

INTRODUCTION: VICTORIAN LITERATURE AND SCIENCE

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On 5 April 2010 the *New York Times* sponsored a debate in its online pages: 'Can "Neuro Lit Crit" Save the Humanities?'.¹ The question rose from an earlier article in the same paper on the 'Next Big Thing in English' (31 March 2010), outlining work by (among others) Professor Linda Zunshine (University of Kentucky) which merges eighteenth-century literary studies and evolutionary psychology, referencing Professor Elaine Scarry's seminars on 'Cognitive Psychology and the Arts' at Harvard, and highlighting a project at Yale led by Emeritus Professor Michael Holquist which uses MRI scans to explore the mental functioning involved in reading complex texts. Behind these projects, it was claimed, there was recognition that

science not only offers unexpected insights into individual texts, but that it may help to answer fundamental questions about literature's very existence: Why do we read fiction? Why do we care so passionately about nonexistent characters? What underlying mental processes are activated when we read?²

Science, apparently, could also 'prove' the advantages for cognitive development of reading literature (part of its 'saving' function; it makes literary study 'relevant' to mental health) and there followed the startling suggestion that literary history might make manifest psychological evolution in humans.

Naturally the framing of the article and subsequent question for debate prompted critical responses, but also a stimulating defence from Professor Holquist, asserting literary-scientific research looks 'beyond our balkanized academic departments':

This is an exhilarating way of conceiving our subject. It connects us to our past in philology, and leads to a future enabled by recent breakthroughs in digitization and brain science. While we make the

¹Room for Debate: Can "Neuro Lit Crit" Save the Humanities?', *New York Times* blog, 5 April 2010, <http://roomfordebate.blogs.nytimes.com/2010/04/05/can-neuro-lit-crit-save-the-humanities/?pagemode=print&scp=4&sq=literature%20and%20science&st=cse>, accessed 28 April 2010.

² Patricia Cohen, 'Next Big Thing in English: Knowing They Know That You Know', *New York Times*, 31 March 2010, <http://www.nytimes.com/2010/04/01/books/01lit.html>, accessed 28 April 2010.

traditional assumption that language is thought, in light of exciting new discoveries, we are now able to see more clearly the seminal importance of the activities of reading and writing for thought in general. Complexity in literacy provides cognitive value added. Understanding the truth of this better is not just another 'next big thing'. Unlike some of the more inaccessible theories that have swept through the Humanities, this focus on trying better to grasp what it is that we do when we read works having advanced levels of intricacy is the kind of study that reaches out to a wider community. It is an intellectual goal that has real life implications for the future of our society as a whole.

There are three points in this statement I would like to explore by way of introducing this collection of essays on 'Victorian Literature and Science': the apparent connection between past and present approaches to literature enabled by contemporary literary-science; the contrast between literary-science and literary theory in terms of accessibility; and the assertion of literary-scientific criticism's relevance to a 'wider community' ('real life implications for the future of our society as a whole').

Indeed, it seems to me research in Victorian literature and science counteracts somewhat reactionary assertions about contemporary literary science in three important ways. Firstly, it reminds us that we have been here before: the Victorians also posed 'fundamental questions about literature's very existence' using scientific methods. Nicholas Dames, for example, in *The Physiology of the Novel: reading, neural science, and the form of Victorian fiction* (2007), discusses the impact of the Victorian physiology of the senses on the work of a 'coterie' of Victorian literary critics who interested themselves in the specificities of how reading affected the body, and how literary art might make use of scientific knowledge better to manipulate or even to discipline corporeal response as it unfolds in response to the stimulations of text.³ 'Neuro lit crit', then, is not so much new as a revival that warrants attention to its Victorian precedent.

Secondly, moreover, here is a precedent which did not shy away from contemporary theories, even where they opposed its principles. This contrasts the paradigm operating in the statement above which suggests present-day literary-scientific research enables a recovery of previously defunct philological and formalist

³ Nicholas Dames, *The Physiology of the Novel: Reading, Neural Science, and the Form of Victorian Fiction* (Oxford: Oxford University Press, 2007). The 'coterie' include 'G. H. Lewes, Alexander Bain, E. S. Dallas, Geraldine Jewsbury, and Vernon Lee'. Dames, *Physiology*, p.2. Dames describes these as 'physiological novel theorists' whose critical tradition rose in the 1850s and 1860s but yielded by the mid to late 1890s to post-Jamesian formalism. Dames, *Physiology*, pp.39-40. Dames also explores the application of these 'theories' in the work of his focus authors (William Thackeray, George Eliot, George Meredith and George Gissing), literary 'examples of self-conscious response to physiological novel theory's areas of concern'. Dames, *Physiology*, p.13 (original emphasis).

approaches to literary studies by recognizing them as precursors, precursors that unfortunately failed for want of true interdisciplinarity and the latest brain scanning equipment. The implication is, what is more, that this failure (i) allowed literary theory to usurp 'scientific' approaches to literature, leading to a dark age of inaccessibility, and (ii) that by engaging with the more technologically advanced science of today, we can take up again where the precursors left off. In other words 'neuro lit crit' spans—and enables us to overlook—the theory wars.

This Renaissance paradigm is belied by the innovative, not reactionary, stance of literary science's Victorian precedent. The Victorians' was not a bridge between a supposedly 'progressive' scientific present and a defunct religio-humanist past but one that understood the entanglement *per se* of contemporary scientific and religio-literary 'theories' to express modernity. For nineteenth-century 'scientists' were, for the most part, raised in faith, and were deeply aware of church doctrine, not least because of contemporary (highly 'relevant') controversies about dissenting and Tractarian beliefs and practices. They were cognisant of discursive 'theories' from both science and religion. Indeed literary *and* scientific writers *and* readers shared, before the nineteenth century, the same principles with which both also struggled during it. The sharing can be illuminated by Holquist's useful observation that 'Reading and writing is [sic] to humanists what nature is to physicists'.⁴ Prior to the materialist challenge to Christian belief, reading the human word grew out of interpretation of God's, and aspired to—if it necessarily failed to accomplish—the communion offered by divining The Word. Correspondingly, the study of nature was the elucidation of God's works. To take only one example (expediently because I know it), Bernardin de Saint-Pierre's *Études de la nature* (1784-88)—acclaimed if outdated even on release—had asserted closely observed moments of 'harmony' in nature (where opposites were resolved, such as in gentle breezes) were moments when the perfection of Eden re-emerged, and whereby those with sensibility might find themselves in communion with God. A similar principle, more rationally described, later underpinned nineteenth-century natural theology (as discussed by Kate Holterhoff in this collection). Phenomena in the book, and in the book of nature, therefore pointed readers backwards to Creation, forwards to the Kingdom of God, and, in the present, always already upwards. When the function of indicating the divine in reading nature and the book was removed, a crisis ensued for both Victorian literature and science.

And yet literary theory represents literary studies' own continued grappling with the implications of materialism: how does literature 'work' without a God? What is the point of such work? If it is an arbitrary social construct, how precisely are its hierarchies upheld? Why have they endured? To remove such questions, and the work of those that attempted to answer them, from the story of literature's and science's re-

4 'Can "Neuro Lit Crit" Save the Humanities?'

convergence, is to disregard what literary scholarship has discovered in the time of its apparent separation, to make this new body of knowledge irrelevant to the 'next big thing'—science—which, it seems, alone can make literary studies relevant by demonstrating the reading of literature's 'real life implications for the future of our society as a whole'. Society as a whole, then, seems to have replaced God as that which the study of literature must answer to; and science alone can lend it 'impact' there. Yet it is precisely by overlooking twentieth-century literary theory that we both forego those insights into the paradoxes of making meaning that illuminate the social and historic contingency of scientific writing, and give up those aspects of literary studies that chime with the counterintuitive concepts underpinning contemporary physics: by overlooking theory we give up the key (and undoubtedly difficult, 'inaccessible') principles that the disciplines continued to share while divorced. No wonder, in this view, literary studies looks like a lame duck rather than a conversant on equal footing with science. The Victorians never saw it that way.

In fact, last year's bicentenary of the birth of Charles Darwin (and sesquicentenary of the publication of *On the Origin of Species by Means of Natural Selection*) reminded us that science's struggle with Creationism is still with us. One does not even have to be embroiled in religious argument for 'Victorian' debates to seem relevant: a sense that nature represents 'vestiges of creation' underpins some branches of environmentalism. But the difference between twenty-first- and nineteenth-century controversies about Darwin's theory is that neither the complexity of the scientific case for evolution nor of various Christian approaches to the origins of species are as well known. Victorian literary studies can articulate that distinction and go some way to explaining the persistence of anti-evolutionary thinking. Thirdly, then, research in Victorian literature and science reminds us of what precisely is at issue in the entanglement of disciplines, and thereby enables us confidently (like the Victorians) to assert—rather than distractedly to try 'proving'—the absolute relevance of the (in truth, never-ending) dialogue between literary studies (including theory) and science.

The literary critical engagement with Victorian scientific writing has become familiar practice in Victorian studies at least since Gillian Beer's seminal work *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction* (1983). Its relevance to my own research came much later. I must admit to being surprised to have found myself in 2007 ensconced in London's Wellcome Library reading Hermann von Helmholtz's *Handbook of Physiological Optics* (1856, 1860, 1866), an endpoint for a research trajectory that had taken me from Australian colonial literary culture, through British representations of the Australasian colonies to Victorian visual science and the late nineteenth-century science of reading. As well as Victorian literary studies' engagement with Victorian psychology (pioneered by the work of Jenny Bourne Taylor), the already well populated field of studies in Victorian visuality also proved increasingly relevant to

my work. From that personal odyssey it is tempting to acknowledge a general trend. Self-centred though that may be, again it would be a mistake, nonetheless, to figure the scientific turn in Victorian studies as a turning away from theory. If anything it is literary theory that has enabled such an engagement with a broader range of contexts.

What pleases me about the present collection is that outstanding postgraduate research now begins with self-evident familiarity with Victorian scientific principles and their relevance to literary history, as well as grounding in what theory has taught us over the last half century. The work in this collection assumes that melding of primary research in Victorian science and the theoretically informed perspectives of twenty-first century literary studies. What excites me is that such a foundation sets the scene for an admittedly more challenging engagement with the work of Victorian science's descendants: today's biologists, neuroscientists, geneticists and others. Our challenge in Victorian Studies, then, is to take our cognisance of literary theory and relatively new interest in historic science as we train ourselves to speak the technical language of contemporary science, to help make our research relevant to scientists who are quite a worthy enough component of that 'whole society' to warrant the attention.

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Darwin is a natural focal point for any present-day literary engagement with Victorian science. But in the mêlée of his 200th anniversary, one of his key works, *The Descent of Man*, has been neglected, not least for the moral discomfort it brings modern readers: if postcolonialism provides insight here it also demands we confront the fact that Darwin the future's hero was also a man of his time. Kate Holterhoff in this collection goes some way towards righting the balance, with an insightful discussion of the meaning of 'beauty' in Darwin's 1871 work, while highlighting the difficult intersection of Darwin's use of the term and cultural assumptions about gender and race underpinning his work. Meanwhile, bringing museology to bear upon the work of Darwin and Ralph Waldo Emerson, Lauren F. Klein reveals some of the principles of inquiry shared by these otherwise divergent writers. If Darwin's sheer literariness makes him as attractive a scientist to literary scholars of the nineteenth century as Freud is to critics of later periods, Lewis Carroll must be the nineteenth century's most beloved writer of literature for scientists of many domains. The temptation for mathematicians, logicians, physicists and other scientists to play in *Wonderland* and *Through the Looking Glass*, rendered almost irresistible by Martin Gardner's *The Annotated Alice* (1960), is renewed by Joanna Shawn Brigid O'Leary's enticing revelations about Carroll's awareness of, and toying with, the discoveries of Victorian chemistry. These illuminate, at the same time as they are conditioned by, the variegated commentary on reflection she explores in Carroll's Looking-glass world. From chemistry to geology, E. E. Snyder outlines the impact for Tennyson of that field which first challenged Creationism in an article which also elucidates different

interpretations within geological discourse of how present formations came to be as they are. Kanarakis Yannis confirms the pervasiveness of science's influence in the nineteenth century by articulating Walter Pater's debts to its rhetoric: even the aesthete would figure himself a scientist.

It has been an honour to be tangentially involved with the editing of this collection. Allow me to end by thanking the hard-working editorial team—Katharina Boehm, Sarah Crofton, Rosalyn Gregory, Tammy Ho Lai-Ming, Ceri Hunter, Matt Kerr and William Tattersdill—for their handling of that delicate and time-consuming process. Broad though 'Victorian Literature and Science' as a theme appears, it is a title that belies both the true range and the multivocal nature of the work represented here.