that the corpse would be disposed of in a very different way' ("Inhuman Conduct").

The only bodies left available for dissection were those of executed criminals, and the association between criminal punishment and dissection increased people's unwillingness to offer their bodies for medical research.

Cobbett's petition against the Anatomy Bill 1828 - which was developed into the Anatomy Act 1832 - argues that 'it is unjust, cruel, barbarous to the last degree, to dispose of [a pauper's] dead body to be cut up like that of a murderer, and to let him know beforehand, too, that his body is thus to be treated, thereby adding to the pangs of death itself' (263). More significantly, the gallows could not come close to satisfying the numbers of bodies required by the anatomy schools, leaving a vast gap between demand and legitimate supply. The result was a thriving market in human bodies. Resurrection men - who removed newly interred bodies from their graves and provided them to the anatomy schools in exchange for money - plied a busy and lucrative trade from the late 1700s until the Anatomy Act 1832 took effect (Ruth Richardson, "A Potted History"). Although not technically illegal, their activities were met with horror, outrage and disgust throughout society, and particularly by working-class communities: popular disturbances erupted in a number of towns and cities where body-snatching was found to be occurring (Ruth Richardson, *Death, Dissection and the Destitute* 85-90). It was seen as a triple violation: to the final horror of dissection was added the outrage of disturbing a body in its grave and the violence of the methods used to remove it and make it unidentifiable. So prevalent was the practice that by the 1820s those who could afford it would post guards to protect newly-buried bodies (Rosner 38); those who could not were most at risk from the body-snatchers, but clubbed together to form their own voluntary watches (Ruth Richardson, *Death, Dissection and the Destitute* 83). Anatomists were aware of the provenance of their subjects, but viewed it as a necessary evil: an 1824 letter to the *Lancet* comments, 'We all know that anatomy must be studied, and we are equally aware of the necessary means that are required' ("Anatomy and Body-Snatching" 313). However, body-

snatching was not the only offence of the body trade, and its worst excesses were revealed by the notorious murders of the late 1820s (chiefly those associated with William Burke and William Hare), the victims of which were killed specifically so that their bodies could be sold to medical schools. The extent of anatomists' awareness of these murders remains a matter of debate (Rosner 251).

At the time of the Burke and Hare murders, the Anatomy Bill 1828, which sought to regulate the means by which medical schools obtained bodies for dissection, was under discussion. The matter was given extra urgency by the exposure of the anatomy murders, and led to the passing of the Anatomy Act 1832, supplemented by the Poor Law Amendment Act 1834. This legislation sought to end the body trade by providing a legal source of corpses for the use of medical schools. Doctors and private anatomy lecturers were united in their defence of dissection as fundamental for the treatment of current patients and development of medical knowledge, claiming that a legitimate supply of dead bodies was essential for their work. Politicians supporting their cause argued that a way must be found to protect and support anatomical practice. Accordingly, the bodies of all those who died in hospitals, workhouses and prisons were to be given to anatomy schools if they were not claimed by friends or relatives within 72 hours.

Radicals who sought to speak for working-class men and women found the thinking behind the Act highly objectionable. William Cobbett took issue with the idea that the bodies of the poor should be transformed into public property for the use of medical science, describing it as 'a species of oppression more odious as well as more cruel and more hostile to the feelings of humanity than any ever before heard of in the world' (265). The radical MP Henry Hunt

argued repeatedly against the Act in the House of Commons, referring to 'persons who were fond of junking up the bodies of others, but who shewed the utmost repugnance to have the same measure practised on their own,' and arguing that 'the Bill might be a very good one for anatomists, but that it did not give the slightest protection to the public' (HC Deb 27 Feb. 1832 841-842).

These arguments echoed popular feeling, which recoiled at both the very idea of being dissected and the inhumanity of the proposed treatment of the destitute. 'It would be difficult', Bates argues, 'to exaggerate popular revulsion at the new law' (*Anatomy of Robert Knox* 90). Ruth Richardson has described how the Act inspired workhouse unrest, civil disobedience and political agitation. Fears of being taken for dissection inflamed tensions around the cholera outbreak of 1832, leading to riots and attacks on hospitals. As the Act passed through Parliament, there were serious disturbances in a number of English and Scottish towns and cities as working-class men and women protested against its provisions. This anger did not entirely disappear in the years following the Act's passage, which saw attacks on anatomy schools in Cambridge and in Sheffield, where the school was entirely demolished (*Death, Dissection and the Destitute* 226-228; 202; 263).

Anatomy and the medical profession

While the public, particularly working-class men and women, was generally hostile towards the idea of human dissection, the discipline was of growing importance and prestige within the medical community as the century progressed. The huge demand for cadavers was fuelled by the recognition among doctors of the benefits of anatomical study, and twenty-six years after

the Anatomy Act 1832 came the Medical Act 1858, which required would-be doctors to study human anatomy for two years as part of their certification. By 1875 doctors could not qualify without having had practical experience of human dissection. In the years between the 1832 and 1858 Acts, anatomy took on increasing status within the medical community, becoming ‘the symbolic core of scientific medicine’ (Jordanova 100) and a marker of expertise and doctorly identity. The practical study of human anatomy was perceived to be the gold standard for aspiring doctors: ‘As training became increasingly standardized and regulated, anatomy emerged as the ideal medical knowledge - detailed, complex, testable, and unlikely to be acquired outside recognized schools’ (Bates, *Anatomy of Robert Knox* 6). It was lauded as the pinnacle of medical work, enabling practising doctors to provide better care and research scientists to make great strides in understanding the human body. The framing of anatomy as an essential aspect of medical care and research activity contributed to doctors’ ability to position themselves as men of science contributing to the sum of human knowledge.

This view is reflected in letters and articles about dissection published in the *Lancet* over the 1820s and 1830s. These shed light on the medical community’s own view of anatomical practice and give an interesting glimpse of how surgeons and anatomical lecturers saw themselves over this period. Dissection is here uniformly represented as a noble and important practice, tending towards the good of current and future patients alike. It is ‘a matter of high importance to the nation,’ ‘of general utility,’ (“Anatomy and Body-Snatching” 313) and ‘necessary to prevent the most deadly mistakes’ (“Proofs of the Importance of Anatomy” 669). Anatomical practitioners, whether private lecturers or registered doctors, are shown as striving constantly towards this

worthy aim. A 'country anatomist' explains how, like the hospital surgeons, he is 'desirous to promote the interests of science, the ends of justice, and the cause of humanity' ("New Anatomy Bill" 521). J. H. B., a doctor, explains the personal cost at which this service is carried out, describing the 'serious and fatal consequences' often resulting from 'the ardour with which the members of the medical profession themselves continue their zealous endeavours in anatomy' ("Anatomy and Body-Snatching" 314).

The other side of the elevation of anatomical study was, of course, the downgrading of those without the preferred training. While doctors and private lecturers were able to unite around the safeguarding of dissection, the marginalisation of the latter became important as professional identity came to rest upon the possession of particular qualifications. As I discussed in Chapter One, the exclusion of less-qualified outsiders was an important aspect of medical and scientific professionalisation. The growing emphasis on anatomy acted as a barrier to entry to the medical profession, limiting access to an ever-decreasing pool of students as dissection was restricted to universities (Bates, "Indecent and Demoralising Representations" 7). As Adrian Desmond notes, 'The body anatomized and dissected was part of [surgeons'] professional domain, one they guarded jealously, not only against the prescribing physician but against the private and university anatomists' (*Politics of Evolution* 12).

Dissection, Bates suggests, also acted as a unifying and unique rite of passage - a 'shared, tabooed and privileged experience' (*Anatomy of Robert Knox* 8) that excluded both patients and practitioners who had not gone through it. Keeping lesser medics out was important, but so was establishing a sharp division between the profession and the general public. A furious letter to the *Lancet* from a Dr P. H. Green rails against the stupidity of those that object to

dissection: 'Shackled by the prejudices and ignorance of the public, exposed on the slightest excitement to the blind fury of the mob, nothing but a bold and vigorous effort of the profession can save us from the difficulties and dangers with which we are beset' ("Remedy for Burking"). Keeping knowledge and practice private and for medical eyes only, was, Rosner argues, an important element in the framing of anatomy of a scientific discipline along with other, less controversial areas: 'Who asked the chemist to account for his reagents? Or required the physicist to seek permission for his magnets and copper wire?' (155). The alignment of the anatomist with other men of science and, hence, the corpse with other experimental materials, necessarily implies a conception of the dead body as a scientific commodity, an issue to which I will return later in this chapter.

The self-presentation of doctors and anatomical practice that were so important to professionalisation intersect significantly with *Reynolds's* and *Chambers's* own later explorations of anatomy, body-snatching and the status of the medical profession. Very rarely do the three periodicals discussed in this chapter address the anatomy scandals or the associated medical and social questions by way of reportage or factual analysis. It goes without saying that they were not specialist medical journals with a particular interest in the internal politics of the profession; as I discuss in the Introduction, they were also subject to the tax on knowledge and were not at liberty to discuss current affairs directly. Of the three, only *Chambers's* was in existence during the early 1830s, when the body-snatching scandals were very recent history and the Anatomy Act 1832 was passing through Parliament. For all these reasons, I would suggest, the developments I outline above are alluded to only loosely; the reader's knowledge of the body-snatching scandals and the purpose to which

disinterred corpses were put is taken for granted, but the subsequent legislation and changes in medical practice are not analysed in a systematic way.

Even at the end of the period covered by this thesis, however, the body-snatching scandals and the passing of the Anatomy Act 1832 were in living memory of middle-aged adults, and the presence of body-snatchers and anatomists in popular fiction in these periodicals and elsewhere indicates that they had not lost their interest. Perhaps even more than for the topics I discuss in other chapters, it is in fiction, tall tales, urban myth, and (apparently) real life human interest stories that we find anatomy being addressed in these periodicals. This has significant consequences, raising issues around genre, characterisation and who is represented in these pieces. As I will argue, the stories draw on both traditionally sinister fictional images of anatomy and the new, professionalised figure in which the medical community was heavily invested. The *Lancet* letters and articles cluster around 1831-1832, as the potential anatomy legislation was debated inside and outside Parliament. By the 1840s the *Lancet* had moved on to other matters; the compulsion to justify and defend anatomy had largely passed and there is more focus on the outcome of anatomical experiments, along with the odd piece on specific effects of the Act.²⁵ In the popular periodical press, however, although in less formal styles and using a fluid mix of genres, we see arguments about the character of the anatomist and the purpose of his work being rehearsed and explored well into the 1840s, suggesting that while the medical profession was clear about

²⁵ See, for example, "Dissections in the Schools, and in Private", which highlights the problems of national qualifications, and "Discussion on the Anatomy Act: Alleged Scarcity of Subjects", a report on a medical meeting seeking amendments to the Act. The first incarnation of the *BMJ*, the *Provincial Medical and Surgical Journal*, began publication in 1840; it, too, shows little interest in exploring the need for anatomy and focuses instead on the results of anatomical investigations.

the validity and importance of the discipline, popular memory had a strong hold and the topic remained an unresolved one for these periodicals.

Men of science and popular custom

Servants of Science

Chambers's published a response to the debate provoked by the Anatomy Act 1832 that, in the context of these magazines, is unusually direct (albeit published three years after the legislation came into force). "Uses of Dissection", which appeared in 1835, sets out a strongly-worded case for allowing corpses to be used by medical schools. In numbering the benefits of dissection, it echoes the arguments of the medical profession, including familiar points about the importance of this work in advancing treatment and research. However, the foundation of the article is a moral and spiritual perspective that regards donation of the dead body as a human duty, on the basis that to view dissection with repugnance exposes human nature in 'a mean point of view' and that it is a 'singular kind of selfishness' to want to benefit from medical discoveries without being willing to give up one's own body after death (154). So ardent is the writer about this idea, he comes close to blaming the dead and their relatives for the body-snatching outrages: 'Had the relations of the deceased, in cases of importance, permitted the diseased parts of the bodies to be examined, such practices need not have occurred' (155). The moral imperative to donate one's body is also connected to the knowledge gained by anatomists in their work, which is presented as supporting and enlarging a religious understanding of humankind: it is capable of 'raising our sentiments of

‘veneration for the Supreme Being’ and increasing each person’s understanding of ‘the beautiful harmony of nature’s works’ (154). The piece, then, supports anatomists’ views about themselves and their own work, but locates this within a spiritual worldview that sees scientific practice as a way of understanding God’s creation, a framework which was also the avowed aim of Robert Chambers’ *Vestiges of the Natural History of Creation*.

This was a particularly direct piece; in *Chambers’s*, a more common way of addressing the subject, and one used also by the *Lancet*, is to refer respectfully and admiringly to venerable anatomists to promote the profession as progressive and of unique importance.²⁶ These pieces echo the characteristics attributed to the profession as a whole by the *Lancet*. They refer to the ‘immortal’ men whose work will live for ever (“Hunter’s Experiments in Animal Grafting”). The ‘important discoveries’ that changed our understanding of the human body (“Biographic Sketches: John Hunter”), the unique proficiency in medical treatment and the personal sacrifices made by these men for the good of science (“Biographic Sketches: John Hunter”; “Biographical Sketches: Sir Astley Cooper” 254) are all prominent themes. These informative factual pieces tend to endorse the idea that anatomy is work of the highest importance and its practitioners public servants, without engaging with the popular feeling that led to riots and disturbances following the anatomy murders and the Anatomy Act 1832.

These pieces show little of the ambivalent approach to modern science that we saw in the discussion of mesmerism. As we saw in relation to that subject, and as I will discuss further in Chapter Four, *Chambers’s* expresses

²⁶ In the *Lancet*, see, for example, “Anatomy and Body-Snatching”, which lauds John Hunter as ‘illustrious and immortal’ (313) and “Proofs of the Importance of Anatomy” which remembers him ‘among the benefactors of our race’ (668), also praising his pupil John Abernethy in glowing terms.

and encourages respect for the medical profession as a provider of care and a source of knowledge, particularly in comparison with less formal alternatives. If the journal's (or its editors') philosophical approach to scientific method was not always in step with more mainstream thinkers, this does not mean that the tangible successes of medical research were not to be celebrated. There is a distinction to be made between its endorsement of doctors as medical practitioners and researchers, and its frustration with the limitations of scientific, including certain aspects of medical, research. As I showed in Chapter Two, *Chambers's* took a materialist approach to mesmerism, believing that its value was in the new understandings it could offer of human physiology and that its truth would be demonstrated with careful practical scientific study. It is perhaps therefore not surprising that the journal was enthusiastic about the new information and advancements that human dissection offered. As I discuss in the next chapter, *Chambers's* useful knowledge philosophy is also an important factor in its presentation of the medical profession, as distinct from its more general reflections on the direction of scientific thought.

Perhaps more surprisingly, given the political leanings of its founder and editor, a number of *Reynolds's* articles adopt a similar point of view, endorsing anatomists and their work on the same grounds as those adopted by the medical profession. These pieces are more colourful than *Chambers's* "Uses of Dissection", merging social analysis with fictional narrative style. However, their support for the profession is not expressed by the inclusion of sympathetic anatomist characters; in fact, there is no direct representation of anatomists at all. Instead, body-snatchers take centre-stage with anatomists referred to as a point of contrast. There is a clear dichotomy between debased resurrection men and noble doctors, which invests all the horror and disgust associated with

anatomical practice in the body-snatcher, leaving the man of science seemingly untouched by the unsavoury aspects of his work and free to embody progress and professional integrity. It appears that readers are intended to take this at face value, but, as I will argue, other elements of these pieces interfere with a simple apportionment of moral integrity.

“The Body-Snatcher”, an 1848 story by Alfred Robinson, illustrates this pattern of separating the evils of resurrection men from the work of the medical profession. The piece begins by reminding readers of the great interest over the previous three decades in ‘abuses’ ‘connected with the medical profession’, claiming that of all the ‘medical matters’ in the spotlight it was body-snatching that most interested the public (405). Despite having placed body-snatching in its medical context, however, the writer is insistent in his assertion of the vast gulf between the work and moral character of doctors, on the one hand, and resurrection men on the other. Explaining how anatomists came to require corpses for dissection, the writer explains that ‘Science - indeed the common welfare of mankind, pointed out to the surgeon’ that the only way in which he could gain adequate medical knowledge was ‘by the study of the dead body’ (405). Not only is the surgeon’s work justified by the ‘common welfare of mankind’, he is absolved of responsibility for the decision to carry it out, having been directed by ‘Science’ which is here apparently an autonomous entity with opinions and powers of its own. Unfortunately, the writer goes on to tell us, the law did not provide the surgeon with a way to obtain dead bodies, and so ‘it became necessary’ to resort to illegal means (405). Having established the anatomist as a public servant, acting under the noble influence of Science, we move on to the resurrection men who now become the focus of the rest of the story.

In contrast to the anatomical work with which it is mutually dependent, body-snatching is a 'revolting practice,' a 'horrible custom' (405), a 'disgusting calling' and a 'dreadful business' (406). The piece begins as an analysis of the conditions that underpinned the body trade, more akin to a factual or opinion article than a sensational story, but as the resurrection men come into view the style abruptly changes to conventional fictional narrative and we turn to the story of John Westwood, a body-snatcher who finds himself implicated in the murder of his own daughter Amy for use as a medical subject. While the first part speaks about anatomists and their work without depicting them directly, the change in style allows a detailed and colourful portrait of the lead characters. The description of John is not a flattering one: 'There was nothing either in the countenance or general appearance of the man that enlisted the beholder in his favour,' and 'his swarthy countenance...told you plainly that his employments were of no ordinary kind' (405). A regular indulger in 'vicious company and habits' (406), John is weak-willed and easily tempted by drink and gambling. His partner-in-crime Jem, meanwhile, is a 'hardened villain' (406), unmoved by the horrors of his work. In contrast to the generic anatomist, these men are motivated by money and Dutch courage, and indifferent to the moral issues of their trade.

The importance of motivation in separating the work of doctors from that of body-snatchers is highlighted in a second *Reynolds's* piece, "The Resurrectionists" (1853). It follows a very similar format to "The Body-Snatcher", beginning with a survey of the rights and wrongs of the body-snatching trade and setting doctors against body-snatchers, before moving into a pair of tales from those times, which are presented as true stories but told in dramatic and colourful style. As the writer looks back to the days of body-

snatching, his disgust is reserved entirely for the resurrection men. As in “The Body-Snatcher”, the writer stresses the ‘utmost importance’ of anatomy and the necessity for doctors of securing a supply of cadavers. Resurrection men, he is willing to admit, were in this respect ‘useful to science,’ but regardless of this they were ‘wretches,’ regarded by the public with ‘an unutterable loathing’ that was entirely merited. The outrage stems not from what they did, but why they did it: ‘[They] did not follow [their] odious occupation *because* it was thus useful to the public, but from the most deplorable of motives - for filthy lucre’s sake’. Doctors, the writer claims, were sometimes forced to dig up graves themselves, but in their hands this is transformed into an act of necessity in the service of medicine; indeed, it is a display of ‘daring, strategy and courage’. The depiction of the anatomist as a servant of science, the idea that he must therefore be acting under noble and important impulses, and the acceptance of an absolute need for him to obtain bodies by whatever means necessary, all accord with the accounts medical men gave of themselves during the debates about anatomy. In a move that appears in more complex ways in the romantic fiction I discuss later, these pieces also offer excitement and narrative interest by drawing on the notoriety and scandal of anatomical work, but at the same time cloak it in the respectability of medical men.

History, comedy and popular lore

Another common factor in the *Reynolds’s* pieces on body-snatching is their temporal structure: they begin at the current time and survey the practices of the recent past from the vantage point of a more enlightened present. The emphasis on these uncomfortable facts about anatomical practice being firmly

in the past is an important element of a second way in which pieces in both *Reynolds's* and *Chambers's* support anatomists' claims to authority; that is, the presentation of dissection as forward-thinking and progressive, and the associated depiction of fears of anatomy as an indicator of old-fashioned rusticity or gullibility. Body-snatchers are frequently seen in comic stories, which rely on popular dread of being resurrected as the basis of the joke. One such story, "The First Lucifer", published in *Chambers's* in 1844, tells of the prank played on Sanders Niven, who has never seen a Lucifer match (an early friction match sold from the late 1820s). We join the speaker as he has already begun to recount the tale: the first words are, "About this time an extraordinary event happened in the burgh" (401). We are immediately located among a company listening to a yarn; the combined effect of being established as part of a group and being set up as a listener rather than a reader associates the story with folklore and well-worn narratives (and we will learn later that the story has been told and re-told many times). Sanders' unfamiliarity with modern matches identifies him as a simple, rustic character and a suitable victim for the prank, which is based on frightening him with tales of resurrection men and horrible doings in dissection rooms. 'There's a place called Surgeon Square that could tell many a tale of horror,' warns one of the pranksters, going on to describe anatomists' rooms filled with 'fearsome things' such as 'a girning chaft of a split-up head, or a wee monkey-like wean that had never come to life, and was now put up here to dance in a bottle o'speerits to all eternity' (402). Having worked Sanders up to a pitch of fear, the punchline is to terrify him by lighting one of the new matches unexpectedly. The joke is on Sanders for being old-fashioned and backward, and the implication is that being taken in by rumours of 'dreadful' lecture rooms and 'fearsome' doctors is as foolish as being afraid of a

commonplace match. Sensible, modern people, within which category the reader and all the other assembled listeners are impliedly included, know better than Sanders. We are set apart from a point of view that sees anatomy as sinister and body-snatching as fearful and distressing by the assumption that we are in on the joke. The story also includes an account of a body dug from its grave and driven through town dressed up in a bonnet and a cloak to deceive passersby, which has a distinct feeling of urban myth. The passing of body-snatching and anatomy into folklore and local legend suggests that the topic still has cultural resonance, while also positioning it as history: 'I daresay it must be fifteen years since; so you see it's not a story of yesterday that I am going to tell you' (401). Another comic story or tall tale set up in a similar way, "The Luckpenny", appeared in the same periodical in 1838, suggesting that for some of *Chambers's* writers these events passed into history within a very few years.

One effect of setting dubious practice in the distant past is to distinguish it from modern medicine; as Rosner observes, contemporary advances appeared all the more enlightened and progressive against exposés of past medical practice (5). There is certainly an element of this in the pieces I discuss above, which emphasise in both their structure and their content that the bad old days are now in the past. These stories rely to a certain extent on the gothic and grisly stereotypes popularly associated with anatomical practice during the early decades of the century, in order that medical men can be characterised against the qualities invested in the body-snatcher as modern, progressive, and ready to act in the public good. However, insistence upon a line between past and present leaves open the possibility of a comparison between modern doctors and their counterparts of a decade or two ago, and so the further possibility of the anatomists of the past being found wanting.

Similarly questionable is the insistence with which the positive image of the anatomist is conveyed and the arguments in his favour rehearsed, ten to twenty years after the Anatomy Act 1832 was passed, and even as the articles themselves portray concerns about anatomical practice as long expired. This suggests an awareness that the perspective of the articles is not universally accepted, even though opposing viewpoints are not given an airing. The section following this raises questions about the extent to which traditional popular views of anatomists edge into pieces of this nature even where they are not explicitly acknowledged.

These pieces, then, although they do not depict anatomists directly, lend support to the case for dissection, implicitly distance themselves from popular custom, and reflect the move towards professionalisation that was taking place over these years. The terms on which the medical community became a profession, an issue that might on first glance seem primarily of interest to doctors, made their way into these periodicals aimed at working-class men and women in search of leisure reading. This supports the argument I make throughout this thesis: that to explore how science and scientists were represented to ordinary men and women, and how scientific authority was established and negotiated with these audiences, we need to consider popular general interest publications as well as the more obviously scientific reading that is more often the subject of investigation.

Of further interest in the case of *Reynolds* is that the presentation of the professional anatomist so enthusiastically reflects that put forward by the medical profession in the face of working-class and radical scepticism. One might have expected that fervent champion of the working man, G. W. M. Reynolds, to take a rather different view of the effects of the Anatomy Act 1832.

Reynolds's Newspaper, which ran from 1850, is fairly subdued on the subject in its early years, mainly offering occasional court reports relating to breaches of the Act. Reynolds's most sustained engagement with the subject was via his long-running serial *The Mysteries of London*; indeed, the prominence in this epic work of the resurrection man Anthony Tidkins may contribute to the relative lack of fiction on the subject in *Reynolds's Miscellany*, it having been dealt with in detail there. This work's treatment of Tidkins and his surgeon colleagues suggests a more nuanced approach to their motivations and character than the stories I have so far discussed in the chapter, blurring although not wholly dissolving the clear boundaries between the two constructed by *Reynolds's Miscellany*. To be sure, Anthony Tidkins - or the Resurrection Man, as the text usually refers to him - embodies the characteristics of the grotesque body-snatchers I discuss above: personally ghoulish in his 'cadaverous' appearance, associated with London's darkest and most depraved neighbourhoods, carrying a disreputable air in his 'seedy suit of black' and unwilling to meet the eyes of others (52). To add to the sense of monstrosity that surrounds him, his aged mother is referred to as 'the Mummy'. Also reflecting the standard portrayal of the resurrectionist is Tidkins' heartless approach to the bodies in which he deals. His work, as Sara Hackenberg has discussed, is turning corpses into commodities (65); for him, body-snatching is a commercial matter, not a moral concern:

"And are you really -" began Richard, with a partial shudder; "are you really a -"

"A body snatcher?" cried Anthony; "why of course I am - when there's any work to be done; and when there isn't, then I do a little in another line." (53)

Needless to say, that line of work involves, among a range of criminal activities, finding other ways to provide anatomists with the corpses they require.

So far, then, so familiar. However, Reynolds goes on to provide the Resurrection Man with a back story that presents his criminal activities and his way of life as a result of social injustice, complicating the categories of good and bad proposed by the stories I discuss above. After the unjust incarceration of his father, it becomes impossible for the family to earn an honest living; it is only after exhausting all other options, and in the process becoming disillusioned with the structures of society, that Tidkins takes his leave of ordinary morality and commits himself to a life of crime. Even the Mummy is problematised; as the story unfolds we learn that she was given the name because of her appearance after becoming incurably weak, ill and thin during the imprisonment of Tidkins senior. She is both a hideous accessory to her son's sinister identity and lifestyle, and a cruel victim of circumstances. G. W. M. Reynolds intended for the *Mysteries* to elucidate his political views ("Notices", 17 June 1848) and this storyline is a clear reflection of this, offering a socialist analysis of an unquestionably unsympathetic character with more freedom than the *Miscellany* usually permitted.

Genre and the invisible anatomist

One feature shared by all the periodical pieces I discuss above, along with most other popular periodical stories on the topic of which I am aware, is the absence of the anatomist as an imaginatively represented character. Anatomists are spoken about in general terms, but they do not often appear as individually characterised figures, except in the case of biographies, which tend

to be straightforwardly laudatory. Even in imaginative pieces which refer to a particular anatomist, as in “The Body-Snatcher”, where we learn that ‘Professor _____ had applied for a subject’ (Robinson 406), no attempt is made to flesh out the character or to give him a presence in the story. The prevalence of this ‘invisible anatomist’, I suggest, indicates a pervasive difficulty in imaginatively representing anatomists and their work in ways that accord with the professional, modern image otherwise supported by these pieces. Traditional perceptions of anatomical practice were culturally tenacious and, as evinced by the unrest that greeted the Anatomy Act 1832, not easily overcome by the arguments of doctors and legislators. The association of anatomy with dark doings and sinister men was an established literary trope, as well as an assumption widely held by working-class men and women. I suggest that the lack of directly represented anatomist characters is a symptom of the difficulty of shaking the anatomist free of unpleasant associations and creating a new picture of the modern practitioner.

A further diversion into Reynolds’ *Mysteries of London* introduces some of the complexities that are raised by the presence of anatomist characters within the text. Reaching back into folk memory rather than addressing the position since the passing of the Anatomy Act, this work does not pick up the questions asked by radical writers about the effects of that Act. However, its representation of the surgeon to whom the Resurrection Man plies his trade is ambiguous, challenging the claims of social good and moral intent made by the medical profession. The surgeon is disgusted by the work of the body-snatchers, afflicted with ‘certain feelings of horror at the business’ and ‘aversion’ as if ‘a loathsome reptile [had] crawled over his naked flesh’ (126), but his own essential role in their work is faced directly and his motivations questioned. A.

W. Bates notes the power relationship between anatomist and resurrectionist in the *Mysteries*, brought out more clearly here than in the other stories I have discussed: although the resurrection men are horrible in all senses, they are also subservient to the will of the surgeon (*Anatomy of Robert Knox* 161). “You command - we obey,” says Tidkins (126). The surgeon is not only involved in but in charge of the night’s work, accompanying and directing the resurrection men as they break into a church to remove a body from a vault, showing them where to dig and explaining what they will find inside (fig. 3).



Figure 3: Illustration. George Stiff. G. W. M. Reynolds. *The Mysteries of London*, Vol. 1. London, 1846: 121. *Google Books*. Web. 2. Feb. 2015.

The source of the surgeon’s insider knowledge raises serious questions about his personal character: “I would not for the world that the family of the deceased should learn that this tomb has been violated,” he declares - but any assumption that this might be to spare their feelings is quickly dispelled by the

next sentence: “Suspicion would immediately fall upon me; for it would be remembered how earnestly I desired to open the body, and how resolutely my request was refused” (126). Even worse, he knows the location of the body because he “gave the instructions for the funeral myself, being the oldest friend of the family” (127), revealing him as a man willing to exploit his bereaved friends to satisfy his ‘thirst for science’ (123). This portrayal of a man antisocially obsessed with anatomy draws upon and also keeps alive the long-standing associations and ideas that contributed to popular fear and revulsion about human dissection. The surgeon may be horrified by the work of the body-snatchers, but he is also inextricably implicated in it, and witnessing from a position of compromised integrity. As the narrative will not allow us to rest on easy ideas that the resurrectionists are simply bad men, so the surgeon’s moral integrity is distinctly questionable, and the oppositions between them begin to dissolve. I discuss later in this chapter how the *Family Herald*, a publication very different in character from the *Mysteries*, also uses fiction to explore the permeability of the contrasting traditions of folk history and modern medical ideas about anatomy.

Returning to the periodical pieces I discussed earlier, and to the absence from them of realised anatomist characters, those that make an explicit argument in favour of anatomy often juxtapose historical and social analysis with a narrative style that reads like fiction. I connect the mixed genre of many of these pieces with an underlying unease about the figure of the anatomist. It is, it appears, easier to make the positive argument - that these men work for the public good and are driven by noble aims - on an intellectual, analytical level than it is to translate this into a sympathetically rendered picture of the anatomist himself. We are asked to respect and admire the anatomist but not

invited to identify with him or see through his eyes. This raises questions about whether it is possible to depict the anatomist without addressing the realities of his work, therefore taking the reader inside the dissecting room, or to present a scene of this nature outside the genre of horror or penny dreadful writing. (The final section of this chapter, which examines the only imaginative representations of anatomists and their work I have found, explores these ideas further.) This mixing of genre, I suggest, is particularly possible in periodical articles; of course, fiction of all types can include factual interludes and the framing of fictional works as true histories is as old as the novel itself. However, the periodical is an unusually flexible format because of its mix of discrete articles on fact and fiction, history and analysis, biography and accounts of lived experience. A piece on anatomy could conceivably fit any of these descriptions, and it is not necessarily immediately clear to the reader what sort of article they are reading. It is possible for a piece to present itself at the outset as falling into the category of 'true stories', only for it to become clear that it is fiction. This adds to tall tales and urban myths by adding an element of uncertainty about whether we are to read it as a true account or a piece of fiction. As the periodical format accommodates different types of article, it also allows the hybrid pieces I describe above, which include a mix of genres within them.

As I note above, the argument in favour of anatomy relies partly upon drawing upon the popular dread of the anatomical trade, by associating it only with resurrection men so as to contrast with anatomists themselves. The writers themselves introduce this dichotomy, but do not necessarily have control over how neatly the elements stay within the boundaries set for them.

Anatomists are, after all, present by implication in every story that features

body-snatchers. Professor _____, in his request for a cadaver, is the starting point in the chain of events that leads to Amy's murder, and he is also its natural end point, as the intended destination of the stolen body is his dissecting room. (The story in fact ends in a boat en route to the Professor's rooms as John discovers the identity of the cadaver, kills Jem and himself and leaves the corpse to float away.) This bookending is the structuring principle of any story featuring a resurrection man or a body earmarked for dissection; whether the anatomist appears or not, he is both the start and the projected end of the story. The narrative itself discourages us from regarding him as implicated in the horrible work of body-snatchers - either by explicitly excusing him or by simply failing to mention him, as is often the case in the comic stories - but his presence is raised by the very nature of the story and arguably the attempt to dissociate him from the darker side of dissection is compromised.

I would also suggest that the narrative structure of these pieces is ultimately sympathetic towards readers who balk at the thought of human dissection. As mentioned above, Amy's body, in "The Body-Snatcher", does not make it to the anatomist's rooms. This is, almost necessarily, another common feature of stories about stolen bodies; for the events to be narrated, they have to have been discovered, which usually means that the corpse is rescued before it can be dissected. Indeed, the discovery of the body is usually the climax of the piece, either for dramatic or comic effect, depending upon the tone of the story. In "The Luckpenny" the black humour arises from a greedy old woman finding herself trapped under a resurrected body in a sack all night; this is the point towards which the story works, but there is a postscript explaining that she paid for the body to be returned to the grave with due ceremony. In "The Resurrectionists" one set of men is discovered on their way

to the surgeon's and the corpse is ultimately reinterred, while the other group is stopped at the graveside before the men can remove the body at all. The journey to the dissecting room is usually disrupted; the structure of the story saves the body from the indignity of dissection and the reader from having, or being allowed, to read about it. This effacement of the corpse may also be related to the stories' perspective on anatomical study; the emotional charge attached to a dead body threatens to upset the rational approach the stories encourage towards the men whose job it is, after all, to cut them up. Narrative elements once raised, however, continue to cast a shadow, and what I have suggested is the failure of the stories to convincingly assert a modern view of anatomy may in part be attributed to the inescapable knowledge that off-stage is a dead body around which the story revolves, even if it is not referred to directly. The known but not acknowledged presence of that body contributes to the lack of resolution around the stories' attempts to defuse the matter of human dissection.

There is a sense, then, that the endorsement which these pieces give to anatomists, and their denigration of popular beliefs about anatomy, are undermined by elements of genre, structure and character. I will go on now to examine these ideas in the context of those few pieces that do contain imaginative representations of anatomists. There are occasional glances in short sketches like "Life in a Scottish Country Mansion" (*Chambers's*, 1845), an unpleasant tale of a medical student who frightens the neighbours with a disembodied head, and "Country Town Sketches" (*Chambers's*, 1837), which includes the disturbing account of an anatomist who keeps his (living) wife in the attic with his specimens. However, it is to conventional short stories that we must turn for a more sustained and in-depth portrait; specifically, and perhaps

surprisingly, the romantic fiction that is a staple of *Reynolds's* and, in particular, the *Family Herald*.

Anatomy and romantic fiction

“The Subject. - A Tale of Modern Magic” is a long short story which appeared in the *Family Herald* in 1847. The central character is a medical student who, as the story opens, is deeply engaged in making new discoveries using human dissection. In the course of his researches he receives the body of a young governess who, it turns out, is not dead but in a mesmeric trance induced by her employers, in a home experiment that went wrong. The story turns into a domestic drama in which the anatomist, the governess and her employers all seek to save their reputations, which are threatened in different ways by the situation; meanwhile, the anatomist and the governess fall in love and eventually become engaged. In 1850, *Reynolds's* published “Caroline de Burgh”, a story which also features an anatomist in receipt of a beautiful young subject who will eventually become his wife, although in this case the woman is sentenced to death for a crime she did not commit, and only when she is brought from the gallows to the dissecting room does the surgeon realise she has survived her execution. Indeed, *Reynolds's* published repeatedly on the same theme, with short stories including Victor Lecomte’s “The French Doctor’s Bride” (1856), Marguerite Blount’s “The Student of the Grave” (1858), and H. Freeman’s “The Subject for Dissection” (1864). However, “The Subject”, in part because it appears in the family-friendly and romance-heavy *Family Herald*, is a particularly enlightening illustration of the narrative utility of popular perceptions of anatomy, the contested authority of the medical profession, and the impact of

genre convention on the representation of these matters. Both this and “Caroline de Burgh” also raise significant questions about the place of the corpse in stories of anatomy.

The impetus of genre

The surgeon in “Caroline de Burgh” shows us the traditional anatomist at his worst. He is monstrous and deathlike in appearance: ‘His fiery eyes, cadaverous and strong features, set off by the black locks which streamed over his shoulders, must have rendered him a frightful picture’. Similarly, his dissecting room is a dark place of shady, unspeakable doings, ‘noisome...its walls discoloured...lighted by an antique lamp’, and full of ‘terrific-looking preparations’. In “The Subject” the anatomist character is more ambiguous, characterised less by traditional features of horror and more by distance and unsettling mystery, but still drawing upon the convention that the anatomist is to be suspected and feared. It opens in a London street where a group of boisterous young medical students are out on a ‘jollification’; they are drunk and rowdy, but there is nothing threatening or unpleasant about them (113). We follow a more solemn member of the group from the street into his lodgings, through the back parlour where he receives visitors, into his bedroom and from there into the ‘sanctum’ - the room where he conducts his experiments, divided in two by a screen. This short journey takes us from the public street, through increasingly private rooms, to the sacred and exclusive scientific sphere, the furthest part of which remains hidden to the reader. The movement through the rooms enacts a process of distancing and removal from the public world and the student’s companions. As he settles into the sanctum, his mental

processes trace a route which takes both him and his science into a foreign and unsettling realm, leading him from the 'fantastic figures' depicted on the screen to his 'distant home' and from there to the 'wild legend[s]' of his native hills and 'darker tale[s] gathered from the German, which cast a gloomy shade upon his reveries' (113). These thoughts culminate in his musings upon 'some mystery of science': the 'new science' (113), details of which are not disclosed to the reader. As the story begins, then, the medical student and his scientific work are associated with private spaces and thoughts accessible only to the scientist, foreignness, dark legends, and unsettling mystery.

The student's musings are interrupted by the delivery of a large sack containing a dead body, and immediately he snaps into a mode of professionalism that allows him to ignore the humanity of this body; he has been seeking 'an un mutilated subject, unfettered by the rules of the school' and here it is at last. He regards it as a 'prize', a useful specimen, the mere possession of which provides 'the pleasure of anticipated scientific discoveries, leading onto professional honours and glory without end' (113). As in the medical discussions I referred to earlier, a connection is made between anatomical work and professional recognition. The surgeon's dispassionate approach vanishes as he uncovers the body. As he examines her she alternates between hideous corpse - the sack's 'ghastly contents', 'that terrible, motionless thing' - and sexually attractive young woman, with 'soft, plump, and flexible' feet, 'a most lovely face', a 'finely rounded neck' and 'exquisitely symmetrical figure' (113). The woman's beauty unsettles him and he resolves to begin work on her the following day, when 'I shall be a man again' (113). The anatomist's attraction to the corpse is an important point which I address in more detail below. Meanwhile, the gothic narrative continues: awoken in the

night by mysterious sounds and imagining 'something hideous, nameless, unimaginable', the anatomist creeps into the dissecting-room to find the woman sitting by the fire. He sees, 'as his footsteps aroused the echoes of the large, desolate chamber, that the thing of fear turned its head, and gazed at him with its large dark eyes' (113). Just as the story reaches this peak of horror and our understanding of the limits of human life begins to dissolve around us, we shift abruptly into a vein very familiar to readers of the *Family Herald*; that is, the domestic comedy/romance, a lighthearted story which will end in marriage.

Necessary to this movement is, of course, a suitable husband, and so the anatomist, who began the story associated with dark German legends and far-away places, now introduces himself as the reassuringly English-sounding Frank Somerton. While the opening scene draws heavily upon popular dread of anatomy and stereotypical ideas about the sinister anatomist, from this point onwards the story casts Frank as a respectable Englishman deeply rooted in a middle-class social world, concentrating on his attempts to manage the difficulties of finding himself alone with a woman in his rooms and his subsequent courtship of her. He is no longer presented as an anatomist but as a lover and future husband, and his occupation remains of interest only in relation to the way in which the pair met, which becomes curious and even amusing, rather than sinister or disturbing; Frank remarks lightheartedly that as he bought Hester, he has every right to marry her (116). The man who brought her to his rooms has, he admits, 'occasionally supplied the profession with subjects for anatomical science', but her case 'was entirely out of the general rule' as she was taken directly from her deathbed rather than the grave (116). This fully satisfies Hester, whose only fear is that she was buried alive and dug up. This echoes the transference we saw earlier of horror and disgust from the

act of dissection to that of disturbing interred bodies. It also identifies Frank as part of 'the profession' rather than an individual acting alone; this legitimises and anonymises his work, so that the purchase of corpses becomes an act carried out on behalf of all doctors.

The other gothic elements of the story are also swiftly abandoned. The gloomy and sinister dissecting-room, scene of shady dealings in dead bodies, is not mentioned again, and the second half of the story moves away entirely to the home of Hester's employers, a respectable middle-class environment like that of much other *Family Herald* fiction. The anatomist's mysterious 'new science' is also neutralised and made familiar. Initially associated with the dark Germanic legends of the anatomist's memory, it was suggested it may reveal hitherto unknown miracles of human life and expose how little we understand of the 'workings of Nature' (113). This description, given in the unsettling dissecting-room environment as the corpse is surreptitiously delivered, hints at the possibilities of reanimation, a subject about which much speculation was in circulation around this time (Morus 9). However, the new science is towards the end of the story revealed to be mesmerism, a topic, as I have discussed, that was well-known by this point in the century and one certainly familiar to regular readers of the *Herald*, which was an enthusiastic supporter of the practice. The juxtaposition of mesmerism and anatomy in this story brings its own questions, to which I return later; for now, it is sufficient to note that the story's early hints about the 'new science' imply something much darker and more disturbing than this popular and well-known practice. Again, this is abandoned as Frank is recharacterised as the ideal husband. Adherence to the generic requirements of the romantic short story, and the provision of family-friendly writing - sensational without the ghastly thrills of the penny dreadful - are the guiding

principles of this fiction, and we see here how the anatomist, as the leading man, and his work are made to fit them. The narrative driver is not the analysis of anatomy but the impetus towards domestic bliss; and so the anatomist is transformed into a husband, the corpse into a wife, and the gothic study of the scientific mind into a typical domestic romance. “The Subject” raises the spectre of dark scientific practices and the sinister anatomist of popular lore, only to abandon them in the service of romantic resolution. A similar discontinuity appears in the *Reynolds’s* story “Caroline de Burgh”, which, in keeping with the more sensational tone of the journal’s fiction, introduces some heavily gothic elements and simply sets them aside when they are no longer useful. In this story, the ‘frightful’ anatomist is turned into a saviour, rescuing his subject, hiding her from the law, spiriting her to a safe place and working to support them both long before they are married. This is the hero the story leaves us with: no further mention is made of the state in which we first met him, or the delight, lingeringly described in the early part of the story, that he initially showed at taking receipt of a fresh body.

Out of sight, however, is not necessarily out of mind. Having set up an opposition between science and human feeling, “The Subject” is left with the contradictions of embodying both sides in the same character. Although the unease associated with anatomy is at the end of the story focused on the horror of body-snatching, we have had a glimpse inside the anatomist’s rooms and have come perilously close to witnessing the act of dissection. The arguments in favour of anatomy are made by Frank, in his gothic dissecting-room, while he is still occupying the role of the stereotypical sinister anatomist, and not revisited. The story ultimately presents us with (in its context) a nice, normal man who happens to practise anatomy, but the spectre of anatomist-Frank is

neither laid to rest nor incorporated into husband-Frank. The reader, I would argue, is left with an uneasy feeling about anatomists and their work, and a suspicion of the justifications put forward by professional men. The move towards romantic resolution is unsettled by the story's attempt to incorporate and absorb the old horror traditions alongside its marital plotline.

The corpse

Just as the anatomist is a presence in every story of body-snatching, the corpse is a presence in any tale featuring any element of anatomy, and the surgeon's relationship to it is an important part of the shaping of his character. However, "The Subject" and "Caroline de Burgh" are unusual not just in providing a detailed portrait of an anatomist character, but in allowing readers into the dissecting room; as I have discussed, the corpse is all but effaced from many of the stories I analyse in the earlier parts of this chapter. That the corpses we have the most detailed view of are beautiful young women is not coincidental, and raises further questions about the character of the anatomist. Lingering descriptions of female cadavers retaining all the bodily charms they possessed in life are a common feature of sensational tales of the anatomist's rooms, and critics identify a long-standing association between representations of anatomical science and sexual encounter. Ludmilla Jordanova examines the preponderance of nineteenth-century anatomical models of female bodies and female sexual organs, arguing that whole-body models are presented as sexually inviting (44-45; 50) and associating the gaining of anatomical knowledge with aggressive sexual conquest (60). Looking more specifically at fiction, Sally Powell analyses the eroticisation of body-snatching and dissection

in penny bloods, arguing that these practices are persistently presented as rape (46). Writing of Reynolds's *Mysteries of London*, Bates describes how the 'chaste, formal passion of cold intellect' is transformed into sexual passion by the surgeon's encounter with the female corpse (*Anatomy of Robert Knox* 162).

As we saw earlier, Frank is unsettled by the beauty of the cadaver in front of him and finds himself unable to work until he has become 'a man again' (113). The dissecting room of "The Subject" is a sexually charged environment in which the anatomist oscillates between the clinical point of view that sees a useful scientific specimen and the sexual gaze that regards the body as an object of desire. However, both the 'chaste, formal passion of cold intellect' and the desire of the single young man are changed by encounter with the *living* corpse into a tender and romantic love rather than the pursuit of sexual conquest. Any hint of impropriety is apparently left behind in the dissecting room. Naturally, when the lovers marry their relationship will be consummated, but their and our knowledge of this is subordinated to a suitably respectful regard; despite Frank having gazed greedily at Hester as she lies on the dissecting table covered in a shroud that displays the outlines of her figure, a crisis point is reached when he takes the inappropriately forward step of kissing her hand. This is, of course, in keeping with the style of the periodical and the genre of the piece. However, it is significant that the sexual charge is reserved for the corpse and is associated by opposition with the clinical dispassion that allows the act of dissection to take place. As soon as Frank becomes the potential lover of a living woman, both clinical dispassion and sexual passion are put out of sight. The erotic charge of the dissecting room is absorbed into the opposition this story seeks to construct between gothic scientific

fantasy/sinister anatomist, on the one side, and domestic romance/husband-in waiting on the other.

The anatomist of “Caroline de Burgh” is criticised by the narrator for his failure to respond sexually to the female corpse: ‘Such studies unsex the young...A subject is but a subject, whether it bear the impress of female loveliness, or is valuable only for some hideous deformity, which they will call a playful freak of Nature’ (346). In this story, manliness is found in a vigorous sexuality, the ability to appreciate the charms of the female body whether alive or dead. In “The Subject”, manliness, in the view of the anatomist, is associated with a scientific mind, which means the ability to regard the body of a beautiful woman as a useful scientific specimen rather than as an object of desire. However, as the story shifts into domestic romance it implicitly rejects this point of view: as the anatomist transforms into a loving but masterful husband, his manliness is judged, and validated, by his suitability as a romantic lead. The dispassionate mindset that Frank initially values as an important aspect of the scientist’s clinical ability is part of the stereotype of the sinister anatomist and is incompatible with the alternative, better form of manliness that is exemplified by the ideal husband. The pieces I discuss in other sections of this chapter value the skills of the professional scientist most highly, but in “The Subject” those skills unfit the anatomist for other, more important, aspects of human life.

The story’s juxtaposition of mesmerism and anatomy raises further questions about Hester’s position. She is mesmerised by her employer ““for the amusement of his wife and himself, to see whether there was really anything in it”” (115); evidently there *is* something in it, as they mesmerise her so thoroughly that she is believed to be dead. The careless way in which her employers set about mesmerising her reflects their tendency to ‘regard [her] as *only the*

governess' (115; italics in original). The title of the story raises the possibility of a parallel between the anatomist's treatment of disposable, dissectable corpses, and the position of mesmeric experimentees; Hester, the "Subject" of the title, is both. Her employers are not scientists, but their use of her body to gain knowledge and satisfy their own interests mirrors the attitude expressed in a different form by the anatomist in his wish 'to illustrate some theories of his own, upon an unmutilated subject' (113). In its use of the female body, apparently divorced from the woman's own subjectivity, as experimental material, it echoes the practices we saw adopted by medical mesmerists in the previous chapter. As with Frank's character, the implications of this are subsumed in the story's end point; upon being granted Hester's hand in marriage, Frank concludes that her employer is 'a good-hearted woman', and the final scene of the story sees her buying Hester an extensive trousseau as a wedding present.

In "The Subject", then, the imaginative representation of the anatomist draws heavily upon the traditional idea of a sinister man, hidden away from public view in dark and depressing spaces, lacking the humanity to appreciate that his 'subjects' are the bodies of human beings and not just scientific material. The arguments about making great new discoveries are rehearsed, but they come from the medical student's thoughts and so become associated with his unsettling persona; they are also linked with his personal dreams of fame and glory rather than with the progress of the human race. Frank's professional identity is not incorporated into the second part of the story, when he suddenly becomes a more sympathetic character: the writer does not attempt to depict the bright, professional doctor of the future. Instead, the subject of anatomy is dropped in order to allow Frank to become a lover and

future husband, capable of human feeling and of entering a romantic relationship on terms familiar to the readers of the *Family Herald*. This lends support to the argument that at this stage the anatomist of popular imagination was still heavily influenced by traditional ideas; while influential counter-arguments were in circulation and alternative images of anatomy being produced in other discursive spheres, they did not overcome the ease with which the sinister fictional anatomist could be depicted. We should also note, though, that while “The Subject”, drawing upon the literary, cultural and social traditions I have explored in this chapter, sketches boundaries around the scientific and domestic spheres, the sinister anatomist and the respectable man, the gothic and the light romance traditions, they do not entirely hold. Its dual depictions of anatomist-Frank and husband-Frank, corpse-Hester and wife-Hester, and their corresponding relationships, imply oppositions that cannot be resolved by and in their turn disrupt the generic compulsion towards romantic resolution. As I suggest above, the Frank who we meet in the dark and strange dissecting rooms is not completely supplanted by the charming young man who takes his place; his presence remains at the edges of the story, and the same goes for the other elements of the story which must make way in the move towards domestic bliss.

Finally, “The Subject” also offers an interesting perspective on the wider questions of materialism and the aims of scientific study with which the *Herald* is preoccupied. Read in the context of other *Herald* pieces about mesmerism, the story’s exploration of scientific practice offers new layers of meaning. Perhaps surprisingly, this publication pays very little attention to the question of human dissection in its general coverage. Considering its clear anti-materialist position, one might not expect from it the supportive pieces of the sort that

appear in *Chambers's* and *Reynolds's*, but it largely declines to engage with the subject at all. Its resistance is expressed not in terms of dissection's supposed inhumanity or its objectification of the corpse, but in a general sense that it is, like other aspects of modern science, pursuing the wrong agenda:

Science can never discover nor demonstrate any one of the great truths of religion. They are all beyond its reach. It may illustrate them, or it may confirm them, but that is all. Chemistry, anatomy, know nothing of the soul, nor even of animal life... Science knows only the corpse of nature. Poetry contemplates the soul in her own peculiar way.
 ("To Correspondents", 24 Nov. 1849 473)

As the *Herald* understands it, spiritual truth is the most important subject of investigation, and one for which scientific study is not well fitted. Mesmerism can reveal the workings of the soul, but the materialist school of mesmeric study is unlikely to advance this crucial aspect of the practice. In "The Subject", mesmerism is set against anatomical study, in a way that is not directly oppositional but that implicitly undermines Frank's methods of investigation. Mesmerism exists in the realm of the 'marvellous', the 'wondrous', showing above all that the 'workings of Nature' stretch beyond the boundaries that practical investigations would place around them. Frank goes along with the ridicule heaped on mesmerism by his fellow medical students, but upon reflection is reminded of his own 'unbounded faith in the powers of nature'. This causes him to question his arrogance in imagining that humans could ever understand or even access the full extent of nature's 'dominions' (113). Yet his position remains ambivalent: the delivery of his prized subject and the work he might do with it takes precedence over these thoughts, and he is ultimately convinced of mesmerism's validity by concrete proof in the form of the

mesmerised Hester: “Here, then, is my ignorant ridicule fairly answered!” he declares as he examines her (114). The story’s interest in the truth and value of mesmerism complexifies the depiction of the surgeon, moving past gothic stereotypes into questions about the spiritual poverty of his approach to human existence. This interest also survives the genre shift; the initial portrayal of the sinister anatomist is set aside but Frank’s movement from scepticism to belief extends into the romantic half of the story. The deeper critique of anatomy is not in a condemnation of its most gruesome aspects, or even in its treatment of the body, but in its reductive approach to the study of humanity.

Anatomy was a contested and controversial subject throughout the first half of the nineteenth century. While doctors claimed it as a key element of good medical practice and sought to build a high-status professional identity around it, for the general public it was often associated with body-snatching, murder, and the shame and distress of knowing that one’s loved ones had been dissected rather than laid to rest with dignity. Both elements are seen in popular periodical literature over this time. They are not in strict opposition, but mix together in pieces exploring various aspects of anatomy, reflecting the different views of the subject that were in circulation over these years.

A number of pieces overtly represent anatomy as a good and worthwhile practice. They draw upon the language and ideas of the emergent medical profession as it sought to promote anatomy as an act of public service and a marker of doctors’ skill and importance. It is interesting to see these views reflected and challenged in popular periodicals, whose readers were unlikely to be considered or to consider themselves part of the medical profession. Other pieces gently mock popular dread of anatomy or depict it as a belief that

belongs in the past. In all these pieces, though, I argue that the traditional suspicion of anatomy makes its presence felt, and attaches to the anatomist as well as to the body-snatcher, suggesting the tenacity and cultural weight of the negative view of anatomy. The absence of anatomist-characters from these pieces suggests a lack of language in which to talk about the modern anatomist, other than by wielding intellectual arguments in his favour. My reading of fiction taking the anatomist as romantic lead tends to support this argument, showing that the sinister anatomist was still very much alive in the popular imagination, and that occupation as an anatomist was treated as incompatible with human feeling and purportedly unfitted a man for normal social life. Romantic stories are also a useful reminder that these magazines, and the *Family Herald* in particular, were commercial enterprises with a readership to satisfy, whatever their ideological aims may have been. This has implications for the format and style of their output, which are as important in shaping content as their exploration of current issues. Here, the attempt to fit the anatomist within a domestic romance reveals the difficulties still, at this stage, in imaginatively portraying him as a modern man of science, employed in valid and useful social activity. However, the literary and cultural traditions on which the portrayal of the anatomist relies suggest oppositions that disrupt and are disrupted by the generic compulsion towards romantic resolution. As the persona of the anatomist began to change, these periodicals reflect the complexities of bringing his popular and professional images together, but also destabilise the boundaries between the two.

Chapter Four: Health, disease and the sources of advice

While mesmerism, anatomy and other scientific matters of varying interest shifted in and out of public view over the 1830s and 1840s, health and disease were inescapable, ever-present facts of everyday existence. This was a period in which epidemic followed epidemic, hitting those in densely populated cities hardest, increasing people's need for reliable medical advice and exposing the limitations of what doctors could do to control and cure disease. However, the medical community was gaining in status, expertise and knowledge, gradually transforming into a professional body which would exclude the unregulated and unqualified. At the same time, new practices gained popularity as an affirmation of self-control, an expression of a happy relationship between the mind and body, or a rejection of formal medical control in favour of individual choice. The relative positions of qualified medical men and their patients, the vulnerability that comes with ill-health, the power of money within the Victorian medical system, and the final ability of each person to accept or refuse treatment, gave health advice, and the patient's response to it, the potential for political and social significance. Taking the cultural import of health advice as a starting point, this chapter explores in more detail how the social, political and commercial position of each periodical inflects and shapes its approach to the treatment of scientific and medical authority. Chapters Two and Three showed, by looking at two quite specific and highly contested areas of scientific practice, that popular periodicals engage with questions of professionalisation, the meaning of science and the authority of its practitioners. As I have argued, representations of science are affected by the wider context of their publication: each periodical had its own particular aims and interests to

attend to, as well as distinct editorial viewpoints on scientific matters.

Continuing to focus on *Chambers's Edinburgh Journal*, the *Family Herald* and *Reynolds's Miscellany*, I seek here to interrogate further the question of the interplay between each periodical's own identity and its presentation of scientific matters.

Health content appears in many guises in popular nineteenth-century periodicals. Writers offer short stand-alone tips on a wide variety of health matters, while longer articles review the current understanding of medical problems, discuss preventive measures, evaluate available remedies and set out step-by-step plans for treatment. Whether in one sentence or three pages, they cover matters of all levels of severity from corns to cholera. While much medical material is clearly offered for readers' benefit, there is a significant overlap between advice and items of general interest; health and illness pop up in fiction, anecdotes, jokes, beauty, fashion and miscellaneous articles, with the subject matter extending far beyond simply the prevention and cure of disease. With such a wide range of material at my disposal, I focus on how the sources of medical knowledge (using this in the broadest sense) are prioritised and presented to the reader, and examine the role of the periodical itself in dispensing advice. Health content is at the intersection of professional science and popular culture, including in its scope both edicts handed down with the full force of medical authority and knowledge generated within the family and passed through the generations. Direct health advice from writer to readers shows how these different realms of knowledge are managed in all three periodicals; however, each one's emphasis and preoccupations are quite different, and, led by this, I range across a number of areas rather than seeking to draw exact comparisons between publications. For each periodical I focus

on a specific example of health content which is particularly significant within that publication and which illuminates its approach to medical matters. For *Reynolds's*, this is the use of the correspondence column as a medical adviser, for *Chambers's* it is the mixed moral and medical messages delivered during the cholera outbreak of 1832, and for the *Herald* it is, perhaps counterintuitively, the apparent lack of editorial inclination to offer health advice or to include medical subjects within the main content of the periodical.

Discussion of health, I find, interrogates ideas about the reliability of the medical profession, readers' positions in relation to it, and the legitimacy of other providers of health advice. Equally importantly, I argue that the extent to which each periodical presents itself as having a role to play in regulating the medical choices of its readers is directly connected to its commercial aims and social intentions. *Reynolds's*, which presents itself as a supporter of self-help practices and socialist empowerment, features a multiplicity of advice and advisers, offering readers a range of viewpoints on health and a variety of ways in which they may respond to those viewpoints, while the correspondence column offers a space for reader engagement and activity in matters of health. *Reynolds's* is also ready, however, to promote itself as a source of medical knowledge, the implications of which become particularly apparent when set against the *Herald's* very different interpretation of self-reliance. Alone among the three periodicals, the *Herald* declines to include to any significant extent medical articles and advice emanating from the journal's editor or other professional contributors, or extracted from conventional sources. Here, the relative absence of such material is as important as its presence in other publications, arising from a significant scepticism about the worth of scientific theorising and a belief in a personal form of self-reliance, as well as from the

periodical's general character as a lighthearted leisure read. However, the *Herald* offers its pages as a space for its readers' ideas, bringing their voices on matters of health directly into the discussion. Its commitment to self-reliance is enacted not only in its refusal of orthodox medical advice but also in its prioritising of reader-generated knowledge. Finally, I come to *Chambers's Edinburgh Journal*. I move here from looking at direct advice to readers to a broader consideration of how health information is used in this periodical to position readers as recipients of useful knowledge and to remind them of their social responsibilities. *Chambers's* treatment of the cholera outbreak of 1832, which was ongoing during the first few months of its existence, shows how both health content and the periodical's approach to advice supported the useful knowledge movement of which, as I set out in the introduction to this thesis, *Chambers's* was an important part.

Health brings together the distinct identity of each periodical with its approach to professional and non-professional sources of medical guidance. In doing so, it allows us to trace the role of the periodical in constructing and negotiating scientific authority. Health content, and the provision of advice in particular, illuminates each periodical's approach to its readers, the sources of health advice and the role of the periodical itself as a mediator and generator of knowledge. Scientific authority is presented and interrogated here less through direct approaches to the subject of the type we saw in discussions of mesmerism and anatomy, than by shaping readers' response to knowledge generated by medical men and other alternatives, and by suggesting the extent to which readers' abilities to evaluate information and offer ideas of their own should be perceived as valid against these forms of knowledge.

Health, medical practice and Victorian culture

Writing of medical practitioners in the early nineteenth century, M. Jeanne Peterson notes, 'Medical training varied from classical university education and the study of Greek and Latin medical texts, on the one hand, to broom-and-apron apprenticeship in an apothecary's shop, on the other - and sometimes involved no recognisable education at all' (*The Medical Profession in Mid-Victorian London* 5). Medical regulation was a similar jumble, with oversight provided by one (or none) of many different bodies. As the century progressed, a modern medical profession came into being, with doctors being registered, subject to strict training requirements and widely understood to be expert practitioners. Key to this shift in medical men's self-perception and public presentation was the dual move towards greater regulation and increasing exclusivity, separating doctors from other practitioners not subject to the same requirements of training and supervision. This move began to take place during the years covered by this thesis. Between 1801 and 1850, Bruce Haley observes, more university-educated men entered the profession than in all of previous history (5); formal medical education expanded rapidly (Peterson, *The Medical Profession in Mid-Victorian London* 63-66), and, as I discussed in Chapter Three, doctors were increasingly able to frame their work as a matter of social utility in terms of research as well as therapeutic elements. The Medical Act 1858 would regulate qualifications, create the General Medical Council and require the registration of all medical men. Professionalisation was still a work-in-progress, however, over the 1830s and 1840s, and the status of medical men remained subject to their categorisation into physicians, surgeons and apothecaries (in descending order of rank).

The medical profession was by no means the only source of advice and treatment, however. Hoping for better results than orthodox medicine could provide at that time, sufferers of real or imagined chronic illness frequently looked elsewhere for ideas. A widespread interest in alternative treatments emerged in the 1830s and would continue, in various forms, for several decades (Morris 160; Haley 10-11). A vast range of products offered cures or ways to alleviate the impact of ill-health (Frawley 13-17), including, at the cheapest and least respectable end of the market, the potions offered by quack doctors which were the subject of vigorous campaigning by Thomas Wakley (Porter 193-200). New theories about health were aired in all sections of the press, with an emphasis on following the body's natural processes and taking a holistic approach (Haley 3). These ideas appealed even to those who did not consider themselves unwell, offering a positive outlook on the body and the maintenance of good health. Fashionable and elaborate treatments whose impact extended past the direct alleviation of physical symptoms came to prominence. The water-cure, which was extremely popular in the middle years of the century and beloved by such high-profile invalids as Charles Darwin, Edward Bulwer-Lytton and Alfred Lord Tennyson, involved lengthy stays at therapeutic resorts and a drastic and wide-reaching change of lifestyle for its most committed adherents. From a different perspective, mesmerism, as I explored in Chapter Two, pointed not just to a novel form of treatment but also to new ways of understanding the body and its connections to those around it. Other therapies included homeopathy, sea bathing, country walks, special diets and medical botany.

That Victorian society was preoccupied with matters of health has long been recognised; Haley suggests that '[n]o topic more occupied the Victorian

mind than Health - not religion, or politics, or Improvement, or Darwinism' (3). Studies of invalidism and of the health practices I describe above (including those by Haley, Frawley and Mary Wilson Carpenter) tend to focus on the middle-class experience, in part because the ability to adopt a lifestyle of invalidism or to commit singlemindedly to the pursuit of health depends to an extent upon having a certain amount of spare time and income.²⁷ However, the range of health treatments available, particularly as the century progressed, could also be seen as an opportunity for patients of all classes to exercise personal choice and self-determination outside professional structures. Roy Porter has commented upon the attractiveness of alternative medical movements to artisans and the petty bourgeoisie at mid-century. He connects the principles behind these systems to the wider ideas of democracy and self-help promoted by radical thinkers, arguing:

These medical philosophies put into practical form those high-minded individualist, self-reliant, anti-elitist and even democratic sentiments that were becoming the hallmark of Victorian popular opinion...Each professed to invest the individual with a new control over his own health as part of a wider culture of self-improvement and self-realisation. (203)

Porter's approach is an important counterpoint to a history that has often viewed the working-class medical experience primarily in terms of ill-health. Studies have focused on the illnesses suffered by working-class men, women and children, examined the structural conditions that caused disease so disproportionately to strike these communities, and explored their treatment at the hands of the medical profession (see F. B. Smith; Morris; Wohl). Attention

²⁷ F. B. Smith estimates the cost of a consultation with a water-cure doctor (without treatment) to be 10s 6d and a week's stay at a hydropathic institution to be 3-4 guineas per week (342). By comparison, John Benson estimates that a cotton spinner earned about 23 shillings per week in 1850 (41).

to the question of who suffered illness and the structural conditions that shaped the lives of patients and potential patients are significant contributions to the project of reconstructing working-class histories, but because of historic class discrepancies in health and in access to medical care, to some extent this approach inevitably focuses on the negative aspects of working-class experiences. The conditions in which even the more affluent working classes lived were not conducive to good health and would lead in the middle years of the century to sanitary reform. Overpopulated houses were crammed closely together, with few lavatories, no piped water and inadequate drainage (F. B. Smith 197). Occupational disease was common: grinders, lace-makers, cotton manufacturers, straw-plaiters, colliers, factory workers and bakers all suffered from specific work-related ailments (Haley 12). Contemporary calculations showed that tradesmen and labourers had the lowest life expectancy of all classes, and the general health of working-class children was much worse than that of their middle-class equivalents (F. B. Smith 170-178). The treatment options available were limited by the high cost of medical fees: an 1840 doctor's report claimed that even 'men of superior rank, such as artisans in good employment' struggled to afford treatment, with the 'labouring classes' unable to engage doctors except for the most minor matters ("Facts Connected with the Medical Charities of Sheffield" 61). Public and charity hospitals, dispensaries and sixpenny doctors all provided cheap or free healthcare, but not always by a trained, qualified professional. Dispensaries were described by one contemporary commentator as being 'designed less as a succour to the distressed, than as a means of giving experiences to young physicians, and allowing them to slide into practice' ("Dispensaries") - and they were considered to provide a superior service to the sixpenny doctors. This context must be

borne in mind, but so too must that of the wider culture in which interest in health, as well as in illness, was immense.

The making of good health: Self-help in *Reynolds's Miscellany*

As Porter indicates, there grew up during the 1830s and 40s a working-class self-help movement, one strand of which encouraged working-class men and women to gain a philosophical and scientific education outside the politically motivated useful knowledge of the SDUK and its ilk. It was viewed by radical movements as an important precursor to getting the vote (Desmond, “Artisan Resistance” 84) and was more widely regarded as personally empowering, providing intellectual satisfaction and allowing working-class men and women to take greater control of their own lives (Rodrick 40). Porter suggests both symbolic and practical importance for alternative medicine within the movement through the knowledge it gave and the autonomy it implied. It challenged medical authority over the body, displacing the structures of the doctor-patient relationship; Porter describes it as ‘the medical equivalent of Chartism’ (204).

Reynolds's Miscellany is not explicitly a ‘self-help’ publication - its purpose was not didactic, and it offers at least as much entertainment as edification - but its socialist editor did endorse the philosophy. In the first of a series of “Letters to the Industrious Classes” he addresses his readers directly on the subject of education, claiming it as a basic right and an essential element of the socialist cause. Complimenting working men on their peaceful methods of protest, he attributes their self-restraint to them being ‘intelligent and enlightened by *self*-education (no thanks to the State!)’ (Reynolds, “Letter I”

199; italics in original). Further letters in the series expand on the personal and material value of intellectual nourishment for working people (Peck; Reynolds, “Letter VII”). Reynolds frames the *Miscellany* as a contribution to the development of its readers, explaining that the periodical was established to satisfy a ‘profound spirit of inquiry’ among ‘the readers of Cheap Literature’ and writing approvingly of the ‘wonderful intellectual progress’ made by that class of readers in recent times (“To Our Readers”).

Reynolds’s does not, however, engage explicitly with the self-help possibilities offered by the flourishing of alternative health practices. As we have seen elsewhere in this thesis, particularly in Chapter Three’s exploration of anatomy, *Reynolds’s* is not hostile to the medical or wider scientific profession in the way that the *Herald* is, and displays no especial interest in promoting alternatives. Doctors appear to hold no particular symbolic or practical importance in *Reynolds’s* challenges to authority, and even during the cholera outbreak of 1848-49, its considerable ire was directed at the government and the monarchy rather than the medical men who remained unable to cure the disease sixteen years after the devastating 1832 outbreak (which I discuss in relation to *Chambers’s*). The medical profession is not, as I argue below, *Reynolds’s* only resource on matters of health, but it is happy to recommend doctors and to pass on their theories and suggestions on occasion, and it does not engage with alternative medicines in ways that suggest there was a significant role for them within the periodical’s conception of self-help. Its lack of interest in the water-cure and other elaborate therapies may be explained partly by the prohibitive costs involved, but cheaper and more accessible treatments popular among artisans, such as homeopathy and medical botany, are similarly barely mentioned. While the *Herald* recognised

mesmerism's potential for home treatment and encouraged readers to practise on friends and family, *Reynolds's*, as we have seen, dismissed it as medically useless and an imposture, using the kind of language usually reserved for quack doctors, who were viewed as dangerous conmen and attacked in colourful terms by all three publications.

Reynolds's, then, does not promote unorthodox health treatments as part of its political scheme in the way suggested by Porter. However, I will argue that health and medical choice *are* presented in *Reynolds's* in a way that encourages self-help and empowers readers; not through coverage of alternative remedies, or content explicitly endorsing a self-help message, or by an overt insistence that readers take responsibility for themselves - but by offering them an expansive view of health advice, in which readers could choose between sources of information and engage creatively with their responsibility for their own health.

The sources of medical knowledge

Health matters appear in all sections of *Reynolds's* from short jokes to major scientific series. Different perspectives jostle for space; excerpts from medical journals sit alongside traditional cures, and the editor, readers, doctors, mothers and intellectuals all take their turn to give an opinion. Some pieces provide lighthearted commentary aimed at amusement rather than education, while others try to impress upon readers the urgent need to follow the medical recommendations being offered. Similarly, medical advice appearing to speak directly to readers about their own bodies is plentiful and, as with more general health pieces, appears in a variety of forms, from short snippets to long

scientific pieces on the workings of the human body. The writers of these advice pieces address their readers in a range of ways, with important consequences for the way in which readers are invited to relate to the writer and to the advice offered. I take just two examples here, to show how the writer's identity, his or her relationship with the reader, and the reader's imagined position within the conversation, together offer distinct interpretations of how the authority to give medical advice is created.

Over the first 14 months of its existence, *Reynolds's* ran a major series by a surgeon, James Johnson, which contained 29 essays on the structure and workings of various parts of the human body. These articles mix information and advice, giving readers detailed, medically sophisticated accounts of the body's functions, and also offering recommendations as to how they could live healthily. Johnson claims to defer to readers' own judgment on medical treatment, but in practice strongly encourages them to follow his word. To take as an example his article on the spine: he claims that he has no intention of advising on medical treatment and means only to offer some hints to readers, 'trusting that as we appeal to their common sense, our hints may coincide with their opinions on the subject' ("Anatomy and Physiology of Ourselves", Chapter VI 86). This apparent confidence in his readers' independently formed opinions is followed by two pages of very specific advice, including the type of mattress that young women should choose and exercises for the reader to follow. An appearance of devolving responsibility to readers is contradicted by his evident expectation that they will naturally accord with his conclusions - 'all, we think, will agree that the physical education of the female should be limited...' he confidently asserts - and that they will follow his directions, which he refers to rather sternly as 'the rules' and 'the plan' (87).

In providing these recommendations Johnson disclaims his own authority as a medical professional: to provide advice would, he claims, 'be obviously departing from our province' (86), and his opinions are to be considered 'subservient to the opinions of the medical adviser' (87). This is compromised by both his byline, which sets out his qualifications, and his very clear medical recommendations: the reader is asked to, and simultaneously not permitted to, forget that the advice is given by a surgeon with an advanced understanding of the human body. Johnson, then, purports to describe his readers as active and intelligent individuals who need not defer to a doctor in making decisions about their own bodies, but simultaneously directs them towards following his orders. The authority to give advice rests with him, and an expectation that it will be followed goes with it. However, although the format of this piece relies on the authority bestowed by medical qualifications, we should not assume that this would automatically guarantee the respect of readers. As I outlined earlier, the medical community was in a state of transition, not yet secure in its professional authority, and among working-class communities in particular there remained a lingering mistrust prompted by the body-snatching outrages I discussed in Chapter Three. The authority to convey health advice may be, but is not necessarily, derived from the possession of medical qualifications, and valued guidance emanated from other sources too, as my second example shows.

The first edition of *Reynolds's* includes a long piece called "Advice to Young Ladies". The writer, who is identified as 'Mrs Willard (an American authoress)' begins by emphasising her long experience in the care and upbringing of young women: 'I have had five thousand under my charge, and spent thirty years of my life devoted to their service' (7). Her tone is warm: she addresses her readers as 'my dear young ladies' and 'my dear young friends'

(7), and her words are framed as the sort of advice a mother might give her daughter. The female writer and readers are presented as apparently operating at an unscientific level but reveal themselves as the text unfolds to be intelligent, informed adults. The author, Emma Willard, was in fact a pioneer of female education, a scientific writer and the author of a treatise on 'The Motive Powers which Produce the Circulation of the Blood'. None of this is mentioned in the piece, and her modest identification as an 'authoress' obscures the extent of her knowledge. She presents herself as a trustworthy and well-informed adviser, but her authority is derived from her position as an older woman with experience of caring for young girls rather than from her scientific expertise. However, her motherly wisdom is supported by scientific information indicating her study of anatomy; in recommending a simple diet, for example, she explains that 'the nerves are the media through which the lungs derive their vital power, and the stomach, that through which the blood itself is formed', while her criticism of tight-lacing is accompanied by a description of the movement through the system of the 'yellow bile' (8). Because the piece is not set up as an attempt by an expert to educate a novice on the workings of the body, but as a piece of helpful guidance on progressing through life, the sophisticated explanation for that advice changes the way the reader is imagined within the text. It suggests a respect for that reader's intelligence: she deserves an explanation, even for these few words of friendly advice, rather than simply being expected to accept what she is told, and she is capable of understanding the ideas behind it. Furthermore, because Willard is introduced not as a scientist but as a wise friend, the relationship is a more equal and familiar one. While there is no prospect imagined of Johnson's 'patient' becoming a doctor, the young readers of Willard's piece are expected to grow up to be mothers

themselves. Willard's identification as a maternal figure holds out the possibility of her 'daughters' gaining the level of scientific expertise that she exhibits here.

In both the examples I give above, however, the reader is informed about the workings of his or her own body. Even a very didactic model can be empowering when it provides the reader with information that he or she can learn from and build upon in future. *Reynolds's* contains regular features of this type, offering its readers the opportunity to collect a store of knowledge that can, if they choose, stand behind their reading of other medical advice and information across the periodical. The various formulations of the adviser-advisee relationship invite *Reynolds's* readers to engage in different ways with medical and scientific knowledge. Their responses to the advice on offer may vary from passive acceptance of the words of experts, to a more active participation in the making of their own health, picking up the information that they find most credible and applying it as they see fit. In *Reynolds's*, reliable medical advice can come from different sources, one of which, as the next section argues, is presented as the periodical in itself rather than in its role as a medium for others' knowledge. It is in the correspondence columns that the periodical comes to the fore as an adviser.

Correspondence columns were an important feature of the popular penny magazines of the 1840s onwards. Wilkie Collins commented on them as a curiosity, struck (and amused) by the extent to which they brought readers' voices into the pages of these publications (219). The mass-market penny magazines were not the first publications to carry material of this nature, but the readers of *Reynolds's*, the *Herald* and their competitors found in the correspondence columns a new place to seek information and advice and to express their own points of view: *Chambers's Edinburgh Journal*, like its useful

knowledge rival the *Penny Magazine*, did not publish answers to its readers' questions, an important point to which I will return later.²⁸ Readers responded enthusiastically to the invitation, seeking advice on all manner of things, asking for further reading, commenting on articles and stories and agreeing or disagreeing with opinions published in previous weeks: we have seen some of this in their engagement with mesmerism via *Reynolds's* and the *Herald*. Both periodicals ran correspondence columns from their first editions, which had, as I shall show, quite different approaches to the provision of health advice.

Reynolds's's very popular correspondence column demonstrates how its provision of advice, and specifically medical advice, exercises the principles of reader autonomy and self-help. This is expressed less through the specific remedies offered than by the relationships the column promotes between three sources of medical authority: the medical profession, the reader and the periodical itself.

'All the information which it is in our power to impart': Notices to Correspondents in Reynolds's Miscellany

The first issue of *Reynolds's* announced its intention to give 'all the information which it is in our power to impart, to those subscribers who may apply to us for the same' ("Notices", 7 Nov. 1846). Its column covered a wide

²⁸ The *London Magazine, or, Gentleman's Monthly Intelligencer* - which, having been established in 1731, was 'possibly the first magazine' (Brake and Demoor 245) - ran a correspondence column from the 1760s onwards. It gave advice to readers and was similar in format to those of the later penny periodicals, but much less extensive in its size and scope. Ladies' magazines of the late eighteenth century commonly included a correspondence section, but domestic questions and advice became much more prominent in the middle-class women's periodicals of the following century (Brake and Demoor 20). Anne Humpherys outlines the popularity of the correspondence column for a wide range of social, romantic and practical matters in the more general family magazines of the mid-nineteenth century (86).

range of subjects, extending to two or even three pages each week.²⁹ From the outset, *Reynolds's* readers treated the Notices column as a medical resource, seeking advice on a wide range of health problems. In its first month of publication the column advised on knock knees, chilblains, consumption, pimples (twice), an eye complaint, toothache, bad breath and nervousness.³⁰ Some of the entries appear to be straightforward marketing: the last three answers direct readers to the *Household Book of Practical Receipts*, which was advertised regularly in the *Miscellany* and was shortly to come under the editorship of Reynolds' wife Susannah, while 'A Mother' conveniently asks a question the answer to which is James Johnson's *Ready Remedies in Cases of Poisoning and Other Accidents* ("Notices", 5 Dec. 1846).³¹ Other advice, though, includes details of a specialist hospital and dispensary, the name of a recommended doctor, a commercial product, instructions for the preparation of home remedies, and one admission that the magazine can offer no help. Most editions contain questions relating to health in some way, and this mixture of commercial and domestic remedies, referrals and recommended reading is typical of the column. It was the most regular and reliable source of medical advice within the magazine, inviting questions from readers and responding to them generously. Later into the 1850s *Reynolds's* included a "Medical Corner", a dedicated section which had much the same function, indicating both a demand from readers for health advice and a willingness by the periodical to

²⁹ As I explain in the introduction to this thesis, I regard the Notices as a mixture of manufactured queries - placed for the purposes of advertising or to allow G. W. M. Reynolds to express his opinions on political matters - and genuine requests for information from readers, with the majority falling into the latter category. The proliferation of items such as 'J. W. - The name is English' ("Notices", 9 Dec. 1848 351-352) and 'Eliza M. - We are quite unable to give the information required' ("Notices", 26 May 1849 735), of no use or interest to any casual reader, seem to me to serve little purpose if not to respond to individuals. The same goes for the *Herald*, which contains less by way of apparent advertising but does give the editor space to air his views on society and religion at length.

³⁰ "Notices", 7 Nov. 1846; 14 Nov. 1846; 21 Nov. 1846; 28 Nov. 1846; 5 Dec. 1846.

³¹ King provides a helpful exploration of the relationship between advertising and correspondence in his essay on *Reynolds's* ("*Reynolds Miscellany*" 65-68).

provide it; in these early years, that need was met primarily through the Notices. Through an exploration of its questions and answers we can explore the way in which the column represented the medical profession, and consider the implications of this popular periodical establishing itself as a medical adviser of sorts.

Buried within other responses in one edition of *Reynolds's*, the editor advises that some reader queries are dealt with by 'gentlemen, learned or well-informed in various departments' ("Notices", 26 Dec. 1846), but the involvement of experienced advisers is not a well-advertised fact and one that could easily escape the notice of a casual reader. Regardless, readers appear ready to place their trust in the information given, suggesting both a degree of faith in the magazine as a source of advice, and that medical endorsement mattered less than the advantages of the column. It was anonymous, allowing sufferers of embarrassing problems to seek help when they might not otherwise have done so, and it was also cheap: readers could expect a readily available answer, tailored to their own questions, for far less than the cost of any face-to-face consultation. Its attention to individual queries is, I would suggest, key to the popularity of the column as a source of medical advice, allowing it to stand half way between general reading material on health and a personal consultation. Not all *Reynolds's* competitors were so willing to adopt this sort of advisory role; as we shall see, despite running a weekly correspondence column, the *Herald* generally declined to do so altogether.

In *Reynolds's*, the format is an interactive one. The editor and his advisers enter into conversation with individual readers in response to their existing knowledge and current treatment. For some readers, this means

suggesting remedies or referring them to a doctor, but for others the column will attempt diagnosis based on their symptoms:

The affection of your eyes appears, by your description, to be incipient amaurosis. (“Notices”, 21 Nov. 1846)

The symptoms you describe are caused by a foul stomach; take some relaxing medicine, and if not better consult a medical man. (“Notices”, 2 Feb. 1850 31)

The symptoms are those of palpitations of the heart, and medical advice should immediately be resorted to. (“Notices”, 23 Nov. 1850 287)

Some readers entered into a more dynamic relationship with the periodical, sending follow-up letters to clarify their symptoms or ask for more information. One individual conducts a dialogue with the editor regarding a serious complaint of paralysis and muscle wastage (“Notices”, 27 Mar. 1847; 29 May 1847 47), while another writes twice in relation to a cure for knock knees (“Notices”, 26 Aug. 1848; 6 Jan. 1849 416). The periodical’s responsiveness to these ongoing requests suggests a commitment to helping its readers and to a personal relationship that is directed by readers as well as by the magazine.

However, there are limits to this responsiveness, and readers are repeatedly asked not to seek advice on serious complaints; the column’s medical scope is limited, certainly in theory and largely in practice, to prescriptions for home remedies or self-treatment, or what the editor calls ‘useful receipts’. He tells readers, ‘We only undertake to give *useful receipts* and not *medical advice*’ (“Notices”, 4 Nov. 1848; italics in original), repeating himself six months later: ‘We do not pretend to give medical advice in cases at all serious: all we profess to do is to give useful receipts and plain advice in

simple cases' ("Notices", 12 May 1849 704). Some readers' requests are turned down without ceremony for falling outside the rules: 'We are quite unable to give advice upon the subject, which is purely a medical one' ("Notices", 3 Mar. 1849) while one correspondent makes the mistake of asking for a receipt that is 'medical' rather than merely 'useful' ("Notices", 26 Feb. 1848). As this last example suggests, the range of matters with which the column will engage is not always clear, and at times appears to be somewhat at the whim of the editor or his medical advisers. The fact that the terms had to be restated over and over suggests that readers had their own ideas about what they wanted to ask the editor, and occasionally a more serious complaint will slip through the net - suggestions are given for the treatment of cholera, consumption and gout ("Notices", 6 Jan. 1849 415; 10 Aug. 1850 47; 16 Sept. 1848) - although in these cases the advice is limited to general suggestions rather than the kind of personal engagement I discuss above.

In Chapter Two we saw how the treatment of mesmerism in the Notices suggests a tension between *Reynolds's* respect for its readers' capacity for intelligent thought and a sense that the periodical does, underneath it all, know best. Its health advice suggests a similar conflict between reader empowerment and the authority of the periodical and its sources. It offers readers a discussion of their health that is informed, open and wide-ranging, but also carried out under the control and direction of the editor. In addition, the main authorities offered are medical men and the periodical itself. We shall see later that the *Herald* invites and encourages readers to share their own remedies and recommendations; *Reynolds's* does not follow suit. Guidance is often attributed to doctors, but where no source is acknowledged the periodical itself is implicitly presented as the creator and repository of knowledge and

thereby endowed with medical authority. It is possible that some of the cures *Reynolds's* offers in and outside the Notices column are sent in by readers (the magazine did publish reader contributions without specifically acknowledging them as such³²) but if so, they are not identified, and any chance to promote reader-generated knowledge is lost. Indeed, one reader writing to offer his own suggestion is politely dismissed, being told that *Reynolds's* 'must decline inserting medical receipts on anonymous authority' ("Notices", 4 Sept. 1847 271). Medical advice, this answer suggests, is legitimised by the sources from which it originates. The ultimate deferral is to medical men; readers with serious or complicated complaints are referred to authorised practitioners, confirming the superior skill of the medical profession. We shall see, when we come to the *Herald*, the effects of an alternative approach to readers' knowledge.

The column does, though, offer readers space to be proactive about their own health and to exercise personal autonomy. In assessing symptoms, dispensing home remedies for some readers and directing others to seek further medical help, *Reynolds's* correspondence column acts as a first port of call, inserting itself between readers and more formal sources of medical knowledge. *Reynolds's* itself becomes a source of medical authority, one able to defer to and empower readers in a way that real-life medical interactions may not have allowed. The emphasis on home remedies as a first step encourages readers to take responsibility for their own treatment. The column is supported by the longer pieces in the periodical, which as we have seen, gave substantial information about the workings of the body and offer the possibility for readers to understand something of the basis of their medical problems and perhaps

³² See, for example, the replies to 'Charles Stanmore' and 'S.S.' about their submissions, in the "Notices" columns of 26 May 1849 (735) and 19 Jan. 1850 (415) respectively.

attempt self-diagnosis. Furthermore, the editor's answers are not the end of the matter; readers must respond to them in some way, even if it is to ignore them completely, and I suggest that through these responses readers are enabled to take control of their own health. The advice gives responsibility back to readers, who must seek out or prepare the remedy, read the recommended book, or find a doctor. As Patton notes in her article on health advice in the *Girl's Own Paper*, they may also choose whether to proceed according to instructions; the editor will not know if they go their own ways (122). It is not necessary to reject the medical profession or to rely only on alternative treatments to exercise the principles of self-help and to assert one's own authority over one's health. *Reynolds's* did not offer a free-for-all in which all control was handed back to readers; there is an emphasis on the periodical and the medical profession as producers of knowledge, but the presence of the advice column is an exercise in active health management on the part of readers.

Reynolds's, then, offers readers a multiplicity of medical advice. Different sources of knowledge come together in its pages, leaving the reader to decide which to prioritise. The primacy of the medical community is, if not stated outright, then certainly suggested; but readers are also empowered to respond to it and other sources as they see fit through the ample provision of useful information and the invitation to see themselves as something other than passive recipients of that information. The periodical's role in mediating sources of authority becomes apparent through its open-ended approach to the providers of knowledge. What is also striking, though, is *Reynolds's* willingness to promote itself as a source of advice. The power to give trusted advice comes from within the periodical as well as through the sources it presents. The

implications of this become particularly apparent when set against the *Family Herald's* very different approach.

Scepticism and self-authority in the *Family Herald*

As I have observed elsewhere in this thesis, the *Family Herald* is primarily an entertainment publication, heavy on romantic and dramatic fiction and incidental pieces, lighter on lengthy factual articles and attempts to educate readers with improving knowledge and moral guidance. It was a commercial operation, more interested in pleasing readers rather than bringing about social change, and its content (and success) suggests that there was no great cry among its readership for solemn items detailing the workings of the lungs and so on. As this thesis shows, the emphasis on lighter reading does not mean that scientific matters are ignored, but they are often woven into the fiction or picked up in seemingly less substantial or inconsequential items. In the case of health and well-being, lengthy and detailed pieces are rare. Where health advice and information is given, it is in the form of tips and short instructions, often contributed by readers. A further important pattern is that the *Herald* does not tend to enter into the merits of particular methods and treatments as the other two publications, in their different ways, do. However, an understanding of the *Herald's* wider treatment of medical matters allows us to see that its slim coverage and, crucially, its reluctance to support or reject particular practices is not necessarily indicative of a lack of engagement with medical issues; although we should take account of the periodical's general character, its approach to health advice also reflects, I will argue, its belief in the primacy of personal experience and individual thinking over received scientific wisdom. The

passionately argued pieces about mesmerism which I discussed in Chapter Two question the assumptions on which scientific men base their theories and the methods they use to prove them, arguing that new ideas should not be judged using scientific theorising and experimental work: tangible evidence, capable of being revealed to anyone, is what matters. When the periodical turns to matters of health, the same scepticism about medical professionals is in evidence. An exploration of the *Herald's* medical writing allows us to see both how this approach to scientific authority is expressed in ways other than straightforward discussion of the profession, and also to consider some of its implications. The *Herald's* championing of mesmerism often features arguments of a fairly theoretical or esoteric nature; medical advice, as a more practical matter, suggests how this line of thinking may play out in tangible, lived ways, as well as shaping the position of readers in relation to both the medical profession and the *Herald* itself.

Having 'as little to do with individuals as possible': The Family Herald and its correspondents

While the *Reynolds's* correspondence column is used by readers as a medical resource, the editor of the *Herald* is far more likely to comment on his correspondents' aptitude for poetry or their matrimonial prospects than on their state of health. A self-consciousness about the different emphases of the two correspondence columns is suggested by the direction given to a *Reynolds's* reader seeking advice on the origin of the connection between orange blossom and matrimony: 'We cannot answer the question...apply to the Editor of our talented contemporary, - the *Family Herald*' ("Notices", 4 Sept. 1847 272).

James Elishama Smith is happy to advise readers on whether they should emigrate, or marry a suitor, or accept a gift, or take offence at a perceived slight, but on medical matters he is more reticent, and often prefers to reserve judgment. Partly, this is a matter of the style and identity of the periodical, as I discuss above. The *Herald* was not in the business of giving medical advice because, to put it simply, it was not part of the publication's style and remit. Additionally, the journal claims, it is a question of fairness and decency: 'We cannot, with propriety, particularise or advertise any one party, without bringing ourselves under obligation to serve others in a similar way' ("To Correspondents", 29 July 1843). As the column's ready endorsement of Elliotson's medical mesmerism shows, this principle was not always followed, but this was something of an exception reflecting that, for Smith, mesmerism was more than just a medical procedure: it was part of a belief system. It also has to do with how the journal envisaged its relationship with its readers. Despite its willingness to offer romantic advice, the *Herald* does not invite the types of connection we can trace in *Reynolds's* and, as we shall see, in *Chambers's*. Although by its very nature it is an intermediary between readers and sources of information, it does not regard itself as shaping or interpreting knowledge, or trying to steer readers in any particular direction: 'We have as little to do with individuals as possible...It is but very little that we presume to teach. We are rather a mirror, in which the age may see itself vaguely defined' ("To Correspondents", 23 Aug. 1845). Unlike *Chambers's* in particular it actively does not, at least on matters of personal health, seek to be involved in its readers' decisions. Telling readers directly that the journal will not answer legal or medical questions, the editor explains that it 'cannot incur the serious

responsibility of incorrect advice' ("To Correspondents", 21 Feb. 1846 665), and on this, Smith was generally true to his word.

However, the correspondence column does on occasion have revealing words of wisdom for those seeking health advice - not specific suggestions for diagnosis or treatment, but instead remarks on the inadequacy of medical science:

...not all constitutions are alike; and what succeeds with one fails with another. It is this fact which renders medical science so unsatisfactory. ("To Correspondents", 24 June 1848 121)

Consult your own experience, and do not... trust too much to medical science, which is not much further advanced (if any) than political economy. ("To Correspondents", 1 Nov. 1845)

If God has made a man weak, how is he to be made strong? Do the chemists sell strength? Have they discovered physical force by their analyses of matter? Have they discovered health, vigour, energy, virtue, spirit, or any other power whatever? Not they... ("To Correspondents", 22 June 1844)

The tone is familiar from the discussions of the scientific community prompted by the topic of mesmerism. The medical profession is a focus for the *Herald's* suspicion of what was becoming professionalised, systematised science, and readers who need medical help are advised to trust instead in what they believe their bodies to be telling them. The *Herald's* discussion of mesmerism rejects modern scientific methodology because it leaves no room for instinct and reduces individual humans to a collection of identical parts: its position on health suggests how that principle may be put into practice.

Discussion of mesmerism, as we have seen, criticised scientific learning as being nothing more valuable than an accumulation of facts. A substantial article arguing for the worth of mesmerism includes a personal anecdote from the author on suffering from a constricted throat for two years. The advice of 'several eminent men' proves entirely useless. Limited diagnostic ability is, he claims, an outcome of professionalisation; as doctors become specialised they become so divided and so defensive of their territory that 'their diagnostics, their prescriptions, their assertions, their assurances, are as little to be relied upon as the casuistry of a Jesuit in a case of conscience' ("Miss Martineau and Mesmerism" 542). The cure is found elsewhere: 'at last, unadvised, we fortunately thought of an old woman's remedy,' a treated flannel wrapped around the throat (542). The healing sensation this brings is categorically more useful and convincing than the logic of doctors. This piece sets up an opposition between the narrow focus and systematic perspective of medical science and a domestic medicine driven by personal response, associated with traditional, simple cures whose worth is measured and known by their felt effects rather than by the theories behind them.

Home remedies - those that a reader could prepare for themselves, using shop-bought ingredients - more easily find a place within the *Herald's* scientific philosophy than does formal medicine. Physicians are generally dealt with in unflattering terms: they 'seldom or never rise to universal usefulness' and pour 'needless physic' down their patients' throats in pursuit of higher fees ("To Correspondents", 13 Sept. 1845; 7 July 1849 155). The editor demands of one sceptical correspondent, 'Show us a bottle of medical skill; show us a physician whom you can demonstrate to be cleverer than an old woman in curing a sty or charming away a wart' ("To Correspondents", 21 Apr. 1849 810).

The idea that diagnosis and cure is within each reader's sphere of expertise rather than controlled by medical authorities is supported by the occasional use of the magazine as a space for reader conversation. Sometimes readers are invited to help one another out with particular queries, as in the editor's response to a question about warts: 'Perhaps our readers may be enabled to give, from experience, the information required' ("Warts", 19 Aug. 1843). A substantial list of suggestions was published three weeks later ("Warts", 9 Sept. 1843). Readers will also write in apparently unprompted with their own tips, which appear to be printed verbatim.³³ Feedback from other readers, also seemingly in full and their own words, follows. For example, 'W de V' in Cheltenham writes to endorse a suggestion, which she saw in the *Herald*, to smoke caraway seeds to cure the pain of toothache, explaining that s/he wants to commend it to other readers ("The Tooth-Ache"). 'A Grateful Subscriber' chimes in, declaring she found the remedy so helpful that 'I would send [the original correspondent] a lock of my hair as a mark of gratitude' ("Cure for Tooth-Ache").

Exchanges of this type differ from the *Reynolds's* Notices column in that, as far as we can tell (and assuming they consist of genuine reader contributions), they are not mediated through the editorial voice. While *Reynolds's* summarises and rewords readers' offerings, these letters are printed separately from the regular correspondence column and appear to be readers' own words, without additional comment from the editor or other *Herald* writers. Any reader suggestions on health and other matters included in *Reynolds's* are absorbed among other anonymous or initialled miscellaneous items, the source of most of which it is impossible to identify. On the one hand, the *Reynolds's*

³³ To take a very few examples, see "Sore Eyes", "An Effective Preventive for Hydrophobia", "Tallowing the Nose", "The Teeth" and "Simple Remedy for Cramp".

approach levels pre-existing hierarchies: a tip from an ordinary reader may have equal billing to that of one from a more qualified or eminent contributor or lifted from a medical publication. On the other hand, the *Herald* shows readers in conversation with one another, together generating knowledge, with the periodical acting as a medium rather than controlling the discussion. Of course, the editor still dictated which letters were and were not published, and presumably at the very least corrected any spelling and grammatical errors, but the contrast with *Reynolds's* is that readers do not, in that magazine, speak directly to each other, and cannot come together to create communal wisdom from individual experience.

The *Herald's* emphasis on personal experience, then, is reflected in the way in which it communicates - or declines to communicate - medical information to its readers. The importance of self-belief and self-reliance is expressed in its forcefully worded mistrust of authority, more obliquely in its disinclination to engage with particular medical practices and doctrines, and in its offering of the magazine as a space for the sharing of readers' knowledge. The *Herald* does not present itself as a source of useful medical information in the way that *Reynolds's* and, as we shall see, *Chambers's* do, but rather as a forum for other people's knowledge, from which it dissociates itself. It declines to evaluate the available evidence or draw conclusions on behalf of its readers, and the lack of detailed information and editorial answers discourages readers from relying on the magazine for solutions to their health problems. Health advice, to the extent that it is offered, is not usually accompanied by any information about why the recommended course of action will work or by complementary articles explaining the structure and processes of the human body. This is self-reliance of a different type from that embodied by *Reynolds's*,

which depends upon the reader being given knowledge from a range of sources and the skills with which to think productively about that information. It implies a different view of both the medical options available and of the relationship between the reader and the journal.

An alternative approach: Cholera and the Family Herald

The *Herald's* dominant approach to medicine reflects in format as well as in content Smith's deeply-felt view of modern science. Because the *Herald's* coverage of science generally, and of medicine in particular, is slight, and its opinion pieces usually reflect Smith's distinctive beliefs without balance from other voices, those pieces tend to appear characteristic of the periodical as a whole. However, they did not prevent the *Herald* from making recommendations directly opposed to them when the occasion arose, and I offer as a reminder of the complex relationship between the periodical, its editor and its readers the *Herald's* reaction to the cholera outbreak of 1848-49. The country suffered three visitations of cholera over the first half of the century (1831-32, 1848-49 and 1854), each time raising enormous anxiety prompted in part by serious questions about the ability of the medical profession to control the spread of disease. As I discuss in more detail in relation to *Chambers's*, doctors would not fully understand the workings of cholera until the 1860s, before which point their capacity to arrest its progress or cure the afflicted was very limited. However, the *Herald* threw its weight behind the authorities, running pieces throughout the epidemic strongly advising readers to follow their directions. "Remedies Against the Cholera", published in August 1848 as the outbreak took hold, sets out detailed instructions issued by the Poor Law

Commissioners, supported by a glowing recommendation from the *Lancet*, which describes the guidelines as ‘worth all the nostrums or specifics which have ever been vaunted for the cure of Asiatic cholera’ (270). This endorsement was reiterated a couple of months later (“The Cholera”) and was followed by another substantial piece stating that the *Herald’s* ‘rule’ was to recommend only those remedies sanctioned by the Medical Board of Health and referring readers to specific back issues in which these remedies could be found (“The Cholera, and How to Prevent It”). Other pieces commending the directions of the Board of Health include “Hints on the Preservation of Health - No. 13”, “Hints on the Preservation of Health - No. 14” and “Hints on the Preservation of Health - No. 15”. The repeated endorsement of official guidelines suggests an alternative view of the medical authorities to that usually seen in the *Herald*. In recommending reliance on externally sanctioned cures rather than reliance on one’s own judgment, it also departs significantly from the journal’s norm in its opinion of the way that readers should go about seeking health. The cholera coverage is noticeably different from the publication’s customary approach to health matters, perhaps reflecting the public preoccupation with cause and cure and the extraordinary sense of anxiety prompted by the rapid spread of disease. There is a sense of the *Herald* fulfilling a necessary duty to its readers (one that it evidently did not recognise outside of this emergency), providing public service information for which it was not in itself to be held liable: “The Cholera, and How to Prevent it” articulates clearly that the *Herald’s* policy is that of ‘not incurring the responsibility of recommending any specific remedies’ except those officially sanctioned.

Meanwhile, the editor continued alongside this material to fulminate from his correspondence column against the incompetence of the medical

profession. In a strongly worded notice on the medical response to cholera, he expresses a serious mistrust of the scientific establishment, complains about the competence of the authorities and expresses the alarm generated by the suspicion that nobody, whether medically qualified or not, understood or had any control over the spread of cholera (“To Correspondents”, 21 Oct. 1848). ‘Scientific information current in books, lectures, periodicals, &c.,’ he declares, ‘is largely adulterated with conjecture, error in calculation, delusion, and other fallacies to which humanity is subject.’ He goes on, ‘Nobody can guarantee the accuracy of any scientific intelligence. It is given on the authority of eminent men, but who can vouch for their infallibility?’ On the authorities’ response, he comments, ‘It does not believe its own science. How, then, can the people believe it?’ This contrast is rather different from the melting pot of sources and opinions that makes up *Reynolds’s Miscellany*, showing as it does two opposing approaches to medical authority side by side within the pages of a magazine that more usually contains no material on medical matters at all. As I discuss in the introduction to this thesis, the *Herald’s* dual identity as a reader-driven commercial entity and (secondarily) a mouthpiece for Smith’s beliefs sometimes produces interesting results: this is one example.

The cholera outbreak was, however, an exceptional crisis and prompted exceptional content. The pieces I refer to above are noticeable simply for their presence, as well as for the advice they offer to readers. The *Herald’s* health coverage more generally, I would argue, accords with the suspicion of medicine and science that tends to dominate the periodical’s coverage. The lack of medical content and personal advice results in an approach to medicine which discourages reliance on the advice of authority figures, instead suggesting that readers look to their own personal and familial wisdom. The *Herald* did not as a

rule regard itself as a repository of useful information or as a provider of advice; indeed, as I have shown, even during the cholera episode it continued to limit its own responsibility for the advice within its pages. Its pattern of maintaining neutrality, providing a minimum of health information, and encouraging readers to rely on their own experiences and instincts accords with the editor's belief in self-reliance but also reflects its identity as a lighthearted commercial publication rather than a social or moral endeavour.

I turn now to *Chambers's Edinburgh Journal* for a different view on how the periodical's character, its ideas about its readers, and its perspective on scientific authority are mediated through its treatment of readers' health.

Chambers's was founded more than a decade before *Reynolds's* or the *Herald* and the final part of this chapter steps back to 1832 to examine how the particular historical moment into which *Chambers's* was born, and the social purpose for which it was founded, brings concern about personal behaviour and social responsibility to bear upon its approach to reader health. I move away here from direct health advice to wider questions of how the periodical's wish to guide its readers down particular moral and educational paths inflects its coverage of medical matters. As with the other periodicals, its health advice invites readers to respond to doctors and to the periodical as adviser in particular ways, but in *Chambers's* there is an undercurrent of social anxiety that is also part of its mediation of structures of authority. This is at its most apparent in the early editions of the periodical, which coincided with a national and lengthy cholera epidemic, the discourse around which saw concerns about authority refracted and intensified.

***Chambers's Edinburgh Journal*, moral responsibility and useful knowledge**

In his introductory address in the first issue of *Chambers's Edinburgh Journal*, William Chambers was clear about his obligations to his readers. Musing on the power he may have had to shape the opinions of three million people, he declared, 'I see the straight path of moral responsibility before me, and shall, by the blessing of God, adhere to the line of rectitude and duty' ("The Editor's Address to his Readers" 1). *Chambers's* was set up in 1832 and, as I discussed in the introduction to this thesis, aimed to supply improving literature to working-class men and women in response to fears about the sort of education they were getting from the radical press at a time of social turbulence and economic hardship. The useful knowledge movement in which it was based aimed both to provide readers with healthy doses of moral improvement and to educate them into the ability to make what its proponents considered to be good choices on their own behalf. Man is designed, argues an editorial piece, 'to be an active being, to help himself, and, in proportion to his acting well or ill, to be the source of his own happiness or misery' ("Is Ignorance Bliss?" 385). Chambers was concerned from the first edition to shape his relationship, and his periodical's relationship, with readers accordingly.

As with the *Herald* and *Reynolds's*, *Chambers's* approach to reader correspondence sheds interesting light on how the editor perceived these relationships - but unlike these other periodicals, it did not reply to its readers' letters within its pages. The reason, the editor claims, is that he wants readers to become self-reliant and better informed. He complains of the tendency of readers, when faced with important life decisions, to 'seek refuge in their perplexity from one who may be really an abstraction, but whom their hearts

have personified as a counsellor and a friend,' i.e. *Chambers's* itself ("A New Emigration Field" 249). 'We prefer,' the piece goes on, 'enabling our clients to determine in important matters for themselves; and this we do by putting them in possession of the facts on which our own opinion, if we ventured to give it, would be founded' (249). Again, there is a focus on self-reliance, but *Chambers's* views this concept in very different terms from either *Reynolds's* or the *Herald*. This is a heavily directed and guided form of self-reliance, based on a conception of readers as passive and lacking in autonomy - and this, I will argue, is how the magazine tends to position its readers despite aiming for them to be otherwise. Its claim for self-development through education and responsibility accords with the principles of useful knowledge, but it is based on an idea of its readers' abilities and communal character that chimes with the tone of the introductory address I referred to above. 'Unable to determine for themselves, they would fain throw the *onus* somewhere else,' the piece asserts. 'They would implicitly follow advice if they could only obtain it from a quarter where they had been accustomed to repose confidence; and if disappointment was the result, they would find consolation in being able to cast the blame on another' (249). Denying readers' requests for help is, it argues, empowering, forcing them to develop a sense of self-responsibility, but the suggestion that they must be *made* to think for themselves does not suggest a view of readers as active agents in their own lives. The limits within which readers should be thinking for themselves are also indicated by the basis on which *Chambers's* does attempt to help its readers: by 'putting them in possession of the facts on which our own opinion, if we ventured to give it, would be founded' (249). Readers are to be encouraged towards a pre-determined right answer, rather than to decide for themselves among different, equally valid options.

The presentation of the periodical as an authority on medical matters and the positioning of readers as in need of clear guidance is characteristic of *Chambers's* general approach, reflecting its identity and purpose within a useful knowledge framework. For example, an 1844 article, "Means of Improving and Preserving Health", is a list of maxims for good health. They are couched as direct instructions to the reader - 'take no supper,' 'go early to bed,' 'eat very slowly' - with no explanation or further information. The language is simple and direct; a note at the end explains that the list was composed by a teacher and taken from his schoolroom, placing the reader in the position of a schoolchild taking directions from a teacher in a more extreme version of the knowledgeable writer - passive reader framework. The first two maxims are 'Habitual cheerfulness and composure of mind' and 'Strict control over the appetites and passions', with a strict ban on 'all excess and all unlawful gratifications'. The link between health and good behaviour is a pervasive one that we will see drawn out more fully in *Chambers's* coverage of cholera. A second 1844 article called "Health - Its Loss and Preservation Depend on Daily Conduct", excerpted from a book by a Dr Combe, characterises the average person as unable to assess the state of his or her own health or to take appropriate action with regard to it, with standard daily habits leading to 'broken health'. The piece appeals directly to readers, suggesting that they fall into this category; the address of the title, Combe's clear instruction to those who disregard lifestyle restrictions to 'make themselves acquainted with the real dictates of the organic laws' and the editor's recommendation that all readers buy Combe's book forthwith all signal the relevance to the reader.

More particularly, the social context in which *Chambers's* sought to intervene as it established its own role shapes, I suggest, its early coverage of

medical matters and, through this, inflects its construction of scientific authority. This was a period during which public confidence in medical knowledge was strained, social unrest was growing, and *Chambers's* was creating for itself a place within the periodical market and building a relationship with new readers. As I will now discuss in more detail, the strategies by which it mediates between its readers and figures of medical authority, its construction of itself as a provider of legitimate knowledge, and the challenges posed by the periodical's multivocal nature can be traced through its treatment of the cholera outbreak of 1832.

Chambers's Edinburgh Journal *and the cholera outbreak of 1832*

The first major cholera outbreak of the nineteenth century had firmly taken hold when *Chambers's* began publication in March 1832. The disease struck in the autumn of 1831, creating an epidemic that would last for a year, claim 52,000 lives and produce 'a crisis atmosphere in the country quite unlike that produced by any other threat apart from foreign invasion' (Morris 14). The sense of crisis was due partly to the scale of the epidemic, partly to the characteristics of cholera - its symptoms were extremely unpleasant, very visible, and progressed at a terrifying speed - and partly to the public's justified suspicion that the medical profession was helpless in the face of this disease. 'Throughout most of the century,' Haley argues, 'doctors can be said to have been conceptually helpless about the cause and treatment of the disease' (10). Medical theories of various kinds, particularly contagion (the theory that the disease was passed by direct personal contact) and the miasmatic theory (that it was passed through the air by a vapour), religious and moral explanations and

the effects of remote and extraordinary events were all proposed as possible causes as cholera continued to spread.

Cholera was a powerful and frightening force, so transformative in its effects upon individuals and their communities that it became expressive, critics argue, of meanings about people's place in their society and the world that went beyond the question of physical health. Alison Bashford and Claire Hooker comment on contagion's enduring capacity to stand both as a metaphor 'for the circulation of social, moral or political dangers through a population, *and* as visceral, horrible infection' (5). Looking specifically at cholera, Pamela K. Gilbert has shown how the disease acted as a potent symbol for the perceived threat to the social body during this period, arguing that 'the apparent volatility of society and its institutions was linked in the press to the mysterious threat of the new illness' (17). Erin O'Connor, too, interprets cholera as 'a metonymy for the disruptive effects of social change' (26). O'Connor traces the racialised language used to discuss cholera in the periodical press, expressing, she argues, an anxiety about the effects of industrialisation upon Englishness (29-30). Allan Christensen also observes a discourse that sees infection from the east menacing 'the integrity of an entire national culture' as part of his wider exploration of the discursive connection between social disintegration and contagious disease (24).

This section explores the connection between cholera and social disruption within *Chambers* specifically as a useful knowledge periodical generally supportive of the medical profession and respectful of science. *Chambers's* was deeply concerned about the dangers that it perceived were facing the country in the form of potential unrest and working-class discontent, and about its own role in combating those dangers. The presence of cholera

raised questions about the limitations of authority, awareness of the impact of individual behaviour on the fabric of society, and anxiety about the tools available to control people's actions. Focusing on the advice and information *Chambers's* offered for its readers' benefit, I find that cholera becomes a focus for ideas about the relationships of individuals to medical authorities and to *Chambers's* itself. These ideas relate specifically to the control of disease but also resonate more widely.

Epidemic disease was an important and pervasive subject in *Chambers's* early editions. Cholera, plague, infection and contagion feature prominently in fiction, historical articles and advice.³⁴ The first issue carried a long article on the historical background to the cholera outbreak. Entitled "Plague. Cholera", it surveys the history of plague-like diseases before turning its attention to the treatment of modern cholera. Most of the piece, focusing on the history of the plague, emphasises the irregularity and inexplicability of the disease: 'The whole history of the plague,' it explains, 'its course, and its character, are shrouded in impenetrable mystery' (7). The writer understands cholera to be a direct descendant of plague and subject to the same unpredictability. A sense that cholera was mysterious, uncontrollable and untreatable was, as I have discussed, culturally prevalent, and this is reflected in this and other early *Chambers's* pieces. An article published two weeks after "Plague. Cholera" presents, and takes issue with, an excerpt from a medical source claiming that cholera is not erratic; the writer disagrees, though he or she concedes that the movement of disease from place to place can be explained ("The Cholera - Musselburgh"). In the same edition, an account of the purification of objects in

³⁴ Examples from 1832 include, among others, "An Irish Story", "The Great Universal Plague", "Traditions of the Plague in Scotland", "The Russian Court", "Column for Mothers", "Annals of the Poor", "A Tale of the Plague in Edinburgh", "The Plague-Ship" and "Anecdote of the Plague".

a plague-ridden Turkish city concludes that the only benefit the practice brings is an impression of security; to the English author, it is obvious that the process is 'frequently arbitrary' and 'tinged by prejudice and caprice' ("A City of the Plague"). Any suggestion that this mistake is one that could only be made by foreigners is undermined by the obvious parallel between the plight of the Turkish city and the Britain of 1832, a parallel explicitly raised by the editor, who prefaces the story with an observation that it excites 'a painful interest on the present occasion'.

"Plague. Cholera" goes even further, presenting modern cholera not just as mysterious, but as governed by a volatile and malicious human-like personality. Describing cholera as 'certainly far more capricious than plague' (7), the piece outlines how it lays 'every principality and power successively under contribution to its insatiate appetite' (7), will 'malignantly frolic' against an otherwise destructive frost (7-8), and strikes towns at random, 'just stooping here and there to pick up a victim, as it were, out of the sheer wantonness of mischief' (8). The conceit that cholera has a mind of its own suggests it is operating outside of the ordinary laws of nature, an idea that accords with the medical profession's inability to control it. However, having confidently asserted that '[a]ll that is known of plague and cholera is a number of isolated facts, often of a contradictory nature, and no way capable of forming a body of evidence on which any correct theory can be founded' (7), the writer moves seamlessly to an equally confident claim that cholera is 'an exceedingly modified species of plague'. He proceeds to offer a number of medical recommendations, including the observation that at a time of epidemic, cities are the safest location because of the presence of 'an innumerable body of the most intelligent physicians, all acting in concert, and each contributing his solitary fact to swell the mass of

useful knowledge on the subject' (8). The solitary facts are at once isolated, contradictory and no basis for medical theory, and also a body of useful knowledge that is of direct assistance to potential victims of cholera. In any case, the piece concludes, cholera is liable 'to be cured by certain specific remedies'. The main advice is to consult a doctor, but a list of home remedies is extracted from a medical book for use in cases where this is not possible (8).

Both within this piece, and more broadly across *Chambers's* coverage, cholera is characterised both as unknowable and uncontrollable, and as within the knowledge and control of medical men. The journal simultaneously reflects and even contributes to a sense of chaos and panic, and offers its readers theories and advice in the most confident of voices. The authoritative tone in which it delivers explanations of cholera's character, an emphasis on instructing readers on their own role in combating disease, and an apparent faith in the powers of medical men, are all recurring features. This gives us a glimpse of the periodical creating its own role in these very early days of its existence: whether or not advice is reliable - even when it explicitly is *not* reliable - the readers of *Chambers's* are to be guided and instructed. They are conceived of as needing someone to take charge of them, and it appears that *Chambers's*, in keeping with its role as a purveyor of useful knowledge, sees that responsibility as falling at least partly on itself. The characterisation of cholera as inexplicable and volatile reflects the mood of the country but also, I suggest, contributes to the journal's attempt to promote itself as a communicator of good, trustworthy advice, backed up by competent medical authorities. Constant reminders of the dangers presented by cholera, of its temperamental nature and illogical progression, add weight to the reassuring advice offered by the journal. They mitigate against possible temptations to rely on one's own instinct or judgment

in the face of this terrifying disease; advice becomes more compelling, its alternatives more risky, in the face of these potential horrors. However, the way in which cholera is described as unknowable and chaotic also undermines the periodical's claims to authority: the position from which *Chambers's* offers advice is destabilised by competing conceptions of the disease within its pages, a feature that is repeated in other aspects of its coverage of cholera.

Linked to the emphasis on medical recommendations is a message that the reaction to cholera in 1832 is a modern, measured one, a message that proves unstable as it interacts with content that draws upon older traditions. "Traditions of the Plague in Scotland" draws a contrast between the response to epidemic of modern society and that of earlier times, listing in order to dismiss the beliefs and purported cures in circulation during historic plague outbreaks. The 'rude and untutored' people of the seventeenth century are set against a modern generation 'certainly possessed of far more worldly knowledge, and in whose favour medical skill and general humanity are infinitely more on the alert' (108). The emphasis on modern medicine as competent and equipped with up-to-date practical knowledge presents it both as reassuringly capable and, by setting it in contrast with the superstitious fancy of the past, rational and objective. It is a similar distinction to that which we saw in the *Reynolds's* accounts of body-snatching in Chapter Three, where advocates for medical anatomy are favourably contrasted with the amusing rustics who believe in ghosts and old wives' tales. Readers are explicitly invited to make favourable comparisons between epidemics of the past and the crisis going on around them, described by the writer as 'the presence of a similar calamity among us'. However, the impression of cholera as a power outside the understanding of science created elsewhere in the journal around the piece disrupts this

message. The piece describes as ‘the most curious and superstitious tradition’ the belief that cholera had a bodily form and moved through the air in the shape of fine threads (109); the metaphor of cholera as a living creature under its own propulsion that I discuss above echoes this older idea, while the many ideas in circulation about whether cholera travelled in the form of particles, or in the properties of odorous air, or by personal contact may not, to the non-expert, be so far off the supposedly outlandish and old-fashioned belief that cholera was in some way a material entity.

A second piece, “The ‘Pest’ of Ancient Times”, offers as a historical curiosity the advice of Maister Gilbert Skyne, a sixteenth-century doctor of medicine, first published, the editor informs readers, ‘for the ostensible purpose of informing the people how to avoid or cure the plague then recently introduced into the realm’. The doctor describes the plague as being the result of ‘God’s indignation at the sins of men,’ listing as ‘inferiour causis’ various sources of filth including dirty or stale water, unburied carcasses and human and animal waste being left in the streets, as well as wind blown from ‘pestiferous places’ - all of which were regularly raised in 1832 as possible causes or transmitters of disease. Again, the division between the manifest errors of the past and sensible modern explanations collapses, particularly for any readers who also read the prayer of Dr Chalmers published in *Chambers’s* in March 1832, which reminded them not to focus on ‘secondary causes’ but instead to be mindful at all times of ‘that mighty, unseen Being, who has all the forces of Nature at His command’ (“Dr Chalmers’s Prayer”).

The various answers the journal offers to the problem of cholera move in and out of medical doctrine, and its own line between superstition, morality, religion and medicine is fluid, challenging the opposition claimed by the

“Traditions” piece. It mixes medical and moral advice, in the process reflecting the relationship *Chambers’s* was attempting to establish with its readers. Its coverage of cholera shows us not only how it shaped its own position and that of other authorities in relation to readers, but also something of what it hoped to do for, or with, those readers. Frequently its suggestions have distinct elements of moral and spiritual responsibility. In each of the cholera epidemics of the nineteenth century, the working classes and the poor were over-represented among the victims (F. B. Smith 231) but the rhetoric in these early days most consistently linked infection specifically with the degenerate poor (Gilbert 18). It is claimed in *Chambers’s* that the disease is most likely to strike the ‘dissolute and famished’ (“Plague. Cholera” 8); this is advanced as a reason to be hopeful and positive, it being assumed that no *Chambers’s* readers fall into that category, but it is also a warning to them about the consequences of ill-advised habits. Medicine and morality overlap: “Plague. Cholera” advises ‘a perfect cheerfulness of disposition’ which, it claims, provides ‘a great chance of escaping’ infection. This is offered as a medical point, but, based on behavioural and personal characteristics, carries an implication that to contract the disease is an indication of a moral failing or a character deficiency on the part of the victim. Blame for the spread of disease is placed on the ‘intemperate habits’ of the ‘lower classes,’ while readers of the journal are firmly advised, on medical evidence, to avoid alcohol on the grounds that it will increase their own susceptibility to the disease (“The Cholera - Musselburgh”; “Plague. Cholera”). The drinking of the degenerate and uncontrolled is a moral and social problem, while that of readers is a personal medical matter, but the boundary between the two is porous; the antisocial, infectious poor are held up as an example of where uncontrolled behaviour leads. Most moralistic of all were religious

explanations of the disease, which in 1832 took their place alongside scientific attempts to explain its progress. As I mention above, *Chambers's* reproduced without comment the prayer delivered outside a cholera hospital by Dr Thomas Chalmers,³⁵ which describes the epidemic as 'that wrath which is so rightfully due to a careless and ungodly generation' ("Dr Chalmers's Prayer").

Chambers's, despite its generally scientifically informed approach, brings together a mix of social, religious and medical argument alongside the overall impression of a crisis to which readers' response must be guided.

The cholera epidemic with which the establishment of *Chambers's* coincided brought to the fore the journal's intended role and purpose. Founded as a useful knowledge periodical with the intention of educating and diverting potentially restive working men, it brings concern about personal behaviour and social responsibility to bear upon its approach to reader health. *Chambers's*, as we have seen in other chapters, was a critical friend to the scientific establishment, but its mediation of the sources of medical knowledge is also inflected by its social purpose and by its construction of the relationship between the periodical and its readers. Its treatment of these issues tells us about the way it viewed itself, the knowledge it imparted and its readers. Its aim to provide useful knowledge and counteract radicalism suggests a model of carefully chosen content to be consumed in the way envisaged by the editors; we saw in the refusal to reply to readers' letters that they did not set out with the intention of readers coming to their own conclusions about the material contained in *Chambers's*. The meanings created in the overlaps and

³⁵ Chalmers was Leader of the Church in Scotland, a student of natural theology and author of *The Adaptation of External Nature to the Moral and Intellectual Condition of Man*, one of the Bridgewater Treatises. He was also principal of Edinburgh University's School of Divinity, an institution heavily opposed to Robert Chambers' *Vestiges*, which work Chalmers implicitly attacked in his work for the *North British Review* (James Secord, *Victorian Sensation* 277).

discontinuities between different pieces on cholera indicates the challenge always presented by the plurality of the miscellany format.

The treatment of cholera in *Chambers's* shows how the direction of readers towards particular conclusions about the authority of the periodical and the medical men whose knowledge it showcases inflects both the form and content of medical matters. The advice of doctors is presented as authoritative, sensible and modern, and readers are encouraged to see both the medical profession and *Chambers's* itself as trustworthy guides at a time of crisis. However, this very emphasis on crisis threatens to undermine the structures of authority that *Chambers's* constructs, by drawing upon widespread fears that cholera was not under anyone's control or contained within medical knowledge. The mixture of moral and medical guidance delivers messages about social behaviour and the responsibility of individuals to each other and their communities, reflecting, I argue, not only the need to quell growing disquiet about the inexorable march of the disease, but also the wider social concerns *Chambers's* sought to address. The blending of religious and medical discourse was not unusual in this early part of the century, when medical practice had not been fully brought within a scientific framework; but it is *Chambers's* itself that attempts to draw a line between the superstition of the past and modern responses to epidemic, a line that becomes blurred as ancient practices overlap with the range of contemporary sources offered by *Chambers's* to its readers.

Health and disease were (and remain) a part of daily life, in terms of both physical and cultural experience. At a time when a significant proportion of health practice, particularly for working-class families, took place at home, and a

range of specialists - both medically sanctioned and offering unorthodox alternatives - were all asserting their legitimacy and special worth, health was an area in which scientific authority was under negotiation. It was also a subject through which personal autonomy and self-management were contested, as the claims of doctors to knowledge, understanding and even control of their patients' bodies increased as medical training improved and expanded. Its cultural pervasiveness and presence in bodies of knowledge of all degrees of scientific legitimacy means that through health advice, ideas about the body from a variety of sources could be put to readers; my exploration of the sources that each periodical prioritises, and the role that each creates for itself in shaping readers' response to knowledge, demonstrates how scientific authority was constructed and negotiated within the popular periodical itself.

The elements of health coverage that I have examined over the course of this chapter vary from periodical to periodical, including *Reynolds's* correspondence column, the *Herald's* paucity of medical matter and *Chambers's* coverage of the cholera epidemic of 1832. What they have in common, however, is that their negotiation of the sources from which health advice can come is both influenced both by their approach to the medical profession and also by the purpose for which each was founded. *Reynolds's* politically influenced approach to self-help can be traced not in any particular championing of alternative remedies, but in the way it enables readers to learn about and make their own decisions about medical matters; both the *Herald's* lighthearted commercial focus and its editor's suspicion of modern science mean that it finds little room for health advice; and *Chambers's* commitment to useful knowledge and respect for modern science is reflected in its insistence upon the competence of the medical profession, its use of moral solutions to

practical problems, and in the way it finds for itself a place within the structures of authority it constructs. Both *Chambers's* and *Reynolds's* present themselves as well as the medical profession as trusted sources of health advice, but their different approach to their readerships shapes the way that they offer themselves to readers.

Readers are, then, invited to respond to the various sources of knowledge and the periodical itself through these frameworks. The multivocality of the periodical format will always undercut and complicate general patterns; the *Herald's* provision of medically-authorized advice during the cholera outbreak of 1848 is in direct contrast to its usual approach and to the opinions being expressed by its editor within the same pages, and may be an example of a sense of duty to its readers at a time of real fear and danger. The crisis atmosphere of 1832 and *Chambers's* own tendency to use its advice on cholera to remind readers of their moral and social responsibilities undercuts its representation of a modern medical profession in charge of a serious situation. *Reynolds's*, perhaps the most miscellaneous of the three miscellanies, takes an open-ended approach, but at times we see how the periodical presents itself as the expert in contradiction of its readers' views, and it is noteworthy that its inclusiveness does not extend to offering its readers a voice within its pages. However, each periodical does generally take a distinct approach to the provision of health advice, in relation to how it treats both the various sources of knowledge and its own relationship to its readers. By tracing the contrasting ways in which they negotiate their own roles as a conduit for and generator of knowledge, we can appreciate how health matters enabled them to construct forms of scientific and social authority within their own pages.

Chapter Five: Science, society and the working-class female body

The female body loomed large in nineteenth-century scientific and medical culture. As I discussed in Chapter One, women played a limited role within formal scientific circles; however, womanhood as an area of medical investigation was of increasing interest and importance, and, Jordanova's *Sexual Visions* argues, the female body as a subject and a source of knowledge was a key figure in the production of scientific and medical theories.³⁶ Female bodies have presented themselves across my discussion of scientific authority. In *Chambers's* supportive accounts of medical mesmerism, the woman's body is presented as a display canvas for the doctor's scientific skill, enabling him to prove his theories and confirm his authority. In the anatomy theatre, the female corpse is a potential supply of scientific knowledge, holding secrets which will illuminate human understanding and lead to fame and riches for the medical man who can discover them. These subjects are not under investigation specifically as female bodies, but their sex is an important part of the relationships of power and legitimacy being negotiated in the scenes I describe.

The women taking their place on the experimental stage in previous chapters of this thesis have qualities that will be familiar to any student of Victorian womanhood. The O'Key sisters that we met in Chapter Two, via

³⁶ On the science of womanhood, see Rachel Malane on the idea of the gendered brain, Elaine Showalter on the perceived role of the reproductive system in female insanity, Londa Schiebinger on the association of women with nature, Ornella Moscucci on the mutually productive relationship between the science of gynaecology and Victorian femininity, Mary Poovey on domesticity, middle-class norms and biology, and, moving into the second half of the century, Cynthia Russett's exploration of evolutionary theory.

Chambers's Edinburgh Journal's eyewitness accounts of mesmeric demonstrations, are decorous, charming, compliant, respectable. The anonymous corpse of Chapter Three's "The Subject" is transformed into a modest wife-to-be capable of turning the eccentric, solitary man of science into a functioning member of a society structured around marriage. Underlying these representations is the possibility of sexual energies being loosed; the corpse contains erotic potential that is safely contained by her prospective marriage, while the radical loss of inhibition that often accompanied the magnetic trance was a cause for concern that hindered mesmeric doctors' claims to respectability. The complex, class-inflected mixture of purity and sexuality, domesticity and public display, is crucial to the construction of these women as experimental subjects, but also reflects wider scientific understandings of womanhood. It leads us outside the experimental arena and into a developing body of social and scientific thought about what women were, could be, and should be.

This final chapter, which focuses on the ways in which ideas about natural and unnatural states of womanhood are expressed in popular periodicals, opens up ways of thinking about science and its cultural authority in an area where it was highly influential but its presence, as far as these periodicals are concerned, was often all but unacknowledged. In relation to gender, more so than the subjects of the earlier chapters, engagement with scientific ideas moves into a mode of discussion where scientific and medical men, terminology and locations are often hardly to be seen. It offers the opportunity to explore in more detail the interplay of social and medical thought, their impact on each other's legitimacy, and, within the periodicals I consider

here, how medical ideas are shaped and absorbed by social commentary, other editorial priorities and the conventions and possibilities of fiction.

Mid-century ideas about women were reliant on the interdependence of gendered social and behavioural norms on the one hand and the Victorian understanding of anatomy, physiology and psychology on the other, and a central feature of the resulting discourse was the idea of a gendered nature. Nineteenth-century medicine's contribution to the separate spheres arrangement and the widespread perception of women as inherently domestic has been brought to light, thanks to the work of Moscucci, Malane and Poovey, among others. However, this growing body of ideas overwhelmingly took the middle-class mother as its model of womanhood, and its central tenets did not always reflect the realities of working-class life. The place of working-class women within this body of thought has received less critical attention; Jill L. Matus argues that working-class women were drawn into the discourse of domesticity by nineteenth-century social scientists but also observes that their bodies were represented differently from those of their middle-class counterparts within the same documents (59), while Marjorie Levine-Clarke has examined the contradictions of a public health framework that required all able-bodied people, whether male or female, to work, but that also understood the female body to be limited by its reproductive capacities (*Beyond the Reproductive Body*).

Aiming to explore some of the social and scientific beliefs that underpinned these contradictory understandings, this chapter focuses on the treatment of bodily strength and domesticity in publications read by women and men whose lives would not necessarily have followed the scheme most readily envisaged as 'natural' by this body of thought. It takes as a fundamental

starting point the mutually constructive relation between social norms and scientific discourse, exploring the importance of the language of nature and the natural. Showing how these terms bring together body-based theories and often unspoken assumptions about men and women to create a self-supporting view of women's characteristics and appropriate role, I proceed to consider how the periodicals use, interpret and question ideas about gender in pieces that deal directly with the question of women's nature and intended role, and in factual reports on female employment. Finally, I turn to fiction in which the representation of working-class womanhood both draws upon and challenges the dominant socio-scientific model.

The material I discuss here shows how scientific ideas, at once reflective of and absorbed into social norms, had the power to naturalise particular forms of womanhood and shape the way that lives were lived. Popular periodicals place these ideas alongside the realities of working-class existence, but also have their own particular messages to pass on to readers. *Reynolds's Miscellany* draws on the cultural force of conventional ideas about working-class female sexuality and women's domestic role in its attack on factory conditions, while *Chambers's Edinburgh Journal* suggests a model of womanhood that absorbs paid work into the domestic ideal, offering a practical vision of respectable and decorous working-class femininity. The *Family Herald's* focus on the middle-class domestic ideal does not leave much room for reimaginings of working-class womanhood, but its editorial articles see explorations of gender roles brought within the magazine's spiritual framework. Despite being well outside the formal scientific sphere, magazines of this type were part of a cultural conversation about the social norms that were at once the basis of, and evidence for, scientific concepts of natural womanhood. In

reinscribing ideas of natural states of being and offering a domestic model for all women, they help to substantiate these concepts, but also offer a space in which they may be reconstructed to reflect more closely the lived experience of working-class readers.

This chapter explores theories about women that were based on what we would now refer to as biologically determined characteristics, or qualities that are understood to arise from the structure and workings of the body. For ease of reference I use the word 'biological' to describe these ideas. This is something of an anachronism in the context of popular periodicals: although the term appeared in specialist literature from the beginning of the century, it did not come into wider use until later decades. Discussions of theories of the body in publications such as those I examine here were more likely to refer to perceived natural or innate characteristics. However, as I seek to understand the ideas that stood behind concepts of the natural, I find it helpful to have a term that refers to ideas based specifically on the physical characteristics of women, in order to trace the relationship between body-based theories and social norms.

The study of women and the language of nature

Mid-nineteenth century understandings of women, both medical and non-medical, drew upon concepts of gendered abilities and behaviour that brought together mutually supportive scientific and social ideas. The idea that particular roles and characteristics came naturally to each sex was explored extensively in scientific, intellectual and popular culture across fiction, medical textbooks, and essays on social issues, most often focusing on women rather than men. As I discuss later in this section, medical theories of the female body played an

influential role in shaping wider perceptions of the impact of women's physical characteristics on their health, characters and roles in society. Medical thought came together with existing cultural assumptions about the roles and capabilities of men and women in a mutually constitutive relationship, and the basis of this body of thought is often expressed using the language of 'natural' or sometimes 'innate' characteristics. The originating source of these natural qualities and how they are constituted is often not explicitly explored or defined; the concept is taken for granted as an explanation of gendered characteristics or a justification for women and men's separate social roles.

The periodicals I discuss in this thesis were no exception: essays and opinions on the respective characters and capabilities of the sexes are many and varied, some starting from a scientifically informed perspective and others discoursing more generally on themes such as ways to make a happy marriage, or the rights and wrongs of female employment. Articles of this type make use of the language of nature and naturalness or rely on an associated understanding that particular qualities are assumed to reside in each sex. Dr Johnson's series on "The Anatomy and Physiology of Ourselves Popularly Considered", discussed earlier in the context of health advice, explains that man is 'gifted by nature' with an intellectual capacity replaced in women by 'instinctive qualities, which so admirably fit her for her ordained path in life' ("Anatomy and Physiology of Ourselves", Chapter XXI 87), while Dr John Dix, in the *London Journal*, writes in a scientifically informed piece of 'the natural intellect of woman, in its natural compass and power' (39). Less scientific pieces use similar language, referring to 'the faculties which Nature has bestowed on the two sexes' (John Wilson Ross) and the attractive characteristics of women which 'nature, for its wise purposes, has denied to

[men]' (J. P. H. 103). Commonly pieces on these topics will refer to certain female qualities, in particular their domestic talents and inclinations, in ways that suggest they are understood - by the writer and, by his or her apparent assumption, the reader - to be an unquestioned part of women's makeup. As Davidoff and Hall argue, by the 1830s and 1840s, 'the belief in the natural differences and complementary roles of men and women...had become the common sense of the English middle class' (149).

In a series of long articles and discussions with readers, the *Family Herald* explored female attributes and the role of women in society. These pieces form an extended articulation of medical and social ideas about womanhood and show the expression of these ideas in language about nature and the natural. Framed initially through James Elishama Smith's religious viewpoint and moving to a biological understanding of gender roles, they also suggest some of the complexities and contradictions lying beneath the seemingly easy reliance on ideas of naturalness. In response to female readers asking about the 'destiny of their sex,' Smith expresses the belief that women will 'in the good time coming' lead society, taking precedence over men ("To Correspondents", 16 Dec. 1848 522). This unorthodox opinion is articulated in religious terms and explained primarily by reference to Smith's understanding of a heavenly plan: creation began 'at the bottom of the scale, with plants and reptiles,' ascending step by step to man and then, finally, woman. Women are merely undergoing 'an apprenticeship of subjection' to prepare them for their ultimate role, in accordance with a divine justice that gives both sexes their turn in charge (522). Although Smith's starting point and conclusion are not those of more mainstream thinkers, he refers to familiar ideas about women's nature in support of his belief: as women are by nature

peaceful and happy, they cannot lead until harmony is established in the world. As the subject of women's role is developed in two longer articles, the argument moves on from theology to develop these ideas about women's supposedly universal qualities, which in their turn are supported by a long explanation of the physical characteristics of women.

"Man Or Woman? Which is the Head of the Other?" was published in two parts soon after this query, the first of which develops the arguments set out above more fully. It appears to be a direct enlargement of this correspondence, following the same structure and discussing each element in more detail. Its starting point is a religious one: this world, argues the author (presumably Smith), is one of strife and disorder, ruled by the devil, and until women are viewed as men's equals, we are all cursed. This cannot be brought about by political change; it will be 'a great social revolution, effected by a higher power' (747). From here, the piece quickly develops into an exploration of women's domestic superiority, which both appeals to and undercuts ideas about gendered natural roles. A combination of aptitude, preference and duty, all of which come under the general heading of 'Nature', dictate that women's sphere is the domestic:

Man never can be a housekeeper, and Nature has very wisely ordained that his pride shall prevent him...The proper duty of a man is to bring provision to the house; but once brought in, it is the woman's duty to distribute it...As home is woman's kingdom, so Nature has qualified her for taking the lead in all the social enjoyments of life of which home is the scene. (748)

The source of these natural qualities is not explored here. As is often the case with contemporary articles on this subject, their existence is taken as so obvious

a fact as to require no explanation, the author simply stating that ‘the genius of women for every duty of a domestic character is...evidently superior to that of a man...’ (748). However, as soon as this assertion of universal female domestic dominance is made, it is undercut with observations about the social forces at work:

Even the husband must assume the appearance of submission. The law of etiquette requires it. The submission may not be real, but in the apparent submission lies the strength of the argument in favour of woman’s moral superiority - Society accords her unanimously this privilege; and though she may not herself individually deserve it, her sex collectively is considered to be entitled to it. (748)

Having made the conventional argument that women’s superiority within the domestic sphere is bestowed by Nature and therefore inherent, the piece now claims that it is performative; men are affecting an appearance of submission because the rules of polite society require it. ‘Society’ collectively agrees that women should be treated as rulers of the domestic sphere, and so they are. The quotation also questions the universality of these supposedly natural qualities; they do not exist in all women, but womankind as a whole is to be treated as if they do. The piece then, which begins with a prediction of women’s eventual universal dominance, supported by unambiguously spiritual explanations, argues its way towards a view of women’s authority as confined to the private sphere and aims for the modest objective of real rather than apparent power within this sphere, both drawing upon and challenging a conventional reliance on women’s ‘natural’ domestic qualities.

The second part of this series - “Man Or Woman? Which is the Head of the Other? No. 2” - sets out clearly the basis of essentialist ideas about

women's natural capabilities and moves away from both the ambiguity and the religiosity of its companion piece. It starts from the basis that:

whatever superiority woman possesses over man is of a delicate, sensitive, and tender nature, in perfect analogy with the superior delicacy of her physical structure. The nervous system of woman is more sensitive, and her intellect receives a development in perfect unison with this bodily temperament. Her moral nature corresponds in like manner with her physical nature. (763)

The ideas set out here, connecting women's physical characteristics, nervous system and moral character, were a familiar feature of contemporary discussions about the roles and nature of men and women. They drew upon a growing body of medical thought that saw the reproductive system as the primary influence over women's minds, bodies and life experiences. Scientific ideas about women's physical constitution and their mental and emotional capabilities gathered pace over the first half of the nineteenth century, with various branches of study including craniology, anatomy and physiology finding evidence that women's supposedly inferior intellectual capacity could be attributed to particular aspects of the female body (Malane 7; 28; 32). However, the reproductive system, over and above any other aspect of the female body, was believed to form the key link between women's biological constitution and their mental and emotional capabilities. Moscucci describes this as 'the biological foundations of femininity: as woman was dominated by her sexual functions, the physiology and pathology of her reproductive system provided the key to understanding her physical, mental and moral peculiarities' (7).

Neurophysiologist Thomas Laycock, writing in 1840, referred to 'the numerous connexions of the reproductive organs in each individual [female] organism,

extending directly or indirectly to every important structure' and 'the equally extensive relations of these organs to the general scheme of vital development' (126). The menstrual cycle was believed to cause an almost perpetual state of crisis: an entry by Charles Locock in the 1834 *Cyclopedia of Practical Medicine* identifies as particular danger points the two or three years before puberty begins, the onset of menstruation, the days immediately preceding menstruation each month, the menstrual period itself, menopause, and the years between menopause and death - and this is without even considering the effects of pregnancy (110-115). The far-reaching consequences of any changes in the uterine economy, combined with the extensive range of problems supposedly inherent in the menstrual cycle, meant that women were believed to be inevitably subject to nervous disorders, emotional instability and mental and bodily weaknesses: 'According to the Victorian medical profession, the female body was almost permanently in a state of pathology' (Taylor and Shuttleworth 165).

The relationship between medical theories and gendered social and behavioural norms was particularly apparent in the growing dominance of the domestic ideal and the separate spheres arrangement. As Mary Poovey argues, the 'message that the natural difference between "manly" men and "womanly" women dictated social roles permeated mid-Victorian culture' (6). As the domestic sphere was abstracted from the public world of competition and aggression, virtue was located within the women who presided over it, while masculinity was associated with success in the economic environment (Davidoff and Hall 230). Increasingly, women's defining characteristic was believed to be maternal instinct, a fact that, like other supposedly central features of the female character, was attributed to the operation of the reproductive system

(Poovey 6). Angelique Richardson argues, 'As ideological discourses on the biomedical determinants of social relations grew, morality was *biologized* as the basis of morality was altered from 'duty' or mission to 'instinct' (45; italics in original). As women were increasingly seen as 'biologically moral, charitable and kind,' what had been their duty was reframed as the operation of their instinct (Angelique Richardson 46). The supposed presence of qualities whose existence was increasingly confirmed by the medical profession - physical vulnerability, intuition in place of intellect, maternal instinct, and innate goodness - was understood scientifically and socially to indicate that women's defining role was the production and raising of children and her natural place was within the home.

To return to the *Family Herald's* exposition on the female character: the connection the piece makes between women's physical inferiority, nervous system, and innate morality reflects the absorption of these ideas in non-medical culture. Its assertion of the delicacy of women's 'physical structure' and nervous system as fact, not requiring of further explanation, is a common feature in pieces on the subject. Clear links are made between 'natural' behaviour and physical characteristics: women's confinement physically and, it claims, mentally, should not be viewed as 'merely the natural result of social habits, it is the effect of organisation. Man is made for activity - woman for passivity. The muscles of men are more freely developed than those of woman...She is not made for walking' (763). Women's physical and nervous frailty established, a number of essentialist statements about female personality traits, apparently deriving logically from this point, follow. There is the familiar argument about woman's 'domestic and exclusive nature' giving rise to her role as wife and mother; her 'more delicate nervous system' is also responsible for

an intensity of feeling which produces a specifically female personality. The range of major and minor features attributed to the nervous system indicates its centrality in understandings of women's nature: they include, among others, a dislike of strangers, an intolerance of heresy, a tendency towards hero-worship, a 'predilection for concrete forms, and dislike for abstractions,' and a talent for singing (but not composition, which is 'too scientific, abstract, and theoretical') (763). At every stage of its argument, the piece refers to women's nature and natural qualities, words used interchangeably in relation to physical characteristics, social roles and personal preferences: 'There is a natural dislike in women to all professional pursuits,' (763) 'the character of woman is naturally timid,' (763) 'woman takes the lead in social morals and manners, for which Nature has endowed her with a intuitive genius' (764) and 'Man's frame is brawny by nature - hers never' (763), to give but a few examples.

In the first part of this series, the reference to the 'natural' characteristics of women suggests something obvious and common-sense, qualities the reader will take to be self-evident. The second part locates their source more clearly in the structures of the female body, drawing upon - without going into detail about - widely understood medical ideas. The two pieces move through spiritual, social and physical concepts of women's role and character, using ideas of nature and naturalness throughout. However, as the writer moves from unorthodox religion through social roles to biological understandings, his representation of men and women's roles becomes more conventional and less complex. His reliance on ideas of the natural is a constant, but as the basis of these ideas is explored, their implications are asserted more firmly, and more narrowly. The shift to body-based explanations allows, or perhaps leads to, a clearer declaration of the conventional separate spheres argument. The first

piece takes a complex, somewhat contradictory view of men and women's roles, declaring that women will rule the world and then limiting their power to the private sphere, arguing that their governance of domestic leisure is both natural and a sham resulting from polite convention. The second piece questions neither the authenticity of women's role in the domestic sphere nor the rightness of the current arrangements.

Unlike the sharply divided views on mesmerism we saw in Chapter Two, there appears to have been a general consensus around these medical and social ideas of womanhood. Although Smith begins with his distinctive views on the 'good time coming,' his supporting discussion of natural behaviours and roles accords with arguments made across the periodicals I discuss and beyond. As we shall see in my later discussion of *Reynolds's* socialist stories, the idea of certain characteristics being natural to women was useful across a wide range of ideas about how society was and should be.

These pieces, then, help to elucidate the basis of the concept of a gender-specific nature. Despite their differences in emphasis, they show that the concept draws upon medical theory, mid-century ideas of social organisation, and religious language. They also demonstrate how in these periodicals, as well as more broadly during this period, scientific and scientifically-influenced ideas were not always presented in articles or language that appear overtly scientific. I move on in the next section to examine the extent to which the idea of natural womanhood, or women's nature, is registered in reportage and fiction. So prevalent were the ideas I set out above, and their basis so often taken as read, that their presence becomes most clearly visible in the exceptions: those women whose lifestyles did not neatly fit

the 'natural' arrangements described above - most importantly, for the purposes of my thesis, working-class women.

Manual work, women's bodies and the domestic ideal

Although the theories I outline above rest on the concept of a universal female nature shaped by biological features common to all women, the person imagined by them, and the lifestyle implied by them, is a middle-class one. Domesticity, although viewed as the natural state for women generally, was associated with middle-class mothers in particular. As Davidoff and Hall have argued, 'The equation of women with domesticity came to be one of the fixed points of middle-class status' (275). This most 'natural' of arrangements accords with a biological model that viewed women as physically ill-equipped for work outside the home, as well as best suited to the role of wife and mother, but required an income inherited or earned (by the husband) that was substantial enough to allow the wife to devote herself to children and household matters. However, large numbers of women worked in occupations incompatible not only with the domestic ideal but also with constitutional delicacy and constant illness. Servants, agricultural labourers and mine workers all carried out manual labour requiring considerable strength and endurance; female mine workers, for example, were employed as coal-bearers, carrying between $\frac{3}{4}$ hundredweight and 3 hundredweight (6 - 24 stones) in each load (Commissioners 48). Mill and factory hands, although their work was physically less taxing, worked very long hours doing repetitive manual tasks in

conditions that lacked fresh air and sunshine.³⁷ As the mid-century reports on female employment I discuss below demonstrate, it was acknowledged and accepted that the women engaged in these jobs were capable of hard manual labour and were not unduly affected by long, arduous days. Some reported working through pregnancy and returning days after giving birth, while their middle-class counterparts were confined to bed for weeks. The lives of working-class women seem to challenge the idea that mental and physical delicacy is a natural, inevitable aspect of womanhood, but the application of biologically deterministic theories to such women, carrying out very different social, physical and economic roles from their middle-class counterparts, does not appear to have been of great interest to medical writers. The pieces I cite above are largely silent on the question of class, producing an impression both that 'woman' is a universal, and that natural womanhood was middle-class womanhood.

The middle-class emphasis of this model is recognised by historians but further work is needed to investigate its implications for working-class women. Marjorie Levine-Clark's work on working-class women's bodies, medical discourse and social reform makes an important contribution: as she observes, 'The ideal of the female body was certainly the reproductive body, but the able body was a constant foil that placed contradictory demands on working-class women' (*Beyond the Reproductive Body* 5). Levine-Clark's findings are illuminating, showing that while women were preoccupied with menstruation as a marker of good health, they were more likely to attribute illness to social and environmental factors than to reproductive matters, and neither they nor their

³⁷ From 1844, women were limited in law to working twelve hours per day, which was reduced to ten hours in 1847, although the extent to which employers honoured this is questionable (Carlisle 57-59).

doctors appeared to view being female as inherently incompatible with work. Her study of Victorian working-class women's medical case histories concludes: 'The conventional historical notion that medical men determined that female reproductive functions made women inherently weak and unstable does not seem to have applied to women of the laboring classes – neither for the doctors, nor for their patients' ("Testing the Reproductive Hypothesis" 193). However, she argues, social investigators 'reduced women to their reproductive bodies,' prioritising their duty to produce children and civilise the working-class household and worrying that work endangered their reproductive capabilities (*Beyond the Reproductive Body* 177). As we shall see, the periodicals explored in this chapter, like the women in Levine-Clarke's study, are realistic about the circumstances of female workers' lives and do not question their physical fitness, but they do frame that work within an understanding that women are, or should be, fundamentally domestic. This concept was, as we shall see, equally useful to both radical and reforming discourses.

Women at work: The 1840s Commissioners' Reports

The 1840s saw a number of debates and reports on the subject of women's employment in physically demanding jobs, which highlighted the complexities and contradictions that were part of pervasive ideas about female capabilities. In 1842 the Children's Employment Commission conducted an investigation into the employment of women and children in the mines, a survey which would lead to the prohibition of underground work for all girls and women, and for boys under the age of 10. The following year, the Poor Law Commissioners reported on female and child agricultural workers. Evidence given to the mining investigation leaves no doubt as to the levels of strength

and endurance required to carry out the work. Numerous testimonies from employees and overseers alike speak of the heavy loads carried and the long hours worked by women and children (Commissioners 48-53). One young woman describes her work thus:

My employment, after reaching the wall-face, is to fill a bagie, or slype, with 2½ to 3 cwt. [20-24 stones] of coal. I then hook it on to my chain, and drag it through the seam, which is twenty-six to twenty-eight inches high, till I get to the main-road - a good distance, probably 200 to 400 yards. The pavement I drag over is wet, and I am obliged at all times to crawl on hands and feet with my bagie hung to the chain and ropes. (52)

Mine work is described as ‘a labour totally disproportioned to the female strength and sex’ (Commissioners 29), but it is notable that the surrounding content has very little to say about women’s strength, or physical capacity for hard work. The report does not suggest that women are incapable of or ill-fitted to manual labour because of their constitutional instability or proneness to illness. The girls and women complain about their work, many admitting they hate it and find it tiring and difficult, but, as far as the physical requirements are concerned, the grounds on which the report attacks it are those of basic inhumanity rather than gender. The report on agricultural workers, meanwhile, asserts that ‘the general conclusion as to the physical condition of women engaged in agriculture is, that it is better generally than those of the same class not so employed...Her health is also better’ (23).

This is replicated in the penny periodicals that picked up the reports. *Chambers’s* reported on the investigation into agricultural workers; its series on “Female Agricultural Labourers” emphasises the women’s physical fortitude, and explains that none had complained of the work being too arduous, instead

viewing it as 'desirable for their health and spirits' ("Female Agricultural Labourers", 7 Oct. 1843 301). The only medical complaints it discusses are of a type also suffered by men, such as colds and rheumatism. Likewise, the *Reynolds's* account of the mining investigation has little to say about the special challenges the work may have presented to women, focusing instead on the appalling conditions endured by all workers. It describes a young woman left on her own after both parents died at work in the pit; her mother died of consumption brought on by the severe labour of coal-bearing - but, it is implied, this could happen to anyone, this woman being extremely strong and capable of carrying 2.5 hundredweight (or 20 stone) of coal on her back ("The Coal Mines of Great Britain V" 504). The acceptance of women's ability to undertake manual work is most apparent in the way the subject is barely raised; it appears simply not to be worth discussing.

Both reports, however, have a great deal to say about the fitness of work for women, and the issues they raise about sexuality and women's proper place are emphasised and developed in the periodicals' reflections. A major concern is the effects of women not being at home. The *Chambers's* series refers repeatedly to the evils of wives and mothers being absent, the lack of comfort and shelter for their husbands and the 'rude and mischievous habits' into which their children inevitably fall ("Female Agricultural Labourers", 11 Nov. 1843 301), disregarding the official report's tentative conclusion that the benefit to the family of an extra income outweighs the problems caused by the lack of a female presence at home (Great Britain 28). The *Reynolds's* series agrees, highlighting women's responsibility for their husbands' moral as well as physical well-being and arguing that that if women are left to 'attend to a mother's and a housewife's duties...the collier's condition, both moral and social, will undergo

such a change for the better as all the legislating will fail to accomplish' ("The Coal Mines of Great Britain V" 504). This portrayal of women as required to provide a comfortable home and to act as guardians of family virtue accords with ideas of natural gender roles, bringing working-class women firmly within domestic conceptions of womanhood without accepting the biological factors that were part of their basis.

The second major preoccupation is a concern about working-class female sexuality, which blurs in the mining report and *Reynolds's* series on the coal mines into an eroticised picture of the women being discussed. Although not presented in scientific terms, the characteristics on which it focuses were an essential part of medical understandings of the female body at mid-century.³⁸ Bound up with nineteenth-century discussions about women's nature and character was an intense interest in the workings of female sexuality. As Taylor and Shuttleworth observe, 'The simple virgin-whore distinction does not begin to explain the complexities and contradictions operative in this era' (165). William Acton's now-famous remark, 'The majority of women (happily for them) are not very much troubled with sexual feeling of any kind' (144), has been put into context by numerous historians and literary critics, allowing modern scholars to appreciate that this is not a definitive, or even representative, statement of Victorian medical understanding of female sexuality - or, for that matter, of Acton's own belief. M. Jeanne Peterson, for example, introduces a more moderate, positive Victorian medical view of male and female sexuality through the writings of Dr James Paget ("Dr Acton's Enemy").³⁹ Foucault's work on the social construction of sexuality, and in particular his rebuttal of the

³⁸ I am indebted to Taylor and Shuttleworth's *Embodied Selves* for alerting me to many of the primary sources referred to in this section.

³⁹ See also Taylor and Shuttleworth 166, Mason 195, Schwarzbach 314 and Porter and Hall 141-143.

'repressive hypothesis' - that is, the modern investment in a myth of prudish and sexually suppressed Victorians - heralded a wave of scholarship drawing attention to myriad medical texts and records of meetings in which female desire was discussed as a matter of medical fact. There was an understanding that sexual feeling was part of women's bodily experience and the enjoyment of it within marriage was generally viewed in a positive light.⁴⁰ We should therefore treat with great caution the tenacious stereotype of the passionless Victorian woman, permitted by neither society nor medical convention to admit to sexual desire.

However, this is not to say that the matter of sex was not attended by considerable anxieties and we also should not underestimate social reticence on this subject, at least in materials meant for general publication. That sexual enjoyment was a natural part of women's lives was more accepted than popular lore would have it, but it was nevertheless a charged issue that went to the heart of the Victorian understanding of women's nature. Medical men had not reached a consensus on the workings of female sexual function (Mason 177), and the debate around it was laden with contradiction, inextricable from the construction of women as innately virtuous and destined by nature to civilise others. Many writings of the time worked from the model of an oppositional duality, with women understood to occupy the body at its most natural and therefore sexual, but also to incline towards a state of spirituality denied to men, whose rationality precluded the most exalted piety. Both these ideas were founded in the perceived dominance of the reproductive system, which carried with it the 'capacity for threatening excesses of sexual energy' (Taylor and

⁴⁰ Mason 175-177; 195-199; Adams 131-132; Porter and Hall 142; Peterson, "Dr Acton's Enemy" 583.

Shuttleworth 166) but which also, as we have seen, gave rise to theories about women's natural virtue, modesty, and civilising influence.

The anonymous author of "Woman in her Psychological Relations", a piece published in *The Journal of Psychological Medicine and Mental Pathology* in 1851, describes 'the perfect woman' as 'the most exalted of terrestrial creatures' but writes also of women who give in to sexual temptation as 'untrained to self-control, predisposed to the allurements by an excess of reproductive energy, and irresistibly impelled forward to the gratification of the obscure, deep-felt longings...' (25). These 'deep-felt longings' were frequently characterised, as they are here, as being at risk of becoming uncontrollable and therefore in need of strict regulation. Writing of the 'tyrannic influence' of the female system in 1848, army surgeon John Gideon Millingen compared women's 'passions' to a 'smouldering fire,' warning that 'when no longer trammelled by conventional propriety, [they] burst forth in unquenchable violence' (157). In his 1853 textbook on hysteria, the physician Robert Brudenell Carter commented on the effects of sexual desire on 'the female, who is often much under its dominion; and who, if unmarried and chaste, is compelled to restrain every manifestation of its sway' (33). These sources show both a belief that female sexuality was potentially overpowering and an acknowledgement of social expectations about women's sexual conduct.

Anxiety about and fascination with the sexual possibilities presented by the presence of women in the mines are very much in evidence in the Children's Employment Commission report. Frank Mort observes that the report documents the abuse and sexual pranks to which female workers were subject, yet 'it was the perception of female depravity which filled page after page of the subcommissioners' evidence, intruding into all aspects of their

inquiries' (38). 'Any sight more disgustingly indecent or revolting can scarcely be imagined than these girls at work,' the report thunders, 'no brothel can beat it' (Commissioners 26). Nevertheless, witness after witness is presented to assist the reader in envisaging the scene:

There are about twenty wenches, drawers, in the pit I work in. *They are nigh naked...* (29; italics in original)

I wear a petticoat, and shift, and stays. The man I work for wears nought; he is stark naked... (30)

The girls' breeches are torn as often as ours; they are torn many a time, and when they are going along we can see them all between the legs naked. (27)

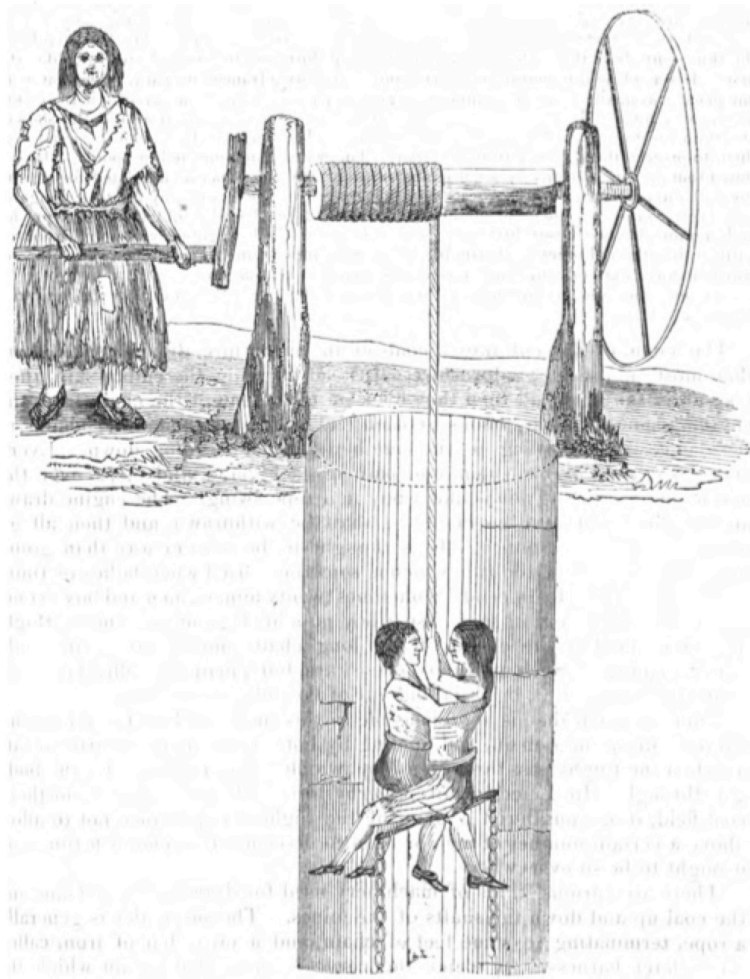
Generally I work naked down to the waist, like the rest. I had my shift on to-day when I saw you, because I had had to wait, and was cold, but generally the girls hurry [carry coal] naked down to the waist. (45)

The consequences of men and women working together in these conditions are made clear in pages of testimony about sexual activity in the mines, which is treated as an inevitable consequence of women's presence in this cramped, hot, hidden environment (78-80). The sexual charge they bring to the workplace is the major problem identified by the report.

The focus on women's sexuality is picked up by *Reynolds's*, helping to give its lengthy series an eye-catching start. Its first, and longest, instalment focuses on female workers, both expressing alarm at the intimate conditions in which men and women work together and simultaneously eroticising female mine workers for the gaze of the reader. Describing a girl at work, it reports:

When loaded, a girl is harnessed with a belt around the waist; a chain coming from the front of the belt, passes between the legs, and is hooked to the corve [small wagon]; - the unfortunate creature then going on “all-fours,” drags the load to the foot of the shaft. Their dress is simply a pair of canvass trousers, supported by the hips, and reaching a little below the knees; the friction of the chain constantly wears holes in the canvass, and leaves the excoriated thighs bare. From the waist upward, they are entirely uncovered; and in this state they work amongst the men, who are themselves in a condition of utter nudity. (“The Coal Mines of Great Britain I” 456)

The figure presented here brings together details from assorted testimonies into one sexually charged image of young womanhood. Erotic descriptions of women were a standard part of *Reynolds's* sensational fiction; heroines can be found in similarly submissive positions, decked with chains and other accessories, throughout, for example, *Wagner the Wehr-Wolf*, a lengthy piece of serial fiction that ran alongside the mines series. The mines report includes an illustration designed to indicate the sexual potential of the close proximity and semi-nudity in which men and women work together (fig. 4). *Reynolds's* accompanies its own account with a version copied and adapted from the original illustration (fig. 5); here, the picture is altered to engage more intimately with the reader and to emphasise the erotic aspects: the position of the subjects is changed slightly so that the girl's breasts become visible, her hair is becomingly loose and her face is turned invitingly to the reader.



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Figure 4: Cover image. Commissioners for inquiring into the employment and condition of children in mines and manufactories. *The condition and treatment of the children employed in the mines and collieries of the United Kingdom, compiled from the appendix to the first report of the Commissioners appointed to inquire into this subject.* London, 1842. Google Books. Web. 23 Aug. 2014.

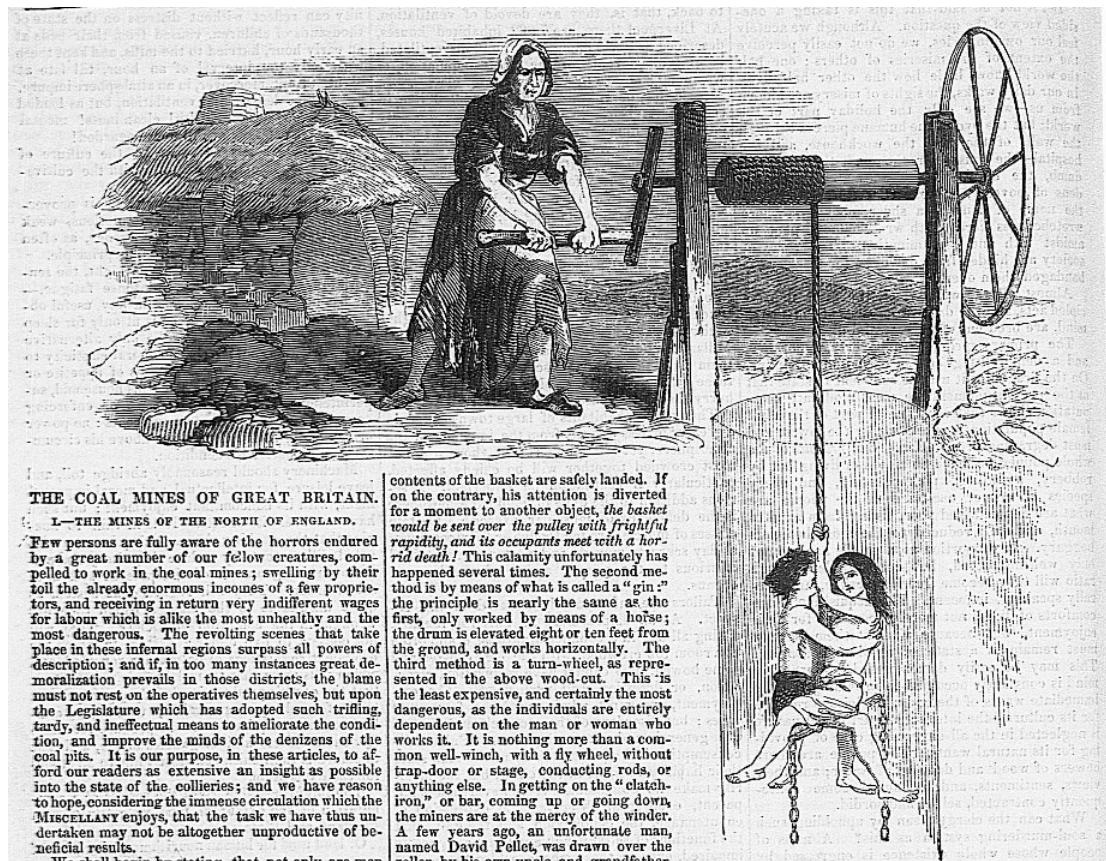


Figure 5: Illustration. "The Coal Mines of Great Britain. I - The Mines of the North of England." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 27 Jan. 1849: 456-457. *British Periodicals*. Web. 7 June 2013.

Women appear in these images as sexual beings, both objects of desire and sources of moral danger to men and to other women. The idea of working-class women as sexually dangerous was a culturally powerful one, and, as I will discuss later, of use even to those who were firmly supportive of and sympathetic to both male and female workers. Ideas about the sexuality of working-class women, whose relation to natural domesticity and virtuous drive is ambiguous, are not addressed directly in the medical sources I have encountered, which tend to speak of 'woman' as a universal. The work of cultural historians suggests that the medical construction of a universal womanhood associated with the reproductive system is again complicated by widespread perceptions of working-class women and sexuality. Elizabeth Langland refers to 'the class division whereby women of the working class

became vested with a dangerous sexuality' while their middle-class counterparts became 'the guardians of spirituality' (71). Scholars have shown that a negative construction of working-class women's sexuality was an important part of the discourse of early-century moral reform. Mort describes how early nineteenth-century moral reformers set working-class debauchery against a vision of a healthy and disciplined society, always characterising sexuality in this context as sexual immorality (30), while James Eli Adams notes that the frequent depiction of working-class people at this time as lacking in self-control associated men with drunkenness but women with 'promiscuous sexuality' (132). Françoise Barret-Ducrocq argues that many social researchers believed the 'sexual life of the labouring classes...lacked the basic components of a code of sexual morality' (30), finding the causes and symptoms of depravity in the clothes, the behaviour, and the public presence of working-class women (20). The portrayal of female factory workers, both here and, as we shall see shortly, in the socialist fiction of *Reynolds's*, shows, I suggest, how particular constructions of working-class women's sexuality contributed both to the discourse of moral reform and to a radical critique of working and social conditions.

Strength, virtue and desire in periodical fiction

Part of the work of this chapter is to explore whether the gaps and contradictions of the medical literature are addressed outside formally scientific articles. One important area of potential is in the imaginative possibilities provided by fiction. However, while the periodicals I examine here were aimed at working-class readers, heroines of this class do not frequently appear in their

fiction. The *Family Herald's* fiction is escapist, centred in a feminine middle-class world that would have been aspirational for most of its readers. Its heroines' stories are of the trials and tribulations of courting, of married life, of the mother-daughter relationship. Most, although not all, are well off, and few must work for a living. The exceptions are not servants or field workers, but governesses, teachers or middle-class mothers fallen on hard times. The *Reynolds's* story I discuss in the next section features a young middle-class woman who finds work in a factory following the loss of her inheritance; similar set-ups in the *Herald* instead see the unfortunate heroines taking in shawl-work, carrying out private tutoring, and training as a singer ("The Father and the Daughter"; "The Husbands and the Wives: A Tale of this Century"; "The Professor's Daughter"). Its focus is on the manners and morals of middle-class women, for whom good conduct and an attractive disposition will usually be rewarded with marriage and moderate fortune, and unlike *Reynolds's* and *Chambers's* its fiction does not often overtly explore working-class femininity. The *Herald* is certainly interested in the lives and roles of women, as the pieces discussed earlier, and even the briefest glance at the index, show, and as one might expect from a periodical with a predominantly female readership. In its fictional presentation of girls' and women's lives, its selection of themes and locations, its engagement with codes of feminine behaviour and its pragmatic approach to marriage (on which, see Mitchell), it is a fascinating social study; but its focus on middle-class wife- and motherhood tends to work within traditional concepts of domestic femininity, offering few sustained studies of other female lives.

Working-class female characters are similarly scarce in the more sensational, lurid tales of *Reynolds's Miscellany*. Such stories, often the lead

attraction in this periodical, more commonly focus on aristocratic heroines, with working women such as servants relegated to a supporting role. These stories are escapist in a different way from those of the *Herald*, bridging the penny dreadful and sensation genres in their high drama, violence, sexual undertones (or sometimes overtones), plentiful deaths, supernatural elements, and improbable, exciting plots. Their location in an aristocratic world often outside Britain is both part of their glamour and a reflection of G. W. M. Reynolds's politics, which invited endless unflattering depictions of the depraved upper classes (or 'the wine-bibbing poor-oppressing rich' as the author of "The Factory Girl" has it (17 Nov. 1849 206)). However, while *Reynolds's* fiction often inhabited an imaginative space distanced from its readers by time and geography and not limited by a strict adherence to realism, other stories sought to reflect more faithfully particular aspects of contemporary working-class life. Around the middle of the century, *Reynolds's* ran a number of short serials by Paul Pimlico, exposing the conditions of life in the factories of Bradford and Manchester. Pimlico did not hide the political intent of these pieces, which advocated for workers' rights and explicitly sought to expose the wrongdoing of owners and managers. In doing so, he drew upon class-inflected popular understandings of the female body in ways that do not necessarily accord with *Reynolds's* commitment to female as well as male workers, and reveal the political and narrative utility of ideas of natural womanhood. Meanwhile, *Chambers's* stories of working-class existence represented the same settings from a different, less polemical point of view, offering an understated but committed alternative perspective on the nature and physical and moral characteristics of working-class womanhood.

“The Factory Girl”: capability and sexuality in socialist fiction

“The Factory Girl” is the six-part tale of Esther Mansfield, a beautiful young middle-class woman who is forced by the ruin of her family’s fortune to take up work in the mills of Bradford. It was published in 1849 among a series of stories about factory life, all by the same author, which depict in highly sensationalised form the lives and working conditions of factory hands and seek to expose the outrages committed by unscrupulous factory owners and managers.⁴¹ The representation of women is a conservative element in this otherwise progressive, socialist fiction, expressing similar anxieties about working-class female sexuality and the social consequences of women’s employment as the reports discussed above. It hints at the possibility that virtue may be socially rather than biologically produced, but in introducing an opposition between working- and middle-class women it ultimately reinforces the contradictions of a model which understands moral force to be both an essentially female quality and also one that is most natural to middle-class women.

Reynolds’s Miscellany was generally relatively progressive about women’s position in society, and sometimes strikingly so. It called repeatedly for women to have the vote on the grounds that ‘it would be a very easy matter to prove, from reason, analogy, experience, history, and divine revelation itself, that there is no sexual difference in mind’ (“Notices”, 30 June 1849 816). It was keen to highlight the conditions to which female, as well as male, workers, were subjected (perhaps most famously in G.W.M. Reynolds’ 1850 serial *The Seamstress, or The White Slave of England*). Nevertheless, Pimlico, seeking to

⁴¹ The other titles are “The Manufacturer” (1849), “The Overlooker” (1851) and “The Cotton Spinner” (1852).

criticise the entire factory system, draws on the force and pervasiveness of mainstream ideas of women's nature, and in doing so reproduces the idea that working-class women are a problem to be solved by their middle-class counterparts. "The Factory Girl" shows the owners and managers cheating workers, overworking them and treating them unfairly, but the overriding problem with mill life is its pervasive sexual immorality. Esther finds herself under siege by three powerful men: the overlooker, the mill's manager, and its most important client, Julius Arnheim, who decides he will have her with or without her consent. The men assail her physically and psychologically and even take her to court on a spurious charge in an attempt to wear her down, but she defends herself at every turn, and is rewarded with marriage to her long-term sweetheart and retirement from the mill. Esther's resistance to these assaults on her virginity, and her determination to stand above the degenerate culture of the mill, engages with questions of sexuality and moral qualities, and offers a vision of womanly strength within this framework.

The story's exposure of the abuses of factory life is founded on a portrayal of the mill as a miserable and squalid environment whose vice infects all but the most morally courageous. Central to this is a representation of working-class women as compulsively and dangerously sexual, and whose immorality is both accentuated and potentially redeemed by a middle-class heroine capable of standing outside this model of degenerate womanhood. As the story begins, Esther is warned by a motherly friend that she currently knows little of 'impurity in either action or speech, but no sooner will you enter Bradford and breathe the atmosphere of its mills, then you will be associated with both' (20 Oct. 1849 202). Immorality as infection is a repeated image, and exploring the source of the contagion is a key interest of the story. The Pimlico stories

are frank about sex and its consequences: the heroines of both “The Manufacturer” and “The Cotton-Spinner” are made pregnant by their employers, the first having been drugged and taken advantage of, the second tricked into believing herself to be married to him. The mills promote a corrupt and degrading culture, caused by the abuse of power by the men at the top, but maintained by women’s failure to resist and spread by the corrupting influence of women on other women. The threat to Esther’s chastity is perpetrated by men who will not take no for an answer, but mill-girls as a group are not merely innocent victims of lustful men. The mill is a hotbed of immorality in which everyone is implicated. Married women are led from ‘conjugal chastity or fidelity’ both by the men in charge and by ‘the pernicious example of others’ (20 Oct. 1849 203). Sexual licentiousness is - again - a ‘contagion’, a ‘polluted stream’ spreading over ‘whole districts’ (20 Oct. 1849 203) - and it is working women who spread the contagion, posing a risk not to men but to other women. Inside the mill, we are told, ‘the prostitute trumpets her pleasures and boasts of her deeds, and secretly enlists the attention of, and seduces the young and inexperienced into her school of debauchery’ (20 Oct. 1849 203).

“The Factory Girl” also appeals to ideas about women’s natural maternity and domesticity. Women working outside the home is, the story claims, an ‘unnatural and debasing custom’ (20 Oct. 1849 203). ‘In this system,’ the narrator claims, ‘we find our nature inverted - women overstepping the bounds of our civilised nature and doing the work of men’. Women fail in their duties as mothers, sending their babies ‘out to nurse’ or leaving them to the care of other children, as a result of which they are ‘shockingly neglected, and often deformed’ (20 Oct. 1849 203). It is not only the children who suffer. That women must provide a comfortable home to prevent their husbands from taking

solace elsewhere is a repeated theme of the employment reports I discussed earlier: when women work away from the home, 'there is no fire, no supper, no comfort, and he goes to the beer-shop' (Great Britain 27). Echoing this, the narrator of "The Factory Girl" notes the need for a wife to offer 'a cheerful fire and a comfortable hearth to woo [her husband] from the beer-shop and the dice-box'. If he does go astray, the implication is, it will be her fault for providing only 'a desolate home and a cheerless meal' (20 Oct. 1849 203). The middle-class Esther is set apart from this portrayal of errant maternity and rampant female sexuality. She is established early as an idealised and virtuous young woman, 'modest and retiring' 'as became her sex' (20 Oct. 1849 201). Her embodiment of a fundamentally female and impliedly middle-class virtue is confirmed not only by her persistent defiance of the men's offers, approaches and threats, but also in the effect she has on the women around her.

Working-class women are not associated with virtue, except when they fall within Esther's moral reach. She befriends one such woman, Maria Edgecombe, who has 'deservedly borne a disreputable character,' it being strongly implied that she has exchanged sexual services for favourable treatment from the overlooker (27 Oct. 1849 218). Upon seeing how Esther conducts herself, Maria is 'wholly changed', having 'imbibed higher notions of virtue and goodness' (10 Nov. 1849 251). Esther's exemplary conduct is an antidote, a cure that may be taken against the contagious depravity of the other mill women. The story presents a chaste and restrained middle-class woman set against, and able to correct, rampant female working-class and male sexuality. Esther's effect upon Maria gestures toward the idea that moral character is malleable and subject to influence, rather than an inevitable consequence of class- and gender-dependent nature, but this interesting

possibility is not developed in the rest of the story. The change in Maria's behaviour is used firstly to facilitate a narrative twist and secondly to reinforce Esther's character, rather than to add complexity to the representation of the mill women. Indeed, both the premise and setting of the story offer the possibility of exploring the impact of material conditions upon sexual behaviour, but this is largely declined by the narrative in its focus upon Esther. Her morality is her defining characteristic and it is never shaken in a way that might raise questions about its source. The opposition that is set up between Esther and the other women obscures the possibility of considering the effects of background and environment on behaviour: the respective characters of Esther and all the other women are presented simply as being what they are. The mill environment appears to enable and nurture rather than to create sexual deviance, bringing it out in those that are susceptible; that Esther is subjected to the same conditions as the other women and behaves differently suggests that sexual impulse and moral rectitude are a matter of character rather than environment. Esther is the only one to whom modesty and resistance comes naturally, compulsively and without question: other women may change their ways, as we see in the case of Maria, but for them, morality must be learned and achieved. The contradiction this raises in a story that - to the extent it attends to the question - presents virtue (or its absence) as a matter of nature is not investigated. "The Factory Girl" reproduces the contradictions of prevailing scientific and social thought by presenting moral probity as a natural quality of womanhood but also one located squarely in the middle-class realm.

In its portrayal of working-class women, the story chimes with concerns about the potential force of female sexuality and the consequences of removing women from their supposedly natural domestic habitat. However, it does not

suggest that women, even middle-class women, lack the physical ability to withstand the hard work of the mill. As in the employment reports, little attention is paid to this question. Notably, the only working women with poor health in any of Pimlico's stories are those who are made pregnant by the managers. The possibility that Esther's health will suffer in the mills is raised by her middle-class friend at the start and never referred to again. She is bewildered by the noise and bustle and disgusted by lewd behaviour all around, but never tired or unwell. 'She had no faint-heartedness,' we learn, 'none of that attractive yet depreciating feminine weakness which displays itself in swoons and hysteric affections' (10 Nov. 1849 250). The narrator alludes to common ideas of female weakness but does not bring them into service in support of the story's political argument, suggesting if anything that they are a question of character or even an affectation, rather than a physical inevitability. Female strength and fortitude is not, it seems, normally worth commenting on - it is taken as a fact of life for anyone who works in the mill. The story departs from prevailing ideas of womanhood which saw the female frame as inherently unstable, and is able to conceive of a strong, healthy female body as normal and natural. It also makes associations between women's strength and virtue in ways that both resonate with and challenge medical understandings of the links between women's physical capabilities and their morality. Kidnapped, pinioned and threatened with imminent rape, Esther, 'though a woman,' has faith in her own ability to escape, finds herself 'endowed with superhuman strength' and breaks free of Julius's grasp (17 Nov. 1849 266).



Figure 6: Illustration. "The Factory Girl." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 17 Nov. 1849: 265-267. *British Periodicals*. Web. 27 Mar. 2013.

On a second occasion she is caught by the men in a wood, and again displays an unexpected ability to defend herself: 'They found that they had under-rated her strength, and that their object would not be accomplished without a severe struggle' (24 Nov. 1849 283). These 'superhuman' feats of strength arise from what is presented as the essentially female quality of chastity. Earlier in the story we have discovered that Esther's physical resilience to the men springs directly from her 'consciousness of purity' and her 'uncorrupted' feelings (10 Nov. 1849 250); now, at this moment of crisis, 'The energy of virtue was manifest in her fervid resistance to their attempts' (24 Nov. 1849 283). Esther is able to overreach the bounds of normal physical femininity in order to protect and confirm her elevated moral status. While social and scientific norms regarded female weakness and female virtue as arising from the same natural bodily elements, "The Factory Girl" decouples the two, but puts them back

together in a way that supports the same key ideas about women's essential nature. The story is lively and polemical and offers a particular construction of working-class women in service of a political point. Its wider purpose, Pimlico would no doubt argue, was one supportive of working-class women, but their role in the story requires them to represent a mode of womanhood that accords with unflattering stereotypes and does not recognise them as individuals. I discuss the implications of using popular views of working-class women for socialist ends in my concluding section.

In keeping with the journal's identity as a purveyor of improving knowledge, *Chambers's* fiction strikes a rather different tone, both politically and stylistically, to that of *Reynolds's* and also the *Family Herald*. It does add a touch of glamour with tales of high-born men and women far away in time and distance, but lacks the racy aspects of sensational serials, the polemical thrust of *Reynolds's* socialist tales and the unashamedly light romance of the *Herald*. Earnest tales of respectable working-class lives, showing decent families doing their best against adversity, are not uncommon, but they are far from the polemical outpourings of Paul Pimlico. They are less substantial than the long series published in *Reynolds's* - usually only a page or two long, and tending clearly towards a moral lesson about the value of hard work and the importance of integrity - but, placing hard-working family women at the heart of the story, they offer a reimagining of women's supposedly essential moral qualities within the realities of working-class life.

Working-class heroines in Chambers's Edinburgh Journal

The 1843 book *Progressive Education: Observations on the Life of Woman* by Albertine-Adrienne Necker de Saussure, excerpted in the *Family*

Herald the same year,⁴² argued that modern ideals of beauty were leading to weak health: ‘Instead of a bright and healthy complexion, a graceful activity and youthful vivacity, we hear of...a sylph-like figure, an interesting paleness, occasionally relieved by a shade of carnation...all these characteristics are exactly those of delicate health’. These features are not favourable indications for ‘a future mother, or for a wife, who may, perhaps, hereafter be called upon to assist her husband in adversity’ (“Health of Young Women”). The writer makes a link between female health and women’s role as wife and mother, but from a perspective which sees a robust constitution as essential to the fulfillment of that role rather than a delicate frame as a condition of it. This drawing of good health and strength within the domestic ideal is developed in *Chambers’s* fiction, which, unlike the *Herald*, made regular use of the working-class housewife character, toiling tirelessly within the home for the good of her family. In this conception of family life, female endurance and capability are not only natural but positively essential to the success of the domestic unit. As an example, the heroine of “Chronicles of the Poor: The Smuggler”, a short story by Julia Pardoe, is a fisherman’s wife, Sarah, whose defining characteristic is her ‘untiring and uncomplaining industry’; under trial she becomes only ‘more fertile in expedients, and more energetic in exertion’ (45). These energies are put to suitably feminine use, as a mother and a wife and the centre of domestic labour. Sarah is favourably contrasted with her daughter-in-law, whose conceit and indolence, lack of decency and messy appearance lead the narrator to conclude that there must be ‘something unworthy or perverted in her nature’ (45). Abnormal, unwomanly self-interest and vanity are set against untiring

⁴² The *Herald* does not identify the author, merely citing the book as *Progressive Education*. The book argues for the importance of a scientific education for girls and promotes the intellectual abilities of women. Necker de Saussure was herself scientifically trained and moved in elite scientific circles (Le-May Sheffield, *Women and Science: Social Impact and Interaction* 93–94).

industry and self-sacrifice, showing how women's essential qualities might be displayed in a working-class household where physical work is an inescapable part of life. These tropes are also developed in stories that see women obliged to work outside the home in manual and factory jobs. They challenge the idea that women are constitutionally ill-suited to physical work, and reframe the domestic sphere in a way that brings paid work within the elements generally understood to be natural to women, selectively drawing upon mid-century socio-scientific ideas about the female body and character.

“Charlotte and Susan - An Irish Tale” presents Charlotte Murray, the eldest daughter of a poor widow, who supports her family by cultivating a small patch of land. Charlotte is characterised firstly by her indefatigable appetite for hard work, and secondly by her modesty, virtue and integrity. These two defining elements, I will argue, are fundamentally interdependent in the story's construction of a worthy woman. Charlotte is a healthy, strong young woman, ‘trained in her youth to every species of rural labour, and more particularly to the task of bringing turf from the adjoining hills’ (362). When the family falls on hard times, this early training means that she is better able to carry out paid employment as a domestic servant. ‘Her early habits of laborious industry,’ the narrator explains, ‘enabled her to perform her task with ease and cheerfulness; she gave her whole mind to her business, and soon became the most efficient servant in the house’ (362). Charlotte's mother eventually becomes ill and cannot keep up the farm; the family being without any source of income, Charlotte returns home and collects seaweed to sell. This is hard labour, long days walking the beach in the cold and the wet with just a few cold potatoes to sustain her, but Charlotte rises to the challenge: she finds it ‘a hard life, but she was strong and hearty, and her health did not suffer. She pursued her work

with diligence, even when winter made it more severe' (363). Charlotte evidently has stamina and strength, and her physical capabilities are not presented as unnatural or unattractive, instead being unremarkable, useful qualities for a woman in her position to possess. Her training, though, is not only a physical one; there is an emphasis on the good grace and dedication with which she does her work, and, crucially, her commitment to the domestic framework within which her economic labour is carried out. All her work is a contribution to her family's well-being, and is carried out as a way of caring for her ailing mother and younger siblings, while the descriptions of her work as a servant emphasise her maternal qualities, focusing on her excellent care of the family's children. The attitude with which she undertakes her work, and her reasons for doing it, make that work both an element and an exhibition of virtuous womanhood. The characteristics most commonly attributed to middle-class mothers are here envisaged as essentially linked not just to paid work, but to an ability to undertake tiring, manual labour. Charlotte's work is also directly linked to her coming role as a wife and mother; her willingness to go into service and to collect seaweed are key factors in her attracting a husband, a sailor who loves her for her devotion and duty to her family. 'Happy the parent that has such a daughter, and happy the man who gains such a wife,' he comments, watching her at work on the beach.

This story, like many others in *Chambers's*, carries an overt moral lesson, seeking to teach female readers of the value of hard work and appropriate behaviour. Charlotte works alongside, and is contrasted with, her childhood friend Susan, who likes 'dress and show,' steals tea, and, worst of all, goes to parties with local men without her employer's knowledge. Charlotte, on the other hand, is a model of demure femininity and refuses to go to the parties,

instead staying at home with the elderly gardener. In her reluctance to engage with would-be suitors and to socialise unchaperoned, she could not be further from the working women presented in the employment reports and “The Factory Girl”. Susan elopes with a lover and ends up addicted to strong spirits, overweight and ugly, before dying early of a painful disease, ‘uncheered by the kindness or sympathy of friend or relation...with the painful conviction that her death would be regarded by her children with indifference, and hailed by her husband with undisguised satisfaction’ (364). Charlotte, meanwhile, is rewarded with marriage to a successful sea captain and a comfortable and happy life. The message is not a subtle one. “Charlotte and Susan” is in a didactic tradition, and the creation of an accessible, working-class model of womanhood with whom readers can potentially identify supports the lesson it wishes to teach.

“Charlotte and Susan” develops mainstream understandings of women’s nature, placing female labour undertaken for money within the domestic sphere and showing how endurance and strength can become an essential part of women’s unique role. I want now to turn briefly to a final *Chambers’s* story which explores these concepts well outside the domestic sphere, in the dangerous world of factory labour. “The Flitting” takes as its subject matter a situation very similar to that of “The Factory Girl”, but has a contrasting approach to the character of working-class women. Jenny is a respectable working-class girl, the daughter of an Irish tenant-farmer who has fallen on hard times and is forced to move his family to Dublin so that he can work in a foundry. When he turns to drink, Jenny saves the family by taking a job in a cotton factory. Like Charlotte, the money she makes is all for the benefit of the family: ‘Instead of buying fine gowns or shawls, like other girls,’ explains Jenny’s

mother, 'she'd bring her money duly of a Saturday night, and throw it into my lap, saying "There, mother, there's for the house"' (290). The most important aspect of this story, though, for our purposes, is its recasting of the working-class factory girl as an agent of virtue. As in "The Factory Girl", there is no question of Jenny's ability to do the work - 'late and early, in the heat of summer and depth of winter, there she would be as regular as the work-bell' (289) - but her mother expresses concerns about the sexual dangers that are understood to be an unavoidable part of industrial life. In keeping with the character of *Chambers's*, there are no explicit descriptions of the type we saw in "The Factory Girl", but sure enough, Jenny's uncle, who works with her father at the foundry, connives to sell her to a friend to have as his mistress, threatening the ruin of her father if she refuses. Like Esther, Jenny is beautiful, gentle, and good, but has a fiery streak when it comes to the protection of her own virtue: 'for all she looked so mild,' comments her mother, she 'had a way with her that none dared take the least freedom with her' (290). Jenny's chastity is, in her own eyes, a matter of personal responsibility and a family duty: 'I don't find any thing happens to those that have a mind to take care of themselves,' she declares, 'and, with the blessing of Heaven, I will never do anything to disgrace my family' (289). She resists the men she works with and thwarts her uncle's plan, and is finally rewarded by marriage to a rich man who is attracted by her 'prudence and modesty' (290), her 'sweetness and modesty' and the 'remarkable propriety in her manner and behaviour' (291).

The story has much in common thematically with "The Factory Girl". However, its portrayal of working-class women is very different. In both, work is a place of danger for women, and that danger is of a sexual nature - but in this latter story the source of danger is men. While in Pimlico's stories of the moral

peril of mill towns, chaste middle-class women are set against sexually immoral working-class women (a consistent pattern I will return to shortly), “The Flitting” presents one unproblematically virtuous working-class woman in a world of grasping and sexually aggressive men. It is significant that in both this story and “Charlotte and Susan” virtue is located in the working-class woman. Jenny and Charlotte share as a key characteristic their natural modesty, and onto both is transferred the moral characteristics of the (middle-class) woman imagined by the scientific and social norms I describe earlier: family-centred, the guardian of her own and others’ virtue, and, importantly, seemingly lacking in any desires of her own other than to serve her family and to protect her chastity. Both women’s effortless virtue is combined with an unquestioned ability to labour hard at tiring work, challenging the notion that women’s moral capability sprang from the same source as their physical incapability.

Naturalising domestic womanhood

During the years covered in this thesis, certain physical, social and personal characteristics were increasingly regarded within and outside the medical profession as natural to women. These characteristics centred around a concept of female domesticity. The female body, dominated by the reproductive system and subject to the instability and infirmities of female biology, was primary evidence that women were designed for the home environment and unsuited for physically demanding labour outside it. The social assumption that particular personal qualities were essentially female sprang in part from, but also, by confirming that these qualities were natural, substantiated the same medical theories. However, the medical profession’s

emphasis on the female body as weak and disordered did not necessarily cohere with the realities of working-class life, which frequently required women to work long hours at physically demanding tasks. The factual reportage of popular periodicals reproduces the gaps and contradictions I identify in my review of medical ideas. They accept without comment the stamina and strength of working-class women but also identify women's (including working-class women's) natural role as one of mother and civilising agent; meanwhile, anxiety about female sexuality and its potential for contagious immorality draws upon medical conceptions of overwhelming reproductive energies, but locates them solely in the bodies of working-class women. These pieces, then, separate out and selectively allocate elements of natural womanhood that were all supported by the same medical framework. However, the fiction I have discussed in this chapter presents a rather more complex picture. The gaps in ideas of natural womanhood become areas of possibility in which alternative ideas about female nature can be explored. The fiction shows how the idea that certain characteristics are natural is flexible and useful; the figure of the working-class woman comes to serve narrative, didactic and ideological aims through the interpretation of these ideas.

As I mention earlier, "The Factory Girl" is one of several serials written by Paul Pimlico on the subject of life in the mills. Each of these stories features a female factory worker who either resists or is blamelessly tricked into ruin by her employer, and in every case she is set apart from the other factory girls by her higher class status. The use of a middle-class heroine among a supporting working-class cast is a way of drawing upon ideas about women's nature to expose the injustice and moral danger of the factory system, but it produces a problematic and contradictory representation of working-class womanhood.

Characterising women as potentially sexually uncontrollable shows how the mill environment enables deviance, while referring to their innate goodness and vulnerability shows how it victimises those that should be protected and cherished. However, the two ideas of womanhood are mutually incompatible for the purposes of the story, and so, in a version of the age-old virgin-whore dichotomy, are separated, with the one located in working-class women and the other in middle-class women, following culturally normative lines. The emotional charge of these images of working-class sexuality and middle-class virtue and vulnerability become a key factor in the argument “The Factory Girl” makes about working conditions. In *Eve and the New Jerusalem* Barbara Taylor shows the extent of women’s contribution to socialist activity and the links in the years I discuss here between early feminism and workers’ rights. Women recognised, and protested about, the gap between the domestic ideal and the reality of women’s lives (112). They wrote, they unionised (94), they analysed the domestic ills that arose from women having to rely on their husbands’ earnings (100) and, on the other hand, the double burden of domestic and paid labour (109). None of this complex discussion makes its way into Pimlico’s story, which instead falls back upon familiar and essentialist representations of women to expose the injustices of capitalism. It offers a simple version of complicated class-inflected ideas about womanhood in service of the wider political point and as such, it relies upon an assumption that certain characteristics are natural to women, but also suggests that these are dependent upon class status. It hints at, but declines to develop, the influence of the environment on character and behaviour, potentially disrupting its own essentialist depiction of women’s nature without taking the opportunity to interrogate the conditions of working-class women’s lives in a supportive,

progressive way. The ideal is one of middle-class womanhood, in practical terms (as women working outside the home is explicitly depicted as a social ill) and in relation to character and behaviour; working-class women, the story suggests, should aspire to be more like their middle-class counterparts. The stark opposition set up between Esther and the other factory girls suggests that virtue comes naturally to middle-class women in a way that it does not to their working-class counterparts, but the characterisation of Esther as a redeemer also requires working-class women to be malleable; middle-class women are both what working-class women should be, and what they are by nature not. The story's representation of working-class women, then, contains contradictions and complexities which are subsumed into its wider political point about the evils of factory life.

Female strength is not, in and of itself, a particularly prominent fictional theme in any of the periodicals here. In each story, however, strength becomes important where it intersects with virtue, raising questions of natural womanhood and the extent to which physical and moral capability are associated. Particularly where working-class women are the main characters, as in the examples from *Chambers's* fiction, they can be strong and capable; this is not presented as remarkable or even especially interesting, perhaps because for many readers it was neither of these things. However, it is in their unsensational representation of working women, demonstrating their virtuous qualities precisely *in* their industry and ability, that the *Chambers's* stories intervene in ideas of women's nature. They imagine a world in which women's work is not unnatural, or incompatible with her true role as a moral agent and civilising force, but is instead a component of that role. Stamina and strength become commendable as necessary and natural attributes which allow a

woman to be industrious and productive in support of her family, and through this, virtuous. As I observe earlier, the *Chambers's* stories, like "The Factory Girl", serve an ideological purpose, seeking to teach female readers of the value of hard work and the importance of chastity. The construction of a particular form of womanhood, strong and capable but innately good as well, is key to the message these stories convey.

All three periodicals reinscribe the idea that certain states of being are natural, and that these natural qualities centre women in the home, based on often unspoken assumptions that draw upon scientific and social thought. As I have discussed, medical understandings of women's bodies and personal characteristics had a huge impact on wider ideas about their abilities and their role in society; but they did not do so in isolation, and part of their cultural purchase was that they drew on already familiar ideas about what was natural for men and women. Periodicals like those I discuss here were part of the cultural landscape; they may not have been read by the intelligentsia, but they were absorbed and enjoyed by many thousands of people each week, and they contributed to a flow of ideas which, in naturalising particular forms of womanhood, made its own contribution to the authority of scientific ideas on gender. The fundamental idea of natural domestic womanhood lends itself in support of socialist rhetoric, moral fiction about the value of hard work, and even James Elishama Smith's unorthodox religious beliefs. Representations of women like those I discuss in this chapter demonstrate the utility and flexibility of the concept of female nature as essentially domestic, showing how it is narratively and figuratively important across a range of perspectives. These stories reinforce the ideas on which they draw, which were at best ambivalent about female sexuality, and underpinned by problematic assumptions about

class.

If, though, these periodicals all reproduce the fundamental idea that there are natural states of womanhood, and particular characteristics and modes of behaviour that represent women's nature, their representations of what such states, characteristics and behaviours might be raise the possibility of challenging dominant social and scientific ideas. The dual image of women as home-maker and as sexualised being becomes a key part of the argument both for reformers and for radicals. "The Factory Girl" reproduces the contradictions of models that present moral and sexual probity as both an innate quality of womanhood and one possessed only by middle-class women. The moral stories published by *Chambers's*, although confirming virtue as an essentially female characteristic, reshape it to accord with the realities of working-class women's lives and challenge prevailing medical theories that made connections between virtue and women's supposed physical weakness. Both publications use medical and social concepts of womanhood in trying to convey particular social and ideological messages to their readers, but produce different models of working-class womanhood as they do so. The exploration of womanhood in these periodicals, then, shows us medical theory being used, reflected and adapted, reformed around the circumstances of working-class lives and editorial aims and taking its place alongside other narrative and ideological elements. It shows how scientific understandings of the female body were reconstructed within comment, reportage and fiction, restating but also offering the possibility of challenge to wider ideas about nature, naturalness and gender.

Conclusion

I began this thesis with Wilkie Collins' "Unknown Public", that large group of newly literate men and women who, seeking reading material in the early to middle years of the century, found their needs met with an explosion of cheap periodical literature. In his essay, Collins claims finder's rights over not only this supposedly undiscovered section of society, but also their reading material. Taking his reader on a short tour through the contents of a penny periodical, he describes how they are filled up with 'Pickings from Punch and Plato; wood-engravings, representing notorious people and views of famous places...modern and ancient anecdotes; short memoirs; scraps of poetry; choice morsels of general information; household receipts; riddles; and extracts from moral writers' (221). This jumble of virtually worthless content sits alongside fiction which is so formulaic as to be almost unreadable by anyone other than 'a member of the Unknown Public' (221), feeding a readership which is 'still ignorant of almost everything which is generally known and understood among readers whom circumstances have placed, socially and intellectually, in the rank above them' (222). Collins asserts that even his 'favourite Review' is unfamiliar with these 'mysterious publications,' a claim that seems unlikely, given that articles on the penny periodical press featured in several of the more intellectual quarterlies in the second half of the 1850s.⁴³ Their conclusions on the periodicals' content, if less droll than Collins', usually come to the same point: that they are made up of forgettable fiction and inconsequential snippets. A long article in the *British Quarterly Review* comments, 'Remembering that it is

⁴³ See, for example, the *Saturday Review's* "A Popular Paper" and "Weekly Romance" and *Blackwood's* "The Byways of Literature".

the voluntary mission of these publications to unite instruction with amusement, we are struck at once by the very slight amount of current information they contain... These miscellaneous pennyworths, with their tempting woodcuts and crowded bills of fare, are got up, in fact, more for the idle than the inquiring' (*"The Family Herald"* 329-330). It continues on the sprinkling of factual items among their pages: 'It demands no original powers, no attention to the growth of facts, social or scientific, and contributes nothing to that species of knowledge which is applicable to the immediate business of life' (331).

The emphasis on sensational fiction and random snippets is not entirely inaccurate; *Reynolds's*, the *Herald* and the other publications of which these authors speak are miscellanies with a focus on entertainment, and one cannot deny that they do indeed consist of all the items that Collins lists. Even the more serious *Chambers's* - which was understood to be a purveyor of worthwhile information and is not the subject of these pieces - relies on short excerpts, little tips and so on to fill up some of its space. For Collins and other contemporary commentators on the popular periodicals of the 1840s, nothing of real value is being communicated in the popular fiction and the collection of bits and pieces around it; neither the format nor the tone draw the reader towards learning or personal and social development. However, I have shown throughout this thesis that the scattered extracts, fiction, advice columns and more sustained opinion pieces of these apparently frivolous periodicals, as well as their contemporary *Chambers's*, are actively and productively engaged with scientific matters, and that in their form and their content they invite and enable their readers to join them in thinking about the role of science and the nascent scientific profession in wider society. In doing so, all three publications carry out work of cultural significance that is not immediately apparent upon a first glance

at their contents. My analysis offers a new understanding of these mass-market periodicals as communicators of scientific ideas, and of the extent to which debates about scientific authority and the role of modern science extended into the popular sphere.

The periodicals' approach to scientific authority is influenced by their editors' political positions, commercial and social aims and beliefs about their readers' desires and abilities, as well as the areas of science to which they respond. There are areas of commonality, such as their indifference to popular outrage about anatomy or their acceptance of the concept of 'natural' gendered characteristics, but more often there are considerable distinctions either in nuance or more fundamentally. One might suppose, in this era when the dissemination of knowledge and the empowering potential of education were so charged and alive in the public consciousness, that these distinctions would be mainly attributable to the social purpose of each periodical. Undoubtedly this is an important factor; my analysis of health advice is a case study of how scientific knowledge can be positioned and shaped to invite reading strategies that relate to different conceptions of working- and lower middle-class readers. However, perhaps even more significant is the general character and style of each periodical, and the strong editorial voice that runs through each one. In tracing the social, editorial and commercial influences that each periodical brought to bear on its scientific content, I have attempted to bring to the fore in my analysis an understanding of how science is shaped by wider questions about the way that knowledge is communicated and disseminated.

I have suggested that *Chambers's*, the only one of my periodicals to be taken seriously by contemporaries, is in some ways the least likely to encourage its readers to think independently about scientific matters. It is a

more informative, more instructive magazine than the *Herald* and *Reynolds's*, and it undoubtedly saw scientific education as a tool for personal advancement, believing that 'mankind would be happy to see science prospering, since the more that is known, the more matter have they for the gratification of their intellectual fancies, and the more power over the circumstances of their position on earth' ("On Some Late Vexations of the Public" 217). Science is an important aspect of the useful knowledge programme to which *Chambers's* was committed. That programme was based on some clear ideas about what was good for readers, and on how particular forms of working-class education would benefit wider society, which did not always leave much room for readers to form their own conclusions. However, the periodical's approach to science is complicated by the Chambers brothers' own ambivalent relationship to the scientific establishment. Robert in particular believed in, studied closely and respected modern science (James Secord, *Victorian Sensation* 88-89, 91), but the anonymous publication of his *Vestiges* attracted criticism from scientists on the grounds that it was unscientific (James Secord, *Visions of Science* 241); meanwhile, both brothers believed in and supported phrenology, mesmerism and spiritualism, practices that were not well-regarded by the self-appointed profession. As we saw in its coverage of mesmerism, this affects not only the sciences with which *Chambers's* engages, but also the periodical's negotiation between respect for scientific professionalism, its editors' own views, and the public image of the magazine. In understanding *Chambers's* as a useful knowledge publication, we should also take account of these other aspects of its approach to science, which show how a periodical that was supportive of scientific progress offered its own view on what science was and the development of the profession.

The *Herald* is characterised by an unusual combination of commercial appeal and unorthodox spiritual fervour, both of which deeply inform its scientific perspective. In a telling comment, the editor refuses to give one keen reader a history of the plough, explaining, 'Knowledge is nothing but dry bread - without humour, poetry, fancy, romance, and a little innocent, lively nonsense, there is no nourishment in it. It kills the soul, corrupts the heart, and makes a man as dull and uninteresting as a carrier's cart' ("To Correspondents", 17 May 1845). Its approach to science reflects this statement of intent, combining a reluctance to inflict too many in-depth factual pieces on the reader with the surfacing of the editor's millennial beliefs in earnest, impassioned reflections on the fundamental failings of modern science. Every edition is full of light fiction and jokes and noticeably thin on the more worthy informative pieces that made occasional appearances in *Reynolds's* and formed a good portion of *Chambers's* (which did in fact run a feature piece on "The Inventor of the Iron Plough" in 1838). The *Herald* was known for its fiction; its readers had certain expectations of content and genre convention, and the need to fulfil these becomes part of the magazine's engagement with scientific matters. However, the idea that pure knowledge is not just boring, but spiritually deadening and in opposition to the things that matter most in life is also a key influence on the magazine's approach to modern science. The authority of scientific men is rejected at a level of fundamental principle: the way they think, their methods of discovery and the data they value are all, in this view, deeply flawed. This is an informed and committed, if unorthodox, engagement with the foundations of modern science.

Reynolds's - perhaps surprisingly, given the *Herald's* prominent reputation for lighthearted entertainment - is the least invested of the three in

scientific matters. Science is incorporated as part of the knowledge the periodical imparts, and informs its more general items, but the periodical does not have a strongly expressed perspective on the progression of science in the way that the others do. As Adrian Desmond has shown, scientific education could become a vital part of radical education and schemes of advancement, both in terms of the benefits to be gained from the possession of modern knowledge, and in the production of a specifically radical interpretation of natural law (*Politics of Evolution*). *Reynolds's* is invested in the idea of educating and empowering readers and frames itself as a resource for this, but does not find a special place for science within its socialist, self-help perspective. Its belief in the value of choice and self-determination makes space for both scientifically authorised knowledge and other sources of information. *Reynolds's* is by and large quietly supportive of the medical and scientific professions, but is less invested than *Chambers's* or the *Herald* in their directions of travel; its engagement with science is revealed less in outright statements of opinion than in its juxtaposition of different sources of knowledge, different viewpoints on those sources, and incorporation and refiguring of scientific ideas and images in support of its own political and publishing aims.

This thesis argues also that reflections on science take place in the three publications through the representation of apparently unscientific matters, such as the question of women's work and domestic role, allowing them to question, moderate or accept ideas that were produced and reproduced in scientific spheres. At other times, as with mesmerism or anatomy, scientific matters are discussed directly and with reference to the authority of scientific professionals and the value of their methods and productions. Scientific authority, though, does not only exist outside the periodical, endorsed or denied by the editors as

they see fit; it is also produced within the periodical itself, in the relationship between its writers, its readers and that very jumble of pieces derided by contemporary commentators. My analysis of these periodicals, then, adds to our understanding not only of the magazines themselves, but also to the culture of popular science in the early Victorian period. Their readers were engaged not just with scientific ideas but also with the shaping of scientific professionalism and its claims to cultural authority. The discussions around this, and the processes by which it was happening, took place not only within elite circles but also in spheres in which individuals' and communities' relationships to formal scientific productions were less immediate.

Looking forward: Victorian science and popular periodicals after 1850

The developments in scientific status and education that I describe in Chapter One were well under way and gathering pace by 1850. Over the second half of the century men of science moved from an established, self-defining community to a recognised profession, a process that, Bowler argues, was largely complete by 1900 (2). The professionalisation of science had important implications - that were at once cause and consequence of the process - for scientists' relationship to non-scientists. Scientific knowledge became ever more specialised and complex. In the early years of the nineteenth century it was possible for researchers to have a very good understanding across the physical, chemical and biological sciences, but as they divided into disciplines and sub-disciplines, degrees of specialisation and the expertise required to practise effectively increased. The gap between amateur and qualified scientists grew, as entry to the professions increasingly

required advanced education and training. Enthusiasts without the standard qualifications continued to participate in the production of scientific knowledge, but it became more difficult for contributions generated outside the professional sphere to be taken seriously. The effect of all these developments was to increase the authority of scientific professionals and to add legitimacy to knowledge that could be brought within the definition of science (the narrowing of which, as I discussed in Chapter One, was itself an important aspect of professionalisation). There were also potential consequences for those whose engagement with science was purely for entertainment or in the role of patients or other recipients, who may have viewed themselves as consumers rather than producers of science. If scientists were increasingly understood to be respected experts, producers and conveyors of complicated and difficult knowledge, that could change the way that scientific information was received and understood by non-scientists, and perhaps, as Myers' article on popularisation suggests, their positioning as learners and participants.⁴⁴

However, some ground-breaking, transformative ideas were communicated in forms that were readable, and read, by men and women outside the scientific sphere (sales of George Combe's enormously popular *The Constitution of Man* (1828), for example, had reached 100,000 by 1860 (Cooter 120)). Even ideas that are not presented in accessible ways do not remain divorced from popular culture, and as literature and science scholars have demonstrated, the increasing complexity and remoteness of scientific knowledge does not prevent us from tracing its absorption and recreation outside the scientific sphere. However, part of the process, as the scientific

⁴⁴ Inevitably, the boundaries I outline in this paragraph were porous and problematic; Levine's essay "Defining Knowledge" offers a useful introduction to the complexities around the putative distinctions between professional and amateur science as the century progressed.

profession and its productions became both more authoritative and less accessible, was a conscious distancing from non-scientists, among whose ranks working-class people and women of all classes were likely to find themselves.⁴⁵

Scientific authority, then, in the years that follow those examined in this thesis, became less fluid and the figure of the scientist took on a more distinct identity. Elite scientific knowledge began to carry more weight, and was harder to generate, even as working-class education improved and became more widespread. My study has examined years of transition; looking to the future, one might ask how the formalising of scientific authority affected its treatment in popular periodicals. Did they continue to find legitimacy in other forms of knowledge or did they absorb and reflect the changing structures of professionalism in their representation of science and scientific men? How did it affect their relationship with their readers, and shape the sort of content they included? As scientific publishing aimed at different sections of society continued to expand, what sort of relationships might we trace between the growing range of popular scientific and medical periodicals and books, professional journals, and the general interest publications that have been the focus of this thesis? These questions are worthy of reflection in the context of how periodicals and their market developed over the second half of the century.

The market for cheap print continued to increase as the century went on, aided by the removal of the stamp duty tax in 1855 and ever-improving rates of literacy, particularly after the Education Act 1870 (David Vincent suggests that by 1914 mass literacy had been achieved in England (2)). Between 1864 and

⁴⁵ Women's participation in later Victorian science is examined in Lightman's *Victorian Popularizers of Science*, which addresses their significant role as popularisers (see his Chapter Three in particular); female involvement through these channels expanded over the course of the century, but did not necessarily bestow upon women the authority enjoyed by the recognised creators of knowledge.

1887 the number of periodicals listed by Mitchell's *Newspaper Press Directory* rose from 1,764 to 3,597 (King and Plunkett 2), while the final quarter of the century saw a boom in mass-market magazines with circulations in the hundreds of thousands (Law and Patten). Publications specifically for women, of which there were relatively few in the earlier nineteenth century, expanded after 1850, and while predominantly aimed at middle-class women, they ranged across the social spectrum. One such was the popular and successful *Bow Bells*, edited by G. W. M. Reynolds, which from 1862 took its place in the list of publications catering to a growing market of working- and lower middle-class women. The *Miscellany* closed in 1869, with Reynolds still at the helm, while he established *Reynolds's Newspaper* in 1849 as the main repository for his socialist ideas. *Chambers's* and the *Herald* both continued into the twentieth century, and their distinctive positions in the penny periodical market and the formative roles of their respective founding editors raise interesting questions about their approaches to science as the century progressed.

Chambers's continued in publication until 1956. The editorship of the journal changed hands in the mid-1850s but both brothers remained involved until their deaths in 1871 (Robert) and 1883 (William). *Chambers's* may be considered a scientific populariser in a traditional sense, and it would be fruitful to examine how it saw its role as a communicator of science as the useful knowledge movement died away and scientific productions became more remote from the readers it was attempting to reach. James Elishama Smith died in January 1857 and the *Family Herald* carried on under different editors until 1940, remaining popular throughout the nineteenth century. As we have seen, Smith's religious beliefs profoundly shaped the periodical's early approach to science in ways that sometimes contrast with its commitment to

meeting its readers' wishes for fun and entertainment. There is scope for further work here on how this commercially-minded, fiction-based magazine dealt with science in the absence of its devout editor: did the outspoken pieces on scientific matters die with Smith, or were they part of the periodical's corporate character? Did subsequent editors find other ways to incorporate ever-accelerating modern science, or was there, as contemporary commentators had always assumed, no natural place for such things within this magazine?

As these questions suggest, the ways that periodicals of this type engaged with science were subject to many different commercial, cultural and personal influences. Popular magazines, reaching huge numbers of people every week, offer us an important insight into the communication of science, showing not just what types of scientific knowledge were conveyed, but how the production of science was shaped within them in response to the changing world of professional science and the periodical context. Although these publications had no obvious influence in scientific communities, their editors, writers and readers were invested in questions of what science is, who can and should do it, and whether it matters. These questions were central to a debate which most publicly took place among the emergent profession, those at its edges, and others directly invested in the struggle for scientific legitimacy, such as the radical groups whose interpretations of scientific ideas lent weight to their political cause. It has most often been via these outlets that scholars have explored the grounds on which scientific authority was contested and negotiated. By focusing on mass-market general interest magazines, which have received relatively little attention so far within the rich and growing body of work on science in Victorian periodicals, this thesis reveals that they too were

engaged in the debates that shaped the role of science and the identity of its practitioners. This understanding enriches our knowledge both of the character of these publications, and of popular approaches to scientific authority and the changing role of science in the early decades of the Victorian period.

Bibliography

Primary Material

Parliamentary Debates

HC Deb 27 Feb. 1832 vol 10 cc832-44.

Government Reports

Commissioners for inquiring into the employment and condition of children in mines and manufactories. *The condition and treatment of the children employed in the mines and collieries of the United Kingdom, compiled from the appendix to the first report of the Commissioners appointed to inquire into this subject.* London, 1842. *Google Books*. Web. 17 Nov. 2014.

Great Britain. Poor Law Commissioners. *Reports of Special Assistant Poor Law Commissioners on the Employment of Women and Children in Agriculture.* London, 1843. *Google Books*. Web. 12 June 2012.

Newspapers and periodicals

“Advertisement: Henri the Clairvoyant.” *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 25 Apr. 1857: 207. *British Periodicals*. Web. 3 Feb 2015.

“Anatomy and Body-Snatching.” *Lancet*. 3.62 (1824): 313-314. *ScienceDirect*. Web. 15 Nov. 2013.

“Anecdote of the Plague.” *Chambers's Edinburgh Journal* 14 July 1832: 192. Print.

“Amputation in the Mesmeric Sleep.” *Chambers's Edinburgh Journal* 14 Jan. 1843: 415-416. Print.

“Animal Magnetism.” *Chambers's Edinburgh Journal* 8 June 1833: 152. *British Periodicals*. Web. 3 May 2014.

- "The Animal Magnetism Fraud and Humbug." *Lancet* 31:796 (1838): 380. *ScienceDirect*. Web. 17 July 2014.
- "Annals of the Poor." *Chambers's Edinburgh Journal* 12 May 1832: 115-116. *British Periodicals*. Web. 16 Mar. 2012.
- "Biographic Sketches: John Hunter." *Chambers's Edinburgh Journal* 14 Apr. 1832: 85. *British Periodicals*. Web. 2 Oct. 2013.
- "Biographical Sketches: Sir Astley Cooper." *Chambers's Edinburgh Journal* 12 Aug. 1843: 238-239. *British Periodicals*. Web. 2 Oct. 2013.
- "The Byways of Literature." *Blackwood's Edinburgh Magazine* 84.514 (Aug 1858): 200-216. *British Periodicals*. Web. 10 Dec. 2014.
- "Caroline de Burgh." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 22 June 1850: 347-348. *British Periodicals*. Web. 2 Oct. 2013.
- "Charlotte and Susan - An Irish Story." *Chambers's Edinburgh Journal* 5 Dec. 1840: 362-364. *British Periodicals*. Web. 16 Oct. 2014.
- "The Cholera." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 14 Oct. 1848: 380. Print.
- "The Cholera, and How to Prevent It." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 4 Nov. 1848: 429. Print.
- "The Cholera - Musselburgh." *Chambers's Edinburgh Journal* 25 Feb. 1832: 29. *British Periodicals*. Web. 2 Mar. 2012.
- "A City of the Plague." *Chambers's Edinburgh Journal* 25 Feb. 1832: 32. *British Periodicals*. Web. 2 Mar. 2012.
- "Clairvoyance." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 20 Apr. 1850: 204-205. *British Periodicals*. Web. 7 May 2014.
- "Clairvoyance." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 27 Apr. 1850: 220-221. *British Periodicals*. Web. 8 May 2014.
- "Clairvoyance - Apparitions." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 25 May 1850: 283. *British Periodicals*. Web. 8 May 2014.
- "Clairvoyance; Or, the Secrets of the Future Penetrated." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 13 Apr. 1850: 190. *British Periodicals*. Web. 6 May 2014.

- “The Coal Mines of Great Britain. I - The Mines of the North of England.”
Reynolds's Miscellany of Romance, General Literature, Science, and Art
 27 Jan. 1849: 456-457. *British Periodicals*. Web. 7 June 2013.
- “The Coal Mines of Great Britain. V - The Mines of Scotland (Continued).”
Reynolds's Miscellany of Romance, General Literature, Science, and Art
 17 Feb. 1849: 503-504. *British Periodicals*. Web. 7 June 2013.
- “A Column for Mothers.” *Chambers's Edinburgh Journal* 14 July 1832: 191.
British Periodicals. Web. 2 Mar. 2012.
- “Country Town Sketches.” *Chambers's Edinburgh Journal* 4 Feb. 1837: 9-10.
British Periodicals. Web. 29 July 2013.
- “Cure for Tooth-Ache.” *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 16 July 1848: 171. Print.
- “Discussion on the Anatomy Act: Alleged Scarcity of Subjects.” *Lancet* 37.950
 (1841): 235-36. *ScienceDirect*. Web. 22 Nov. 2013.
- “Dispensaries.” *Chambers's Edinburgh Journal* 1 Dec. 1838: 357. Print.
- “Dissections in the Schools, and in Private - The Anatomy Act.” *Lancet* 44:1109
 (1844): 288-289. *ScienceDirect*. Web. 22 Nov. 2013.
- “Dr Chalmers's Prayer on the Pestilence.” *Chambers's Edinburgh Journal* 11
 Mar. 1832: 46. *British Periodicals*. Web. 3 Mar. 2012.
- “The Editor's Address to his Readers.” *Chambers's Edinburgh Journal* 11 Feb.
 1832: 1-2. *British Periodicals*. Web. 27 Oct. 2011.
- “An Effective Preventive for Hydrophobia.” *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 24 June 1848: 125.
 Print.
- “Electro-Biology (So-Called).” *Chambers's Edinburgh Journal* 17 July 1852: 44-
 48. *British Periodicals*. Web. 3 May 2014.
- “Experiments in Electro-Biology.” *Chambers's Edinburgh Journal* 8 Feb. 1851:
 81-83. *British Periodicals*. Web. 6 June 2014.
- “Facts Connected with the Medical Charities of Sheffield.” *Chambers's Edinburgh Journal* 14 Mar. 1840: 60-61. Print.
- “*The Family Herald; A Domestic Magazine of Useful Information and Amusement.*” *The British Quarterly Review* 58 (Apr. 1859): 313-345.
British Periodicals. Web. 10 Dec. 2014.
- “The Father and the Daughter.” *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 19 Oct. 1850: 389-393. Print.

- "Female Agricultural Labourers." *Chambers's Edinburgh Journal* 7 Oct. 1843: 301-302. Print.
- "Female Agricultural Labourers." *Chambers's Edinburgh Journal* 11 Nov. 1843: 342-343. Print.
- "The First Lucifer." *Chambers's Edinburgh Journal* 29 June 1844: 401-403. *British Periodicals*. Web. 3 Aug. 2013.
- "The Flitting." *Chambers's Edinburgh Journal* 3 Oct. 1840: 289-291. *British Periodicals*. Web. 20 Mar. 2013.
- "The Frauds of Mesmerism." *Lancet* 48: 1192 (1846): 18-21. Web. 17 July 2014.
- "The Great Universal Plague." *Chambers's Edinburgh Journal* 19 May 1832: 125-126. *British Periodicals*. Web. 2 Mar. 2012.
- "Health - Its Loss and Preservation Depend on Daily Conduct." *Chambers's Edinburgh Journal* 3 Feb. 1844: 77-78. *British Periodicals*. Web. 5 Mar. 2012.
- "Health of Young Women." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 9 Sept. 1843: 282. Print.
- "Hints on the Preservation of Health - No. 14. The Cholera (continued)." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 14 July 1849: 174. Print.
- "Hints on the Preservation of Health - No. 15. The Cholera (continued)." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 21 July 1849: 189-190. Print.
- "Hunter's Experiments in Animal Grafting." *Chambers's Edinburgh Journal* 19 Mar. 1853: 192. *British Periodicals*. Web. 3 Dec. 2013.
- "The Husbands and the Wives: A Tale of this Century." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 27 Jan. 1849: 615-616. Print.
- "Illegal Dissection and Disgusting Exhibition." *Reynolds's Newspaper* 11 Nov. 1855: 13. *Gale 19th Century British Newspapers*. Web. 15 Nov. 2013.
- "Inhuman Conduct." *Reynolds's Newspaper* 5 Jan. 1851: 9. *Gale 19th Century British Newspapers*. Web. 28 Nov. 2013.
- "The Inventor of the Iron Plough." *Chambers's Edinburgh Journal* 29 Sept. 1838: 287. *British Periodicals*. Web. 17 Nov. 2014.

- "An Irish Story." *Chambers's Edinburgh Journal* 31 Mar. 1832: 67-68. *British Periodicals*. Web. 2 Mar. 2012.
- "Is Ignorance Bliss?" *Chambers's Edinburgh Journal* 4 Jan. 1834: 385-386. *British Periodicals*. Web. 25 Mar. 2015.
- "Life in a Scottish Country Mansion." *Chambers's Edinburgh Journal* 29 Nov. 1845: 337-340. *British Periodicals*. Web. 3 Aug. 2013.
- "Literature and Art: The Zoist (No. 20)." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 5 Feb. 1848: 639. Print.
- "The Luckpenny, A City Boy's Fireside Story." *Chambers's Edinburgh Journal* 27 Jan. 1838: 3-4. *British Periodicals*. Web. 4 Aug. 2013.
- "Man or Woman? Which is the Head of the Other?" *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 24 Mar. 1848: 747-748. Print.
- "Man or Woman? Which is the Head of the Other? No. 2." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 31 Mar. 1849: 763-764. Print.
- "Means of Improving and Preserving Health." *Chambers's Edinburgh Journal* 22 June 1844: 399-400. *British Periodicals*. Web. 6 Mar. 2012.
- "Mesmer." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 23 June 1843: 110. Print.
- "The Mesmeric Influence." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 14 Sept. 1844: 300. Print.
- "Mesmerism." *Chambers's Edinburgh Journal* 29 Mar. 1851: 195-199. *British Periodicals*. Web. 6 May 2014.
- "Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 6 Apr. 1844: 765-766. Print.
- "Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 13 Apr. 1844: 781-783. Print.
- "Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 6 July 1844: 61. Print.
- "Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 17 Feb. 1849: 670. Print.
- "Mesmerism and Phreno-Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 27 May 1843: 46-47. Print.

- "Mesmerism and Phreno-Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 12 Aug. 1843: 220. Print.
- "Mesmerism, Miss Martineau, and the Great New Idea." *Lancet* 44:1109 (1844): 291. *ScienceDirect*. Web. 17 July 2014.
- "A Mesmerized Man of Letters." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 27 May 1843: 39. Print.
- "Miss Martineau and Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 28 Dec. 1844: 542-543. Print.
- "New Anatomy Bill." *Lancet* 17:436 (1832): 521-522. *ScienceDirect*. Web. 22 Nov. 2013.
- "A New Emigration Field." *Chambers's Edinburgh Journal* 20 Oct. 1849: 249-251. *British Periodicals*. Web. 5 Sept. 2014.
- "New Magnetic Doctrines." *Chambers's Edinburgh Journal* 1 June 1839: 146-147. *British Periodicals*. Web. 6 May 2014.
- "The Night Side of Nature." *Chambers's Edinburgh Journal* 19 Feb. 1848: 123-126. *British Periodicals*. Web. 12 May 2014.
- "Notices to Correspondents." *The London Journal, and Weekly Record of Literature, Science, and Art* 1 Mar. 1845: 16. *British Periodicals*. Web. 12 May 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 7 Nov. 1846: 16. *British Periodicals*. Web. 7 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 14 Nov. 1846: 32. *British Periodicals*. Web. 7 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 21 Nov. 1846: 46. *British Periodicals*. Web. 14 Sept. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 28 Nov. 1846: 64. *British Periodicals*. Web. 7 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 5 Dec. 1846: 80. *British Periodicals*. Web. 7 Jan. 2015.

- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 26 Dec. 1846: 128. *British Periodicals*. Web. 14 Sept. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 27 Mar. 1847: 335-336. *British Periodicals*. Web. 23 Aug. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 29 May 1847: 47-48. *British Periodicals*. Web. 23 Aug. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 4 Sept. 1847: 271-272. *British Periodicals*. Web. 25 Aug. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 26 Feb. 1848: 223-224. *British Periodicals*. Web. 20 Sept. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 17 June 1848: 511-512. *British Periodicals*. Web. 26 Aug. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 26 Aug. 1848: 112. *British Periodicals*. Web. 26 Aug. 2012.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 16 Sept. 1848: 160. *British Periodicals*. Web. 24 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 4 Nov. 1848: 272. *British Periodicals*. Web. 26 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 9 Dec. 1848: 351-352. *British Periodicals*. Web. 22 Dec. 2014.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 6 Jan. 1849: 415-416. *British Periodicals*. Web. 26 Aug. 2012.

- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 3 Mar. 1849: 543-544. *British Periodicals*. Web. 26 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 12 May 1849: 703-704. *British Periodicals*. Web. 25 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 26 May 1849: 735-736. *British Periodicals*. Web. 12 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 30 June 1849: 815-816. Web. 14 Nov. 2014.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 28 July 1849: 15-16. *British Periodicals*. Web. 25 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 24 Nov. 1849: 287-288. *British Periodicals*. Web. 25 July 2013.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 19 Jan. 1850: 415-416. *British Periodicals*. Web. 22 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 2 Feb. 1850: 31-32. *British Periodicals*. Web. 22 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 25 May 1850: 287-288. *British Periodicals*. Web. 25 July 2013.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 1 June 1850: 303. *British Periodicals*. Web. 25 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 22 June 1850: 351-352. *British Periodicals*. Web. 25 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 10 Aug. 1850: 47-48. *British Periodicals*. Web. 13 Jan. 2015.

- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 23 Nov. 1850: 287-288. *British Periodicals*. Web. 23 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 21 Dec. 1850: 351-352. *British Periodicals*. Web. 25 Jan. 2015.
- "Notices to Correspondents." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 8 Mar. 1851: 111. *British Periodicals*. Web. 25 Jan. 2015.
- "On Some Late Vexations of the Public." *Chambers's Edinburgh Journal* 29 July 1843: 218-218. *British Periodicals*. Web. 12 May 2014.
- "The Penny Weekly Press." *Saturday Review of Politics, Literature, Science and Art* 20 Nov. 1858: 502-503. *British Periodicals*. Web. 21 Mar. 2013.
- "The 'Pest' of Ancient Times." *Chambers's Edinburgh Journal* 4 Aug. 1832: 216. *British Periodicals*. Web. 11 Nov. 2012.
- "Plague. Cholera." *Chambers's Edinburgh Journal* 4 Feb. 1832: 6-8. *British Periodicals*. Web. 11 Nov. 2012.
- "The Plague-Ship." *Chambers's Edinburgh Journal* 27 Oct. 1832: 306-307. *British Periodicals*. Web. 11 Nov. 2012.
- "Popular Information on Science. Animal Magnetism." *Chambers's Edinburgh Journal* 8 June 1833: 146-147. *British Periodicals*. Web. 3 May 2014.
- "A Popular Paper." *Saturday Review of Politics, Literature, Science and Art* 1 May 1858: 441-441. *British Periodicals*. Web. 10 Dec. 2014.
- "The Professor's Daughter." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 2 May 1849: 818-821. Print.
- "Prognostic Astronomy and Astro-Medical Botany." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 19 Aug. 1854: 64. *British Periodicals*. Web. 24 July 2013.
- "Prognostic Astronomy and Astro-Medical Botany." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 26 Aug. 1854: 80. *British Periodicals*. Web. 24 July 2013.
- "Proofs of the Importance of Anatomy for the Practice of Medicine and Surgery." *Lancet* 16:416 (1831): 668-670. *ScienceDirect*. Web. 22 Nov. 2013.
- "Reading for All." *Penny Magazine of the Society for the Diffusion of Useful Knowledge* 31 Mar. 1832: 1. *British Periodicals*. Web. 12 Mar. 2013.

- "Recent Demonstrations in Mesmerism." *Chambers's Edinburgh Journal* 15 July 1843: 205-206. *British Periodicals*. Web. 6 May 2014.
- "Recent Experiments at Manchester." *Chambers's Edinburgh Journal* 19 Feb. 1842: 38-39. *British Periodicals*. Web. 6 May 2014.
- "Recent Experiments in Animal Magnetism." *Chambers's Edinburgh Journal* 4 Dec. 1841: 366-367. *British Periodicals*. Web. 6 May 2014.
- "Reichenbach's Discoveries in Magnetism and Crystalism, &c.." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 15 June 1850: 108-109. Print.
- "Remedies Against the Cholera." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 26 Aug. 1848: 269-270. Print.
- "Remedy for Burking." *Lancet* 17:436 (1832): 521. *ScienceDirect*. Web. 22 Nov. 2013.
- "The Resurrectionists." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 9 July 1853: 372. *British Periodicals*. Web. 2 Oct. 2013.
- "The Russian Court." *Chambers's Edinburgh Journal* 18 Feb. 1832: 18. *British Periodicals*. Web. 1 Dec. 2014.
- "Simple Remedy for Cramp." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 19 Feb. 1848: 666. Print.
- "Six Lectures on the Philosophy of Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 8 June 1844: 78. Print.
- "Sleep-Walking." *Chambers's Edinburgh Journal* 14 Mar. 1840: 61-62. *British Periodicals*. Web. 18 May 2014.
- "Some Recent Experiments in Mesmerism." *Chambers's Edinburgh Journal* 5 Nov. 1842: 332-333. *British Periodicals*. Web. 20 May 2014.
- "Somnambulism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 3 June 1843: 60. Print.
- "Sore Eyes." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 12 Feb. 1848: 651. Print.
- "The Subject. - A Tale of Modern Magic." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 26 June 1847: 113-117. Print.
- "A Tale of the Plague in Edinburgh." *Chambers's Edinburgh Journal* 24 Mar. 1832: 57-58. *British Periodicals*. Web. 3 Apr. 2013.

- "Tallowing the Nose." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 25 Nov. 1848: 106. Print.
- "The Teeth." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 15 Aug. 1848: 218. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 29 July 1843: 184. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 22 June 1844: 104. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 17 May 1845: 24. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 23 Aug. 1845: 248. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 13 Sept. 1845: 297. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 1 Nov. 1845: 410. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 21 Feb. 1846: 664-665. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 2 Jan. 1847: 553-554. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 8 May 1847: 9. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 7 July 1847: 154-155. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 2 Oct. 1847: 346. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 4 Dec. 1847: 490. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 18 Dec. 1847: 522-523. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 10 Jan. 1848: 569-570. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 24 June 1848: 121-122. Print.

- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 21 Oct. 1848: 395. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 16 Dec. 1848: 522-523. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 21 Apr. 1849: 810-811. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 18 Aug. 1849: 250-251. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 8 Sept. 1849: 298-299. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 24 Nov. 1849: 473-474. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 15 Dec. 1849: 522-523. Print.
- "To Correspondents." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 6 Apr. 1850: 778-779. Print.
- "The Tooth-Ache." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 17 June 1848: 106. Print.
- "To Our Readers." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 1 Nov. 1846: 16. *British Periodicals*. Web. 4 Apr. 2012.
- "Traditions of the Plague in Scotland." *Chambers's Edinburgh Journal* 5 May 1832: 108-109. *British Periodicals*. Web. 10 Oct. 2012.
- "Uses of Dissection." *Chambers's Edinburgh Journal* 13 June 1835: 154-155. *British Periodicals*. Web. 28 Nov. 2013.
- "Varieties: Mesmerism." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 28 Dec. 1844: 541. Print.
- "A Visit to a Magnetic Patient." *Chambers's Edinburgh Journal* 4 Dec. 1841: 366-367. *British Periodicals*. Web. 6 May 2014.
- "Visits to Dr. Elliotson's." *Chambers's Edinburgh Journal* 31 Aug. 1839: 249-250. *British Periodicals*. Web. 5 May 2014.
- "Warts." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 19 Aug. 1843: 235. Print.
- "Warts." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 9 Sept. 1843: 284. Print.

- "Weekly Romance." *Saturday Review of Politics, Literature, Science and Art* 8 Mar. 1856: 364-366. *British Periodicals*. Web. 10 Dec. 2014.
- "Woman in her Psychological Relations." *The Journal of Psychological Medicine and Mental Pathology*. Vol. 4. London, 1851. 8-50. *Google Books*. Web. 16 June 2013.
- Acton, William. *Functions and Disorders of the Reproductive Organs in Youth, in Adult Age, and in Advanced Life*. 4th ed. London, 1857. *Google Books*. Web. 12 June 2013.
- Adams, William Edwin. *Memoirs of a Social Atom*. London, 1903. *Reading Experience Database*. Web. 3 Dec. 2014.
- Blount, Marguerite. "The Student of the Grave." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 1 May 1858: 269-271. *British Periodicals*. Web. 2 Feb. 2015.
- Carter, Robert Brudenell. *On the Pathology and Treatment of Hysteria*. London, 1853. *Google Books*. Web. 12 June 2013.
- Chambers, William. *Memoir of William and Robert Chambers*. Edinburgh, 1883. *Internet Archive*. Web. 17 July 2014.
- Cobbett, William. "To the Working People on the New Dead-Body Bill." *Cobbett's Weekly Political Register* 28 Jan. 1832: 257-281. *Gale 19th Century British Newspapers*. Web. 28 Nov. 2013.
- Collins, Wilkie. "The Unknown Public." *Household Words* 21 Aug. 1858: 217-222. *British Periodicals*. Web. 11 Mar. 2013.
- Dickens, Charles. *Martin Chuzzlewit*. Harmondsworth: Penguin, 1968. Print.
- Dix, John. "Essays. LXXXVII - On the Comparative Intellectual Power of the Sexes." *London Journal, and Weekly Record of Literature, Science, and Art* 20 Mar. 1847: 39-40. *British Periodicals*. Web. 1 Dec. 2012.
- Freeman, H. "The Subject for Dissection; or, the Student's Joke." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 12 Nov. 1864: 33-334. *British Periodicals*. Web. 2 Feb. 2015.
- Johnson, James. "The Anatomy and Physiology of Ourselves Popularly Considered: Chapter VI - On Man Considered as a Rational Being." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 12 Dec. 1846: 85-87. *British Periodicals*. Web. 7 May 2012.

- . "The Anatomy and Physiology of Ourselves Popularly Considered: Chapter XXI - on the Muscles of the Body (Continued)." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 29 May 1847: 39-41. *British Periodicals*. Web. 14 Dec. 2014.
- J. P. H. "Courtship and Marriage Etiquette." *London Journal, and Weekly Record of Literature, Science, and Art* 20 Oct. 1849: 103-104. *British Periodicals*. Web. 12 May 2013.
- Laycock, Thomas. *A Treatise on the Nervous Diseases of Women: Comprising an Inquiry into the Nature, Causes, and Treatment of Spinal and Hysterical Disorders*. London: 1840. *Open Library*. Web. 17 June 2012.
- Lecomte, Victor. "The French Doctor's Bride." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 27 Dec. 1856: 341-342. *British Periodicals*. Web. 2 Feb. 2015.
- Locock, Charles. "The Pathology of Menstruation." *The Cyclopaedia of Practical Medicine: Comprising Treatises on the Nature and Treatment of Diseases, Materia Medica and Therapeutics, Medical Jurisprudence, etc., etc.* Eds. John Forbes, Alexander Tweedie, and John Conolly. Vol. 3. London, 1834: 110-115. *Google Books*. Web. 12 June 2013.
- Martineau, Harriet. *Harriet Martineau's Autobiography*. Ed. Maria Weston Chapman. Vol. 2. London, 1877. *Google Books*. Web. 1 Aug. 2014.
- Mayhew, Henry. *London Labour and the London Poor*. Ed. Victor E. Neuburg. London: Penguin, 1985. Print.
- Millingen, John Gideon. *The Passions: or, Mind and Matter*. London, 1848. *Google Books*. Web. 12 June 2013.
- Pardoe, Julia. "Chronicles of the Poor: The Smuggler." *Chambers's Edinburgh Journal* 25 Feb 1843: 45-47. *British Periodicals*. Web. 5 June 2013.
- Peck, Anthony. "Letters to the Industrious Classes. Letter V: To the Preceptors of Great Britain." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 27 Mar. 1847: 331-333. *British Periodicals*. Web. 14 Dec. 2014.
- Pimlico, Paul. "The Factory Girl." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 20 Oct. 1849: 201-203. *British Periodicals*. Web. 27 Mar. 2013.

- . "The Factory Girl." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 27 Oct. 1849: 217-219. *British Periodicals*. Web. 27 Mar. 2013.
- . "The Factory Girl." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 10 Nov. 1849: 249-251. *British Periodicals*. Web. 27 Mar. 2013.
- . "The Factory Girl." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 17 Nov. 1849: 265-267. *British Periodicals*. Web. 27 Mar. 2013.
- . "The Factory Girl." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 24 Nov. 1849: 281-283. *British Periodicals*. Web. 27 Mar. 2013.
- Reynolds, G. W. M. "Letters to the Industrious Classes. Letter I: General Address." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 30 Jan. 1847: 199-200. *British Periodicals*. Web. 14 Dec. 2014.
- . "Letters to the Industrious Classes. Letter VII: To the Agricultural Labourers of Great Britain." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 15 Mar. 1847: 11-14. *British Periodicals*. Web. 14 Dec. 2014.
- . *The Mysteries of London, Vol. 1*. London, 1846. *Google Books*. Web. 2 Feb. 2015.
- Roberts, Edwin F. "The Mysterious Phial." *Chambers's Edinburgh Journal* 8 June 1850: 316-318. *British Periodicals*. Web. 5 June 2014.
- Robinson, Alfred. "The Body-Snatcher." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 6 May 1848: 405-408. *British Periodicals*. Web. 7 Oct. 2013.
- Ross, John Wilson. "Essays. I - Woman." *London Journal, and Weekly Record of Literature, Science, and Art* 22 Mar. 1845: 53. *British Periodicals*. Web. 10 June 2013.
- Willard, Emma. "Advice to Young Ladies." *Reynolds's Miscellany of Romance, General Literature, Science, and Art* 7 Nov. 1846: 7-8. *British Periodicals*. Web. 4 Apr. 2012.

- Whewell, William. "On the Connexion of the Physical Sciences. By Mrs Somerville." *Quarterly Review* 51(Mar. 1834): 54–68. *British Periodicals*. Web. 5 Mar. 2015.
- Zschokke, Heinrich. "Illumination; Or, the Sleep-Walker." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 28 Mar. 1846: 737-741. Print.
- ."Illumination; Or, the Sleep-Walker." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 4 Apr. 1846: 754-761. Print.
- ."Illumination; Or, the Sleep-Walker." *The Family Herald: A Domestic Magazine of Useful Information and Amusement* 11 Apr. 1846: 769-772. Print.

Secondary material

- Constructing Scientific Communities: Citizen Science in the 19th and 21st Centuries*. Wordpress.com. n.d. <<http://conscicom.org/>> 1 May 2015.
- Science in the Nineteenth-Century Periodical: An Electronic Index*, v. 3.0. hriOnline <<http://www.sciper.org>> 1 May 2015.
- Adams, James Eli. "Victorian Sexualities." *A Companion to Victorian Literature and Culture*. Ed. Herbert F. Tucker. Oxford: Blackwell, 1999. 125-38. Print.
- Allen, D.E. "The Women Members of the Botanical Society of London, 1836-1856." *British Journal for the History of Science* 13.3 (1980): 240-54. *JSTOR*. Web. 12 Feb. 2012.
- Altick, Richard D. *The English Common Reader: A Social History of the Mass Reading Public, 1800-1900*. Columbus: Ohio State University Press, 1998. Print.
- Anderson, Patricia J. *The Printed Image and the Transformation of Popular Culture 1790-1860*. Oxford: Clarendon Press, 1991. Print.
- ."“Factory Girl, Apprentice and Clerk”: The Readership of Mass-Market Magazines, 1830-60." *Victorian Periodicals Review* 25.2 (1992): 64-72. *JSTOR*. Web. 25 Aug. 2013.

- Barret-Ducrocq, Françoise. *Love in the Time of Victoria: Sexuality, Class and Gender in Nineteenth-Century London*. Trans. John Howe. London: Verso, 1991. Print.
- Barrow, Logie. "Why Were Most Medical Heretics at Their Most Confident around the 1840s? (The Other Side of Victorian Medicine)." *British Medicine in an Age of Reform*. Eds. Roger French and Andrew Wear. London: Routledge, 1991. 165-85. Print.
- Bashford, Alison, and Claire Hooker. "Introduction: Contagion, Modernity and Postmodernity." *Contagion: Historical and Cultural Studies*. Eds. Bashford and Hooker. London: Routledge, 2001. 1-12. Print.
- Bates, A. W. *The Anatomy of Robert Knox: Murder, Mad Science and Medical Regulation in Nineteenth-Century Edinburgh*. Brighton: Sussex Academic Press, 2010. Print.
- . "“Indecent and Demoralising Representations”: Public Anatomy Museums in Mid-Victorian England." *Medical History* 52 (2008): 1-22. Web. 12 Aug. 2013.
- Beer, Gillian. *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction*. London: Routledge, 1983; 3rd edition, 2009. Print.
- Beetham, Margaret. "Towards a Theory of the Periodical as a Publishing Genre." *Investigating Victorian Journalism*. Eds. Laurel Brake, Aled Jones, and Lionel Madden. Basingstoke: Macmillan, 1990. 19-32. Print.
- . "Women and the Consumption of Print." *Women and Literature in Britain 1800-1900*. Ed. Joanne Shattock. Cambridge: Cambridge University Press, 2001. 55-77. Print.
- Benjamin, Marina. "Introduction." *Science and Sensibility: Gender and Scientific Enquiry, 1780-1945*. Ed. Benjamin. Oxford: Basil Blackwell, 1991. 1-23. Print.
- Bennett, Scott. "Revolutions in Thought: Serial Publication and the Mass Market for Reading." *The Victorian Periodical Press: Samplings and Soundings*. Eds. Joanne Shattock and Michael Wolff. Leicester: Leicester University Press, 1982. 225-57. Print.
- Benson, John. *The Working Class in Britain 1850-1939*. I. B. Tauris, 2003. Web. 26 Jan. 2015.

- Bowler, Peter J. *Science for All: The Popularization of Science in Early Twentieth-Century Britain*. University of Chicago Press, 2009. *MyiLibrary.com*. Web. 12 Dec. 2014.
- Brake, Laurel. "Writing, Cultural Production and the Periodical Press in the Nineteenth Century." *Writing and Victorianism*. Ed. J. B. Bullen. London: Longman, 1997. 54-72. Print.
- Brake, Laurel, and Marysa Demoor, eds. *Dictionary of Nineteenth-Century Journalism*. Ghent and London: Academia Press and the British Library, 2009. Print.
- Budge, Gavin. "Mesmerism and Medicine in Bulwer-Lytton's Novels of the Occult." *Victorian Literary Mesmerism*. Eds. Martin Willis and Catherine Wynne. Amsterdam - New York: Ropodi, 2006. 39-60. Print.
- Cantor, Geoffrey, et al., eds. *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature*. Cambridge: Cambridge University Press, 2004. Print.
- Carlisle, Janice. "Introduction." *Factory Lives: Four Nineteenth-Century Working-Class Autobiographies*. Ed. James R. Simmons, Jr. Ontario: Broadview, 2007. Print.
- Carpenter, Mary Wilson. *Health, Medicine and Society in Victorian England*. Santa Barbara: Praeger, 2010. Print.
- Christensen, Allan Conrad. *Nineteenth-Century Narratives of Contagion: 'Our Feverish Contact'*. London: Routledge, 2005. Print.
- Cooter, Roger. *The Cultural Meaning of Popular Science: Phrenology and the Organization of Consent in Nineteenth-Century Britain*. Cambridge: Cambridge University Press, 1984. Print.
- Cooter, Roger, and Stephen Pumfrey. "Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture." *History of Science* 32 (1994): 237-67. Print.
- Davidoff, Leonore, and Catherine Hall. *Family Fortunes: Men and Women of the English Middle Class, 1780-1850*. London: Hutchinson, 1987. Print.
- Dawson, Gowan, Richard Noakes, and Jonathan R. Topham. "Introduction." *Science in the Nineteenth-Century Periodical: Reading the Magazine of Nature*. Eds. Geoffrey Cantor, et al. Cambridge: Cambridge University Press, 2004. 1-34. Print.

- Desmond, Adrian. "Artisan Resistance and Evolution in Britain, 1819-1848." *Osiris* 3 (1987): 77-110. JSTOR. Web. 2 Dec. 2011.
- . *The Politics of Evolution: Morphology, Medicine, and Reform in Radical London*. Chicago: University of Chicago Press, 1989. Print.
- Ellegård, Alvar. *The Readership of the Periodical Press in Mid-Victorian Britain*. Göteborg: Göteborg Universitets Årsskrift,, 1957. Print.
- Fergus, Jan. *Provincial Readers in Eighteenth-Century England*. Oxford: Oxford University Press, 2007. Print.
- Fichmann, Martin. "Biology and Politics: Defining the Boundaries." *Victorian Science in Context*. Ed. Bernard Lightman. Chicago: Chicago University Press, 1997. 94-118. Print.
- Flint, Kate. *The Woman Reader 1837-1914*. Oxford: Clarendon Press, 1993. Print.
- Fraser, Hilary, Stephanie Green, and Judith Johnston, eds. *Gender and the Victorian Periodical*. Cambridge: Cambridge University Press, 2003. Print.
- Frawley, Maria H. *Invalidism and Identity in Nineteenth-Century Britain*. Chicago: University of Chicago Press, 2004. ScienceDirect. Web. 2 Nov. 2011.
- Fyfe, Aileen. "Information Revolution: William Chambers, the Publishing Pioneer." *Endeavour* 30.4 (2006): 120-25. Print.
- . "Natural History and the Victorian Tourist: From Landscapes to Rock Pools." *Geographies of Nineteenth-Century Science*. Eds. David N. Livingstone and Charles W. J. Withers. Chicago: University of Chicago Press, 2011. 371-98. Print.
- . *Science and Salvation: Evangelical Popular Science Publishing in Victorian Britain*. London and Chicago: University of Chicago Press, 2004. Print.
- . *Steam-Powered Knowledge: William Chambers and the Business of Publishing, 1820-1860*. Chicago and London: University of Chicago Press, 2012. Print.
- Fyfe, Aileen, and Bernard Lightman, eds. *Science in the Marketplace: Nineteenth-Century Sites and Experiences*. Chicago: University of Chicago Press, 2007. Print.
- Garrison, Laurie. *Science, Sexuality and Sensation Novels: Pleasures of the Senses*. Basingstoke: Palgrave Macmillan, 2010. Print.

- Gates, Barbara T. *Kindred Nature: Victorian and Edwardian Women Embrace the Living World*. Chicago: Chicago University Press, 1998. Print.
- Gerrard, Teresa. "New Methods in the History of Reading: 'Answers to Correspondence' in the *Family Herald*, 1860-1900." *The History of Reading*. Eds. Shafquat Towheed, Rosalind Crone, and Katie Halsey. Abingdon: Routledge, 2011. 379-88. Print.
- Gilbert, Pamela K. *Cholera and Nation: Doctoring the Social Body in Victorian England*. Albany: SUNY Press, 2008. Print.
- Gilmour, Robin. *The Victorian Period: The Intellectual and Cultural Context of English Literature, 1830-1890*. Eds. David Carroll and Michael Wheeler. London: Longman, 1993. Print.
- Grimes, Hilary. *The Late Victorian Gothic: Mental Science, the Uncanny, and Scenes of Writing*. Farnham: Ashgate, 2011. Print.
- Hackenberg, Sara. "Vampires and Resurrection Men: The Perils and Pleasures of the Embodied Past in 1840s Sensational Fiction." *Victorian Studies* 52.1 (2009): 63-75. JSTOR. Web. 12 Aug. 2013.
- Haley, Bruce. *The Healthy Body and Victorian Culture*. Cambridge, Mass.: Harvard University Press, 1978. Print.
- Hancher, Michael. "From Street Ballad to Penny Magazine: 'March of the Intellect in the Butchering Line'." *Nineteenth Century Media and the Construction of Identities*. Eds. Laurel Brake, Bill Bell, and David Finkelstein. Basingstoke: Palgrave Macmillan, 2000. 93-103. Print.
- Harrison, J. F. C. *Robert Owen and the Owenites in Britain and America: The Quest for the New Moral World*. London: Routledge and Kegan Paul, 1969. Print.
- Henson, Louise. "Mesmeric Delusions: Mind and Mental Training in Elizabeth Gaskell's Writings." *Victorian Literary Mesmerism*. Eds. Martin Willis and Catherine Wynne. Amsterdam - New York: Rodopi, 2006. 83-104. Print.
- Henson, Louise, et al., eds. *Culture and Science in the Nineteenth-Century Media*. Aldershot: Ashgate, 2004. Print.
- Heyck, T.W. *The Transformation of Intellectual Life in Victorian England*. London: Croom Helm, 1982. Print.
- Higgitt, Rebekah, and Charles W. J. Withers. "Science and Sociability: Women as Audience at the British Association for the Advancement of Science, 1831-1901." *Isis* 99.1 (2008): 1-27. JSTOR. Web. 14 Feb. 2012.

- Huett, Lorna. "Among the Unknown Public: *Household Words, All the Year Round* and the Mass-Market Weekly Periodical in the Mid-Nineteenth Century." *Victorian Periodicals Review* 38.1 (2004): 61-82. JSTOR. Web. 23 May 2013.
- Humpherys, Anne. "G. W. M. Reynolds: Popular Literature and Popular Politics." *Victorian Periodicals Review* 16.4 (1983): 79-89. JSTOR. Web. 23 May 2013.
- Humpherys, Anne, and Louis James, eds. *G. W. M. Reynolds: Nineteenth-Century Fiction, Politics, and the Press*. Aldershot: Ashgate, 2008. Print.
- Hurren, Elizabeth T. *Dying for Victorian Medicine: English Anatomy and Its Trade in the Dead Poor, c.1834-1929*. Basingstoke: Palgrave Macmillan, 2012. Print.
- Inkster, Ian. "The Social Context of an Educational Movement: A Revisionist Approach to the English Mechanics' Institutes, 1820-1850." *Oxford Review of Education* 2.3 (1976): 277-307. JSTOR. Web. 2 Dec. 2011.
- James, Louis. "The Trouble with Betsy: Periodicals and the Common Reader in Mid-Nineteenth Century England." *The Victorian Periodical Press: Samplings and Soundings*. Eds. Joanne Shattock and Michael Wolff. Leicester: Leicester University Press, 1982. 349-66. Print.
- Jordanova, Ludmilla. *Sexual Visions: Images of Gender in Science and Medicine between the Eighteenth and Twentieth Centuries*. London: Harvester, 1989. Print.
- Kaplan, Fred. *Dickens and Mesmerism: The Hidden Springs of Fiction*. Princeton: Princeton University Press, 1975. Print.
- Kember, Joe, John Plunkett, and Jill A Sullivan, eds. *Popular Exhibitions, Science and Showmanship, 1840-1910*. London: Pickering and Chatto, 2012. Print.
- King, Andrew. *The London Journal 1845-1883: Periodicals, Production and Gender*. Aldershot: Ashgate, 2004. Print.
- . "Reynolds's *Miscellany*, 1846-1849: Advertising Networks and Politics." *G. W. M. Reynolds: Nineteenth-Century Fiction, Politics, and the Press*. Eds. Anne Humpherys and Louis James. Aldershot: Ashgate, 2008. 53-74. Print.
- King, Andrew, and John Plunkett. *Victorian Print Media: A Reader*. Oxford: Oxford University Press, 2005. Print.

- Klancher, Jon P. *The Making of English Reading Audiences, 1790-1832*. Madison: University of Wisconsin Press, 1987. Print.
- Langland, Elizabeth. *Nobody's Angels: Middle-Class Women and Domestic Ideology in Victorian Culture*. Ithaca: Cornell University Press, 1995. Print.
- Law, Graham, and Robert L. Patten. "The Serial Revolution." *The Cambridge History of the Book in Britain, Volume 6: 1830–1914*. Ed. David McKitterick. Cambridge: Cambridge University Press, 2009. 144-71. Print.
- Le-May Sheffield, Suzanne. *Revealing New Worlds: Three Victorian Women Naturalists*. London: Routledge, 2001. Print
- . *Women and Science: Social Impact and Interaction*. Santa Barbara: ABC-CLIO, 2004. Web. 17 Nov. 2014.
- Levine, George. *Darwin and the Novelists: Patterns of Science in Victorian Fiction*. Cambridge, Mass: Harvard University Press, 1988. Print.
- . "Defining Knowledge: An Introduction." *Victorian Science in Context*. Ed. Bernard Lightman. Chicago: Chicago University Press, 1997. 15-23. Print.
- Levine-Clark, Marjorie. *Beyond the Reproductive Body: The Politics of Women's Health and Work in Early Victorian England*. Columbus: Ohio State University Press, 2004. Print.
- . "Testing the Reproductive Hypothesis: Or What Made Working-Class Women Sick in Early Victorian London." *Women's History Review*. 11.2 (2006): 175-200. Web. 3 Nov. 2014.
- Lightman, Bernard. "Introduction." *Victorian Science in Context*. Ed. Lightman. Chicago: Chicago University Press, 1997. 1-12. Print.
- . *Victorian Popularizers of Science*. Chicago: University of Chicago Press, 2007. Print.
- . "'The Voices of Nature': Popularizing Victorian Science." *Victorian Science in Context*. Ed. Lightman. Chicago: Chicago University Press, 1997. 187-211. Print.
- Livingstone, David N., and Charles W. J. Withers. "Sites and Scales." *Geographies of Nineteenth-Century Science*. Eds. Livingstone and Withers. Chicago: University of Chicago Press, 2011. 21-23. Print.

- Lockley, Philip. *Visionary Religion and Radicalism in Early Industrial England: From Southcott to Socialism*. 2012. Web. 5 August 2014.
- Lynch, John M. "Scriptural Geology, Vestiges of the Natural History of Creation and Contested Authority in Nineteenth-Century British Science." *Repositioning Victorian Sciences: Shifting Centres in Nineteenth-Century Thinking*. Eds. Clifford, David, et al. London: Anthem Press, 2006. 131-42. Print.
- MacDonald, Helen Patricia. *Human Remains: Dissection and Its Histories*. London: Yale University Press, 2005. Print.
- Maidment, Brian E. "Dinners or Desserts? - Miscellaneity, Knowledge and Illustration in Magazines of the 1820s and 1830s." *Victorian Periodicals Review* 43.4 (2010): 353-87. JSTOR. Web. 20 Mar. 2013.
- . "Magazines of Popular Progress and the Artisans." *Victorian Periodicals Review* 17.3 (1984): 83-94. JSTOR. Web. 23 Nov. 2011.
- Malane, Rachel. *Sex in Mind: The Gendered Brain in Nineteenth-Century Literature and Mental Sciences*. New York: Peter Lang Publishing, 2005. Print.
- Marsden, Ben, Hazel Hutchison, and Ralph O'Connor, eds. *Uncommon Contexts: Encounters between Science and Literature, 1800–1914*. London: Pickering and Chatto, 2013. Print.
- Mason, Michael. *The Making of Victorian Sexuality*. Oxford: Oxford University Press, 1995. Print.
- Matus, Jill L. *Unstable Bodies: Victorian Representations of Sexuality and Maternity*. Manchester: Manchester University Press, 1995. Print.
- McCracken-Flesher, Caroline. *The Doctor Dissected: A Cultural Autopsy of the Burke and Hare Murders*. New York: Oxford University Press, 2012. Print.
- Mitchell, Sally. "The Forgotten Woman of the Period: Penny Weekly Magazines of the 1840s and 1850s." *A Widening Sphere: Changing Roles of Victorian Women*. Ed. Martha Vicinus. London: Methuen, 1980. Print.
- Monroe, John Warne. *Laboratories of Faith: Mesmerism, Spiritism, and Occultism in Modern France*. New York: Cornell University Press, 2008. Print.

- Morris, R. J. *Cholera 1832: The Social Response to an Epidemic*. London: Croom Helm, 1976. Print.
- Morrison-Low, A.D. "Women in the Nineteenth-Century Scientific Instrument Trade." *Science and Sensibility: Gender and Scientific Enquiry, 1780-1945*. Ed. Marina Benjamin. Oxford: Basil Blackwell, 1991. 89-117. Print.
- Mort, Frank. *Dangerous Sexualities: Medico-Moral Politics in England since 1830*. 2nd ed. London: Routledge, 2000. Print.
- Morton, Peter. *The Vital Science: Biology and the Literary Imagination 1860-1900*. London: George Allen & Unwin, 1984. Print.
- Morus, Iwan Rhys. "Galvanic Cultures: Electricity and Life in the Early Nineteenth Century." *Endeavour* 22 (1998): 7-11. *ScienceDirect*. Web. 3 Nov. 2013.
- Moscucci, Ornella. *The Science of Woman: Gynaecology and Gender in England, 1800-1929*. Cambridge: Cambridge University Press, 1990. Print.
- Mussell, James. "'This Is Ours and for Us': The *Mechanic's Magazine* and Low Scientific Culture in Regency London." *Repositioning Victorian Sciences: Shifting Centres in Nineteenth-Century Thinking*. Eds. Clifford, David, et al. London: Anthem Press, 2006. 107-118. Print.
- Myers, Greg. "Science for Women and Children: The Dialogue of Popular Science in the Nineteenth Century." *Nature Transfigured: Science and Literature, 1700-1900* Eds. John Christie and Sally Shuttleworth. Manchester: Manchester University Press, 1989. 171-200. Print.
- O'Connor, Erin. *Raw Material: Producing Pathology in Victorian Culture*. Durham and London: Duke University Press, 2000. Print.
- O'Connor, Ralph. "Reflections on Popular Science in Britain: Genres, Categories, and Historians." *Isis* 100.2 (2009): 333-45. *JSTOR*. Web. 7 Nov. 2011.
- Oppenheim, Janet. *The Other World: Spiritualism and Psychical Research in England, 1850-1914*. Cambridge: Cambridge University Press, 1988. Print.
- Parssinen, Terry M. "Mesmeric Performers." *Victorian Studies* 21.1 (1977): 87-104. *JSTOR*. Web. 28 July 2014.

- Patton, Cynthia Ellen. "'Not a Limitless Possession': Health Advice and Readers' Agency in the *Girl's Own Paper*, 1880-1890." *Victorian Periodicals Review* 45.2 (2012): 111-33. *JSTOR*. Web. 2 Mar. 2012.
- Peterson, M. Jeanne. "Dr. Acton's Enemy: Medicine, Sex, and Society in Victorian England." *Victorian Studies* 29.4 (1986): 569-90. *JSTOR*. Web. 13 Mar. 2012.
- . *The Medical Profession in Mid-Victorian London*. Berkeley: University of California Press, 1978. Print.
- Phegley, Jennifer. *Educating the Proper Woman Reader: Victorian Family Literary Magazines and the Cultural Health of the Nation*. Columbus: Ohio State University Press, 2004. Print.
- Podmore, Frank. *Mesmerism and Christian Science: A Short History of Mental Healing*. 1909. Web. 1 Aug. 2014.
- Poovey, Mary. *Uneven Developments: The Ideological Work of Gender in Mid-Victorian England*. University of Chicago Press, 1988. Print.
- Porter, Roy. *Quacks: Fakers and Charlatans in English Medicine*. Stroud: Tempus, 2001. Print.
- Porter, Roy, and Lesley Hall. *The Facts of Life: The Creation of Sexual Knowledge in Britain, 1650-1950*. New Haven: Yale University Press, 1995. Print.
- Powell, Sally. "Black Markets and Cadaverous Pies: The Corpse, Urban Trade and Industrial Consumption in the Penny Blood." *Victorian Crime, Madness and Sensation*. Eds. Andrew Maunder and Grace Moore. London: Ashgate, 2004. 45-58. Print.
- Pykett, Lyn. "Reading the Periodical Press: Text and Context." *Investigating Victorian Journalism*. Eds. Laurel Brake, Aled Jones, and Lionel Madden. Basingstoke: Macmillan, 1990. 3-18. Print.
- Rauch, Alan. *Useful Knowledge: The Victorians, Morality and the March of the Intellect*. Durham and London: Duke University Press, 2001. Print.
- Richardson, Angelique. *Love and Eugenics in the Late Nineteenth Century: Rational Reproduction and the New Woman*. Oxford: Oxford University Press, 2003. Print.
- Richardson, Ruth. "A Potted History of Specimen-Taking." *The Lancet*. 355.9207 (2000): 935-36. *ScienceDirect*. Web. 19 Nov. 2013.
- . *Death, Dissection and the Destitute*. London: Penguin, 1989. Print.

- Rodrick, Anne Baltz. "The Importance of Being an Earnest Improver: Class, Caste and Self-Help in Mid-Victorian England." *Victorian Literature and Culture*. 29.1 (2001): 39-50. *JSTOR*. Web. 19 Dec. 2012.
- Rose, Jonathan. *The Intellectual Life of the British Working Classes*. New Haven and London: Yale University Press, 2001. Print.
- . "Workers' Journals." *Victorian Periodicals and Victorian Society*. Eds. J. Don Vann and Rosemary T. VanArdsel. Aldershot: Scolar Press, 1994. 301-10. Print.
- Rosner, Lisa. *The Anatomy Murders: Being the True and Spectacular History of Edinburgh's Notorious Burke and Hare and of the Man of Science Who Abetted Them in the Commission of Their Most Heinous Crimes*. Philadelphia: University of Pennsylvania Press, 2010. Print.
- Ross, Sidney. "'Scientist': The Story of a Word." *Annals of Science* 18.2 (1962): 62-85. Print.
- Russell, Colin. *Science and Social Change 1700-1900*. London: Macmillan, 1983. Print.
- Russett, Cynthia Eagle. *Sexual Science: The Victorian Construction of Womanhood*. Cambridge, Mass.: Harvard University Press, 1989. Print.
- Ruth, Jennifer. "'Gross Humbug' or 'the Language of Truth'? The Case of the Zoist." *Victorian Periodicals Review* 32.4 (1999): 299-32. *JSTOR*. Web. 31 July 2014.
- Schiebinger, Londa. *Nature's Body: Gender in the Making of Modern Science*. 2nd ed. New Brunswick: Rutgers, 2004. Print.
- Scholnick, Robert J. "'The Fiery Cross of Knowledge': 'Chambers's Edinburgh Journal,' 1832-1844." *Victorian Periodicals Review* 32.4 (1999): 324-58. *JSTOR*. Web. 6 Nov. 2011.
- Schwarzbach, F. S. "'Sure There's Nothing So Easy as Learning to Love': Recent Studies in Victorian Sexuality." *Nineteenth-Century Contexts: An Interdisciplinary Journal*. 21.2 (1999): 313-27. Web. 28 May 2013.
- Schwartz, Joel S. "Robert Chambers and Thomas Henry Huxley, Science Correspondents: The Popularization and Dissemination of Nineteenth Century Natural Science." *Journal of the History of Biology* 32.2 (1999): 343-83. *JSTOR*. Web. 25 Mar. 2015.

- Secord, Anne. "Science in the Pub: Artisan Botanists in Early Nineteenth-Century Lancashire." *History of Science* 32.3 (1994): 269-315. Web. 25 Oct. 2014.
- Secord, James. "Behind the Veil: Robert Chambers and *Vestiges*." *History, Humanity and Evolution: Essays for John C. Greene*. Ed. James R. Moore. Cambridge: Cambridge University Press, 1989. 165-94. Print.
- . "Knowledge in Transit." *Isis*. 95.4 (2004): 654-72. *JSTOR*. Web. 25 Feb. 2015.
- . *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*. Chicago: University of Chicago Press, 2001. Print.
- . *Visions of Science: Books and Readers at the Dawn of the Victorian Age*. 2014. Web. 4 Dec. 2014.
- Shapin, Steven, and Barry Barnes. "Science, Nature and Control: Interpreting Mechanics' Institutes." *Social Studies of Science* 7.1 (1977): 31-74. *JSTOR*. Web. 14 Dec. 2011.
- Shattock, Joanne, and Michael Wolff. "Introduction." *The Victorian Periodical Press: Samplings and Soundings*. Eds. Shattock and Wolff. Leicester: Leicester University Press, 1982. xiii-xix. Print.
- Sheets-Pyenson, Susan. "Popular Scientific Periodicals in Paris and London: The Emergence of a Low Scientific Culture, 1820-1875." *Annals of Science* 42 (1985): 549-72. Web. 10 Feb. 2012.
- Showalter, Elaine. *The Female Malady: Women, Madness and English Culture, 1830-1980*. London: Virago, 1987. Print.
- Shteir, Ann B. "Sensitive, Bashful and Chaste? Articulating the Mimosa in Science." *Science in the Marketplace: Nineteenth-Century Sites and Experiences*. Eds. Aileen Fyfe and Bernard Lightman. Chicago: University of Chicago Press, 2007. 169-95. Print.
- Shuttleworth, Sally. *Charlotte Brontë and Victorian Psychology*. Cambridge: Cambridge University Press, 1996. Print.
- . *George Eliot and Nineteenth-Century Science: The Make-Believe of a Beginning*. Cambridge: Cambridge University Press, 1984. Print.
- Shuttleworth, Sally, and Geoffrey Cantor, eds. *Science Serialized: Representations of the Sciences in Nineteenth-Century Periodicals*. Cambridge, Mass: MIT Press, 2004. Print.

- Slater, Michael. *Charles Dickens*. New Haven: Yale University Press, 2009. Print.
- Smith, F. B. *The People's Health 1830-1910*. London: Weidenfeld and Nicolson, 1990. Print.
- Smith, W. Anderson. *'Shepherd' Smith, the Universalist: The Story of a Mind; Being a Life of the Rev. James E. Smith, M. A.* London: Sampson Low, Marston and Company, 1892. Print.
- Taylor, Barbara. *Eve and the New Jerusalem: Socialism and Feminism in the Nineteenth Century*. Cambridge, Mass.: Harvard University Press, 1993. Print.
- Taylor, Jenny Bourne. *In the Secret Theatre of Home: Wilkie Collins, Sensation Narrative, and Nineteenth-Century Psychology*. London: Routledge, 1988. Print.
- Taylor, Jenny Bourne, and Sally Shuttleworth. *Embodied Selves: An Anthology of Psychological Texts*. Oxford: Clarendon Press, 2003. Print.
- Topham, Jonathan R. "Beyond the 'Common Context': The Production and Reading of the Bridgewater Treatises." *Isis* 89.2 (1998): 233-62. *JSTOR*. Web. 7 Mar. 2012.
- . "Introduction. Focus: Historicizing 'Popular Science'." *Isis*. 100.2 (2009): 310-18. *JSTOR*. Web. 25 Feb. 2015.
- . "Rethinking the History of Science Popularization/Popular Science." *Popularizing Science and Technology in the European Periphery, 1800-2000*. Eds. Faidra Papanelopoulou, Agustí Nieto-Galan, and Enrique Perdiguero. Farnham: Ashgate, 2009. 1-20. Print.
- . "Scientific Publishing and the Reading of Science in Nineteenth-Century Britain: A Historiographical Survey and Guide to Sources." *Studies in History and Philosophy of Science* 31.4 (2000): 559-612. Web. 11 Dec. 2014.
- Turner, Frank M. "Practicing Science: An Introduction." *Victorian Science in Context*. Ed. Bernard Lightman. Chicago: Chicago University Press, 1997. 283-89. Print.
- Vincent, David. *Literacy and Popular Culture: England 1750-1914*. Cambridge: Cambridge University Press, 1989. Print.

- White, Paul. "Cross-Cultural Encounters: The Co-Production of Science and Literature in Mid-Victorian Periodicals." *Transactions and Encounters: Science and Culture in the Nineteenth Century*. Eds. Roger Luckhurst and Josephine McDonagh. Manchester: Manchester University Press, 2002. 75-95. Print.
- Whitley, Richard. "Knowledge Producers and Knowledge Acquirers: Popularisation as a Relation between Scientific Fields and Their Publics." *Expository Science: Forms and Functions of Popularisation*. Eds. Terry Shinn and Whitley. Dordrecht: D. Reidel Publishing Company, 1985. 3-28. Print.
- Willis, Martin. "George Eliot's *The Lifted Veil* and the Cultural Politics of Clairvoyance." *Victorian Literary Mesmerism*. Eds. Willis and Catherine Wynne. Amsterdam - New York: Rodopi, 2006. 145-62. Print.
- . *Mesmerists, Monsters, and Machines: Science Fiction and the Cultures of Science in the Nineteenth Century*. Kent, Ohio: Kent State University Press, 2006. Print.
- Winter, Alison. "Mesmerism and Popular Culture in Early Victorian England." *History of Science* 32.3 (1994): 317-42. Web. 24 Nov. 2011.
- . *Mesmerized: Powers of Mind in Victorian Britain*. Chicago: University of Chicago Press, 1998. Print.
- Wohl, Anthony S. *Endangered Lives: Public Health in Victorian Britain*. London: J. M. Dent and Sons, 1983. Print.
- Wolff, Michael, John S. North, and Dorothy Deering. *The Waterloo Dictionary of Victorian Periodicals: 1824 – 1900 (Phase I)*. Waterloo, Ontario: Wilfrid Laurier University Press, 1976. Print.
- Wolff, Robert Lee. *Strange Stories: Explorations in Victorian Fiction*. Boston: Gambit, 1971. Print.
- Yeo, Richard. "Science and Intellectual Authority in Mid-Nineteenth-Century Britain: Robert Chambers and *Vestiges of the Natural History of Creation*." *Victorian Studies* 28.1 (1984): 5-31. JSTOR. Web. 6 Dec. 2011.
- Young, Robert M. "Natural Theology, Victorian Periodicals and the Fragmentation of a Common Culture." *Darwin's Metaphor: Nature's Place in Victorian Culture*. Ed. Young. Cambridge: Cambridge University Press, 1985. 126-63. Print.