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About the JLS

The Journal of Literature and Science (JLS) is a peer-reviewed academic journal published twice yearly (in summer and winter). It is hosted by the Research Centre for Literature, Arts and Science at the University of Glamorgan. Each issue appears online only and is free to access. Each individual essay within an issue is made available in PDF format for download.

The journal is dedicated to the publication of academic essays on the subject of literature and science, broadly defined. Essays on the major forms of literary and artistic endeavour are welcome (the novel, short fiction, poetry, drama, periodical literature, visual art, sculpture, radio, film and television). The journal encourages submissions from all periods of literary and artistic history since the Scientific Revolution; from the Renaissance to the present day. The journal also encourages a broad definition of 'science': encapsulating both the history and philosophy of science and those sciences regarded as either mainstream or marginal within their own, or our, historical moment. However, the journal does not generally publish work on the social sciences. Within these confines, essays submitted to the journal may focus on the literary and scientific productions of any nation or group.

All essays should be interdisciplinary in focus, offering an original view of both the literary or artistic subject matter and the science or sciences under consideration. While essays on individual examples of literary and artistic production are welcomed, these should also seek to show the wider significance of their analyses and interpretations. The journal does not publish essays focused exclusively on literature or art, or exclusively on the history and philosophy of science.

Submission and Citation Information

The JLS invites essays in English of 6000-8000 words in length. Contributors are encouraged to contact the Editor prior to submission, including an abstract of the proposed essay. All manuscripts should be submitted electronically to the Editor-in-Chief, Martin Willis, at mwillis@glam.ac.uk. Manuscripts should be double spaced in 12 point Times New Roman font. Any illustrations should be submitted separately and their placement within the essay clearly indicated. The style of the essay should follow the MLA guidelines.

The JLS sends out all manuscripts for peer review anonymously and all Readers' Reports are returned anonymously. The editors aim to return Readers' Reports to authors within 3 months of submission and, wherever possible, to publish all accepted essays within 12 months of first submission.

Citing the JLS: the journal's full title is the Journal for Literature and Science, and its first issue was 1.1 (Winter 2007). It publishes 2 issues a year. All page numbers to individual essays can be found when accessing the PDF file of that essay. The journal's ISSN is 1754-646X.

Editorial Board

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Editorial, by Martin Willis

Welcome to the inaugural issue of the *Journal of Literature and Science*. *JLS* was founded in 2006 at the same time as the University of Glamorgan's Research Centre for Literature, Arts and Science, which acts as its host, and provides its editorial and publishing expertise. The journal's first, and present, Editor-in-Chief is Martin Willis, and its three editors, Rachel Hewitt, Andrew Smith and Jeff Wallace. The *JLS* also has an extensive Advisory Board that includes active scholars of literature and science from around the world.

This first issue of the journal is dedicated to the broad theme of 'Pathologies', and comes out of the Glamorgan Research Centre for Literature, Arts and Science inaugural international conference, held in August 2007. The four articles that follow this editorial began as presentations at that conference. They examine the theme of pathologies in diverse ways, and across broad periods of literary and scientific history. Rachel Hewitt's opening article on Wordsworth and the Ordnance Survey deals with romantic poetics and philosophy as they respond to, and rearticulate, a vital moment in the history of cartographic and geographic science, the mapping of the United Kingdom by the newly-created Ordnance Survey in the first years of the nineteenth century. Hewitt interrogates the pathology of vision through a consideration of ways of seeing landscapes, maps, and their politics. Jennifer Lokash situates her own analysis of pathology within the same literary period as Hewitt; her focus on Byron's fears for his failing health and vigour investigates later romantic pathologies of the body. Making an analogy between the form of Byron's verse and the degenerate and mutative forms of his body, Lokash investigates the influence of the aberrant physical body, and the varied medicinal practices employed to constrain this aberrance, on literary output.

Justin Sausman's article deals with the later periods of the fin-de-siècle and early modernism, but he, like Lokash, is interested in degeneration. Focussing on the fiction of Aleister Crowley, Sausman argues that Crowley's occult philosophy combined scientific investigations of psychical research with biological theories of degeneration that had become prominent in the final decades of the nineteenth century. Sausman reveals how, in Crowley's 1920s novel, these tropes are combined within the nexus of the human body and its response to chemical stimulants. Finally, Alistair Brown's article considers the work of contemporary novelist A.S. Byatt within the contexts of the two cultures debates and the science wars of the 1990s. Looking in detail at Byatt's 2002 novel *A Whistling Woman*, Brown regards her analysis of consciousness as contributing a late twentieth century perspective on dualism, as well as on the conceptual complexities of writing prose (whether fictional or scientific) that deals with embodiedness as well as the disembodied.

A new, and hopefully innovative, section of the journal follows the four articles. The Article Reviews (of which there are four in this first issue) are reviews of journal articles published within the last calendar year. It was the opinion of the *JLS*'s editors that book reviews were already published by many of the academic journals who might be expected to give space to new works in literature and science, and that the *Journal of Literature and Science* might therefore offer something different yet complementary. It is therefore *JLS* policy to review articles on literature and science, or relevant articles in other fields, published in academic journals within the twelve month period preceding the publication of any issue. Academic journal articles are central to the dissemination of research in literature and science and very often offer the very best examples of the work of individual scholars, or the field of scholarship as a whole. It is to be hoped, therefore, that the article reviews here in the *JLS* will, over time, build an archive of discussion and comment on the most interesting and provocative journal articles within the field of literature and science. This archive opens with this issue's reviews of articles by Christine Ferguson in the *Journal of Victorian Culture*, Joan Roughgarden in *Daedalus*, Lepicard in *Medical History*, and Harrington in the *International Journal of Cultural Studies*.

In conclusion, I hope you find this first issue of the *Journal of Literature and Science* a profitable read. The editorial team would welcome any comments and suggestions and would encourage the submission of articles and article reviews for consideration for publication in future *JLS* issues.

‘Eyes to the Blind’: Telescopes, Theodolites and Failing Vision in William Wordsworth’s Landscape Poetry

Rachel Hewitt

In 1811, during or shortly after a holiday in the south Cumberland village of Bootle, William Wordsworth drafted a poem about the mountain of Black Combe, which loomed over the village. The inscription ‘Written with a Slate Pencil on a Stone, on the Side of the Mountain of Black Combe’ posed as a carving on a rock, on the side of the mountain. It addressed passing climbers, and reminded them of a “geographic Labourer”, a mapmaker, who had ascended to the summit before them. Upon pulling out his map and his topographic sketch-pad at the top of the mountain, darkness fell, and:

The whole surface of the out-spread map,
Became invisible: for all around
Had darkness fallen – unthreatened, unproclaimed -
As if the golden day itself had been
Extinguished in a moment; total gloom,
In which he sat alone, with unclosed eyes,
Upon the blinded mountain’s silent top!¹

I, Michael Wiley, John Wyatt, and Ron Broglio have all previously placed Wordsworth’s Black Combe Inscription against the background of the Ordnance Survey’s project to create the first complete, accurate map of the United Kingdom. We have independently suggested that this “geographic Labourer” was based upon the figure of William Mudge, who was the director of the Ordnance Survey mapping project between its inception in 1791 and his death in 1818.² Wordsworth referred to Mudge by name in his *Guide to the Lakes* as “that experienced surveyor”, and in the unpublished *Tour* as “the best authority” on Lake District geography.³

There is much evidence that the cartographer of Wordsworth’s inscription was based upon William Mudge. Three years prior to Wordsworth’s visit to Bootle, a team of Ordnance surveyors led by Mudge had triangulated their way to Black Combe, via

¹ William Wordsworth, ‘Inscription: Written with a Slate Pencil on a Stone, on the Side of the Mountain of Black Comb’, in *Poems by William Wordsworth*. London: Longman, Hurst et al, 1815, II, 285-6.

² Rachel Hewitt, “*Dreaming o’er the Map of Things*”: *The Ordnance Survey and Literature of the British Isles, 1847-1842*. Unpublished doctoral thesis, University of London, 2007; Michael Wiley, *Romantic Geography: Wordsworth and Anglo-European Spaces*. Basingstoke and London: Macmillan, 1998, 1-17; 143-176; John Wyatt, “Wordsworth’s Black Combe Poems: The Pastoral and the Geographer’s Eye”. *Signatures*, 3 (2001): 1-20; Ron Broglio, “Mapping British Earth and Sky”, *Wordsworth Circle*. 33 (2002): 70-77.

³ Wordsworth, *Guide to the Lakes: Fifth Edition (1835)*, ed. Ernest de Sélincourt. Oxford: Oxford University Press, 1977, 8; Wordsworth, *A Guide through the District of the Lakes*: Appendix II: [An Unpublished Tour], in *The Prose Works of William Wordsworth*, ed. W.J.B. Owen and J.W. Smyser. Oxford: Clarendon, 1974, II: 287-348 (302).

Ingleborough and The Calf, peaks in the westerly Yorkshire Dales.⁴ The surveyors lodged in Bootle and the Fenwick note to the Black Combe inscription explained that the Rev. Dr. James Satterthwaite, the incumbent of the Bootle parish, "had the particulars" about the Ordnance Survey's project "from one of the engineers who was employed in making trigonometrical surveys of the region".⁵ Wordsworth and Satterthwaite met during the Bootle holiday in 1811 and, Wyatt suggests, the latter was likely to have been Wordsworth's source of contextual information for the Black Combe inscription.⁶ Wordsworth may also have gleaned information about the Ordnance surveyors who had climbed the peak three years earlier from their own published *Account* of the project, the third volume of which was published in the year Wordsworth visited Bootle.

This article will explore the blinding of the surveyor at the end of Wordsworth's Black Combe inscription in relation to the cartographic context described in the previous paragraph. In his inscription Wordsworth pathologised visual practice. He inverted the wide-ranging, comprehensive vision – which was described in the *Guide to the Lakes* as the ability to understand a "sublime and beautiful region, with all its hidden treasures and their bearings and relations to each other [...] at once", and which, in the Black Combe inscription, initially granted the surveyor a "grand terraqueous spectacle, / From centre to circumference, unveiled!" – into its apparent opposite, blindness.⁷ But, rather than diminishing the surveyor's capabilities, this article will explore how the pathological condition of blindness functioned for Wordsworth as a mark of the surveyor's distinction and privilege, his nationalist importance, and his aptness for political commentary.

The article's first section, 'Specialisation', will describe the early history of the Ordnance Survey's project to map the British Isles, before associating the geographic labourer's blindness with his reliance on his 'instruments of art | To measure height and distance', his telescope, theodolite, measuring chains and compass. The use of such instruments reflected how the Ordnance Survey was part of a specialisation of the act of landscape observation over the eighteenth and nineteenth centuries, and the construction of 'proper' vision as a sophisticated minority skill available to the privileged few. In this equation, blindness functioned as a paradigm for all unaided, failing human eyesight.

Blindness might also represent the opposite, however. Rather than signifying failed eyesight, blindness necessitates a retreat into the imagination and induces the emergence of 'insight', a form of vision that radically transcends the human faculty of sight into a quasi-divine equivalent. Section two, 'Magnification', will explore the shortcomings of telescopes and theodolites, and the fragmentary effect such telescopic vision could own. A retreat into the imagination was necessary to unify the discrete magnified scenes viewed through the telescope into a coherent, unified panorama.

'Unification', the article's third section, will describe the political applications and nationalist resonances of a theory of vision – or a theory of blindness – that was specifically designed to reveal such unity in diversity. The blind surveyor became a model of a political commentator. The article's final section, 'Abstraction', will

⁴ William Mudge and Thomas Colby, *An Account of the Trigonometrical Survey, Carried on by Order of the Master-General of His Majesty's Ordnance, in the Years 1800, 1801, 1803, 1804, 1805, 1806, 1807, 1808 and 1809*. London: W. Bulmer, 1811, 50-51.

⁵ J. Curtis ed., *The Fenwick Notes of William Wordsworth*. London: Classical Press, 1993, 29.

⁶ Wyatt, 5.

⁷ Wordsworth, *Guide*. 21; 'Inscription'. 285.

explore this construction of the surveyor-politician by considering the relationship between blindness and a physical abstraction from society, before finally considering how Wordsworth considered the very idea of abstraction to be inherently contained within the science of surveying. The surveyor's blindness in the Black Combe inscription, then, functioned in a far more complex manner than as it might first have appeared, as a simple encapsulation of the failure of cartographical science in the face of nature's enormity.

Specialisation

The Ordnance Survey was officially founded as a branch of the army's Board of Ordnance on 10 July 1791. The military threat posed by Revolutionary France in the early 1790s, and the very real menace of an invasion of England, necessitated the deployment of troops along England's south coast. Military strategy required an accurate map, and current maps were, in the words of the Ordnance Survey's founder, "extremely defective with respect to the topographical representation of the ground."⁸ The Ordnance Survey was commissioned to rectify the situation, and it began triangulating and mapping the United Kingdom from the south coast upwards. The first map, of Kent, was published on 1 Jan 1801, and individual map-sheets were made available for public purchase from 18 April 1805 onwards.

The Ordnance Survey was important because it was the first complete, accurate map of the United Kingdom. Its founders' emphasis on accuracy was unprecedented. The Ordnance Survey evolved out of a Military Survey of Scotland, conducted in the wake of the 1745 Jacobite Rebellion. The Military Survey's directors had emphasised that Hanoverian military success entirely depended on "a just and thorough knowledge" of the Highlands, and that "the greatest care and exactness should be observed in Examining minutely the Face of that Country".⁹ However, largely due to uncodified surveying methodology, variable instruments, and the liberties taken by the map's draughtsman, the Military Survey ultimately produced a map that was more "a magnificent military sketch, than a very accurate map of a country", in the words of its co-director William Roy.¹⁰

The Ordnance Survey sought to address the weaknesses of British cartography, and to materialise the aspirations to extreme accuracy that the Military Survey's directors had articulated. It instigated a comprehensive triangulation of the British Isles as an accurate backbone for the final detailed maps. A triangulation, or trigonometrical survey, is a network of measurements between the summits of mountains with good visibility, known as 'Trigonometrical Survey points', or 'trig points' for short. The surveyors' purpose was to select three such summits at a time, to form the three corners of a triangle. Each peak must be visible from the other two through a theodolite, a surveying instrument that combined a telescope with mechanisms for measuring the horizontal and vertical angles of observation. Observations from one mountain to another would discover the angles within the

⁸ William Roy, Letter to George III: 'Considerations on the Propriety of Making a General Military Map', in *Correspondence of King George the Third from 1760 to December 1783*, ed. John Fortescue. London: Macmillan, 1927, I, 328-34 (330) (24 May 1766).

⁹ David Watson, 'Orders and Instructions to be Observed by Col. Watson's Assistants in Reconnoitring [sic], Examining, Describing, Representing and Reporting, any Country, District or Particular Spot of Ground'. National Archives, OS 3/5.

¹⁰ William Roy, 'An Account of the Measurement of a Base on Hounslow Heath, in the Year 1784.' *Philosophical Transactions*, 75 (1785), 385-480 (386-7).

triangle they formed. Trigonometry – the branch of mathematics that deals with triangles – would allow the sides of the triangle, the distances between each peak, to be deduced. This process was repeated until every inch of the United Kingdom was covered in triangles of trig points joined together by the surveyors' sightlines, providing an accurate foundation for the final topographic map.

The impetus towards cartographic accuracy was particularly manifested in the Ordnance Survey's instruments, as well as its methodology. Chief among these was the "great theodolite", a three-foot two-hundred-pound surveying instrument, constructed by the master craftsman Jesse Ramsden.¹¹ Ramsden's three-foot theodolite was an improved version of an instrument used for a measurement conducted in the 1780s between the Greenwich and Paris Observatories. That earlier instrument had taken Ramsden three years to construct. The Ordnance Survey's theodolite was considered a vast improvement even on that meticulously-made original. It had originally been made for the East India Company, who wanted a theodolite to begin surveying India. The Company rejected Ramsden's three-foot theodolite on the basis that it was *too* accurate and therefore too expensive, and the Ordnance Survey acquired it instead.

The Ordnance Survey's activities, its hopes of accuracy and the strategies it implemented to achieve such cartographic precision, were prominent in the public eye. The surveyors themselves were highly visible, dressed in the blue coats of the army's Engineering Corps, crawling over every inch of the national landscape, hauling the theodolite up Britain's highest peaks. Their undertaking was closely monitored by national newspapers and journals. The Ordnance Survey's directors regularly published an account of their project in the *Philosophical Transactions of the Royal Society*.¹² Between 1799 and 1811, they published a three-volume collection of these accounts, entitled *An Account of the Trigonometrical Survey*.¹³ *Blackwood's Edinburgh Magazine* devoted a large part of its 'Literary and Scientific Intelligence' column to the Ordnance Survey's early progress, and the *Edinburgh Review* gloated over England's overtaking of France as the nation of greatest cartographic achievement.¹⁴ The geologist John Playfair attributed the Ordnance Survey's success to the unprecedented sophistication of its instruments and surveying methodology. "In no other survey", he wrote, "has the work in the field been conducted so much with a view to [...] avoid all those causes of error, however minute".¹⁵

¹¹ Joseph Portlock, *Memoir of the Life of Major-General Colby, together with a Sketch of the Origin and Progress of the Ordnance Survey of Great Britain and Ireland; a Work with which General Colby was Connected for Forty-Five Years*. London: Seeley, Jackson, & Halliday, 1869, 118.

¹² For example, cf Charles Lennox (third Duke of Richmond), Edward Williams, and William Mudge, 'An Account of the Trigonometrical Survey carried on in the Years 1791, 1792, 1793, and 1794.' *Philosophical Transactions*, 85 (1795), 414-591; Lennox, Williams, Mudge, and Isaac Dalby, 'An Account of the Trigonometrical Survey, carried on in the Years 1795, and 1796.' *Philosophical Transactions*, 87 (1797), 432-542; Lennox and Mudge, 'An Account of the Trigonometrical Survey, Carried on in the Years 1797, 1798, and 1799.' *Philosophical Transactions*, 90 (1800), 539-728.

¹³ William Mudge, Isaac Dalby and Thomas Colby, *Account of the [...] Trigonometrical Survey*. 3 vols London: Faden, 1799-1811.

¹⁴ For example, cf 'Literary and Scientific Intelligence.' *Blackwood's Edinburgh Magazine*, 1 (1817), 85-87, 305; 2 (1817), 330-34; 3 (1818), 471-73; 4 (1818), 234-39. John Playfair, 'Review: *Base du Système Métrique Décimal, ou Mesure de l'Arc due Méridien entre les Paralleles de Dunkerque & Barcelone*, Par M.M. Méchain & Delambre.' *Edinburgh Review*, 9 (1807), 373-91.

¹⁵ Playfair, 386.

Playfair drew attention to the pronounced rivalry between French and English cartographers, which centred on each nation's choice of instrument. The French preferred to employ a highly portable repeating circle for the measurement of angles, an instrument which took multiple observations and removed error by discerning an average. The English staunchly defended their "great theodolite", which took only one, incredibly accurate observation, but, weighing in at two-hundred pounds, was far from portable.

Wordsworth's Black Combe inscription had its origins in 1808, was conceived in 1811, completed in 1813, and published in the two volume *Poems by William Wordsworth* in 1815. During its seven-year gestation period, the Ordnance Survey's measurement of the United Kingdom accelerated; at least fifteen more maps of southern England were published; all maps were temporarily withdrawn from public access and classified during a period of English anxiety regarding French intelligence; and commentaries were published on the Ordnance Survey's undertaking in the forums described above. Following those accounts of the surveyors' activities, Wordsworth's inscription described how, on the summit of Black Combe:

a geographic Labourer pitched his tent,
With books supplied and instruments of art,
To measure height and distance.

Wordsworth went on to describe how:

- To him was given
Full many a glimpse (but *sparingly bestowed*
On timid man) of Nature's processes
Upon the exalted hills.¹⁶

The Black Combe inscription explicitly associated the sophistication of the Ordnance Survey's cartographical techniques with the privileged position of its surveyor. Wordsworth had to modify the published accounts of the Ordnance Survey's activities to exaggerate that privileged, minority status of the inscription's "geographic Labourer". The first directors of the Ordnance Survey, William Mudge, Isaac Dalby, and Thomas Colby, had in fact described the teamwork involved in the measurements. A memoir composed by a surveyor who worked under Colby fondly remembered the convivial bonhomie of the exercise, and he recalled recreations and feasts that were held in the encampment to celebrate the end of each "season in the hills" and to wish "*Success to the Trig*".¹⁷ Wordsworth's inscription, however, recast mapmaking as a "lonely task", a "studious work" conducted by the single geographic labourer "alone" at the mountain's summit.

Wordsworth's modifications of the Ordnance Survey's own accounts of its work, ensured his inscription conformed more closely to an eighteenth-century tradition of landscape representation in poetry, than to reality. John Barrell has described how the landscape poetry of James Thomson, John Dyer, and William Cowper, among others, emphasised the "moral significance" of "describing landscape from a high viewpoint", evoking the phrase "a commanding height", a phrase

¹⁶ Wordsworth, 'Inscription.' 285 (*my emphasis*).

¹⁷ Portlock, 153-54.

borrowed of course from the language of military tactics, and by no means used, by eighteenth-century poets, without a sense of embattled hostility to what is being commanded, the landscape below."¹⁸ Elsewhere Barrell has argued that this eighteenth-century tradition identified landscape poetry's elevated observer with the political commentator "by dividing men into those qualified to observe and those qualified only to be the objects of others' observation."¹⁹

Wordsworth's inscription, then, evoked an earlier tradition of landscape representation in poetry in which physical elevation above sea-level was openly equated with social privilege and command. The elevated observer's relationship to the landscape below became paradigmatic of the observer's social position and relationship with the masses, "the boisterous visitants", as Wordsworth's Black Combe inscription called them. Within the context of Wordsworth's later political conservatism, the surveyor's role, identified with such privilege and command, was a minority role. The few were elevated above the many. Wordsworth's fabrication of the geographic labourer's solitude at the mountain summit, and the rare glimpses of "Nature's processes" that he alone was granted, exaggerated the conservative resonances of his minority status, to this end. Furthermore, in Wordsworth's Black Combe inscription, the surveyor's notional solitude combined with the very real sophistication of his surveying "instruments of art" to reinvent the act of landscape observation as a minority skill.

This reinvention carried out what had been begun by the codification of visual practices in the eighteenth century, that Peter de Bolla has termed "the education of the eye".²⁰ These codifications ranged from the publication of George Berkeley's *An Essay Towards a New Theory of Vision* in 1709 to William Gilpin's 1789 *Observations on the River Wye* and his 1792 essays on the picturesque. They had emphasised that 'proper' vision was far from an innate, spontaneous faculty, but that it was a sophisticated "object of pursuit" to be acquired through rigorous education.²¹ Like the possession of taste, the ability to see 'properly' was not ubiquitous, but was associated with refinement, gentility, leisure and wealth. However, the very publication of the eighteenth-century codifications of vision had the contradictory effect of rendering them theoretically accessible and egalitarian. Gilpin himself explicitly offered his "little work to the public", counteracting the implied specialisation of observation contained in the visual theories themselves.²² Similarly, in Wordsworth's inscription, the surveyor's mere placement at the top of a mountain summit was not, in itself, enough to construct his position as one of rare and extraordinary ability.

In Wordsworth's Black Combe inscription, it was the dependence of the surveyor on his 'instruments of art', on his telescopes, theodolites and compasses, which definitively effected that removal of the elevated landscape observer from those beneath him; and it was that dependence which defined the practice of landscape observation as an entirely specialised operation. In this respect, surveying instruments

¹⁸ John Barrell, *The Idea of Landscape and the Sense of Place, 1730-1840: An Approach to the Poetry of John Clare*. Cambridge: Cambridge University Press, 1972, 24-25.

¹⁹ John Barrell, *English Literature in History 1730-80: An Equal, Wide Survey*. London: Hutchinson, 1983, 35.

²⁰ Peter de Bolla, *The Education of the Eye: Painting, Landscape, and Architecture in Eighteenth-Century Britain*. Stanford: Stanford University Press, 2003.

²¹ William Gilpin, *Observations on the River Wye*. 2nd edn. London: Blamire, 1789, 1.

²² Gilpin, vii.

functioned like picturesque observers' educated manipulation of the Claude glass, which separated them from their entirely amateur counterparts. Contemporary commentaries upon the Ordnance Survey bolstered Wordsworth's feeling that the type of landscape observation it encouraged was a highly specialised, almost unique faculty. Superlatives abounded in these commentaries. They described the Ordnance Survey as a great "national work" "infinitely to the credit of the country", and identified Mudge as "a skilful observer" whose "talents and skill" brought out "the beauty and perfection of the instruments employed".²³ Together they created "a more accurate topographical and geographical examination of this island, than either it or any other country has hitherto undergone", producing maps "*of unprecedented accuracy*".²⁴ The Ordnance surveyors rendered visual practice extraordinary and unusual, far removed from the mundane faculty of sight utilised by the amateur observer of landscape.

In this context, the blinding of the surveyor at the end of the Black Combe poem, the descent of "total gloom, / In which he sate alone, with unclosed eyes", could be read as a paradigm for the insufficiency of all unaided, untutored human eyesight. It was only through the Ordnance Survey's theodolite that "a glimpse [...] of Nature's processes" might be "sparingly bestowed / On timid man". And, as there was only one "great theodolite", which belonged to the Ordnance Survey, such a glimpse was available to an absolute minority. Without that theodolite, even the Ordnance Survey's director suffered from blindness, a return to feeble, unimpressive, merely human powers of sight. The Ordnance Survey's "instruments of art", then, functioned similarly to the staff carried by blind Herbert in Wordsworth's play *The Borderers*. Herbert's staff was inscribed with the words "I am eyes to the blind, saith the Lord". This granted Herbert a tool that offered a supernatural visual faculty, a quasi-divine power of observation. Telescopes, theodolites, and Herbert's staff all remedied the defects of human "eyes in fault".²⁵ But these tools were few and far between, and that supernatural faculty of observation belonged only to the minority. Glimpses of nature's processes were a privilege, extremely sparingly bestowed.

Magnification

In the wrong hands, telescopes and theodolites were disastrous and potentially dangerous. Mere ownership of such tools was not enough to grant the amateur observer a celestial power of sight. An education of the eye was essential. This was because the glimpses that telescopes and theodolites offered were single magnified fragments of a complete panorama. Like microscopes, telescopic observation divided and analysed the object, reducing it to a series of small, disconnected units. The resulting overview was a mish-mash of discrete large-scale and small-scale scenes. Like microscopes, again, the magnified visions that telescopes presented to the eye were so unlike any scenes it had witnessed previously that the authenticity of those scenes could be called into question. Rather than offering a magnified insight into

²³ Stamford Raffles Flint ed., *Mudge Memoirs*. Truro: Netherton and Worth, 1883, 129; 'Review: *Attraction des Montagnes, et ses Effects sur les Fils à Plomb, déterminés par des Observations Astronomiques et Géodésiques*. Par le Baron de Zach.' *Edinburgh Review*, 26 (1816), 36-51 (51); Olinthus Gregory, *Dissertations and Letters [...] Tending Either to Impugn or to Defend the Trigonometrical Survey of England and Wales*. London: Law and Gilbert, 1815, 7, 96, 7.

²⁴ Gregory, 96.

²⁵ William Wordsworth, 'Star-Gazers', in *Poems, in Two Volumes, and Other Poems, 1800-1807*, ed. Jared Curtis. Ithaca: Cornell University Press, 1993, 234-35.

truth, improperly manipulated telescopes might be tainted with suspicions of deception. In 'Star-Gazers' Wordsworth described a "Showman" astronomer who allowed a crowd to look through his telescope for a fee. The experience was a depressing and uncertain one. The poem's narrator distrusted the reality of the sight of "the silver Moon with all her Vales, and Hills of mightiest fame", and pointed out that the spectators "seem to meet with little gain, [and] seem less happy than before", walking away "as if dissatisfied".²⁶ Magnified vision alone, then, was not necessarily a mark of privilege or elevation. Untutored telescopic vision was problematic. The privilege it potentially afforded depended entirely upon the appropriate manipulation of such magnified observation.

The quasi-divine observational skill that *The Borderers* described derived from the alternation of telescopic vision with a retreat into the imagination. George Berkeley described how 'we do not see the same object that we feel' when looking through a microscope, and that 'neither is the same object perceived by the microscope, which was by the naked eye'. Through the lens of microscopes or telescopes, the complete object was fragmented into magnified and unmagnified portions, into small-scale and large-scale versions of itself. A retreat into the imagination was necessary to reconnect these portions, locating the grounds on which they shared "some connexion in Nature, either with respect to co-existence or succession".²⁷ The astronomer John Herschel equated this alternation between magnified observation and imagination with the alternation between the philosophical practices of analysis and synthesis, deduction and induction, practice and theory, detail and generalisation. "The successful process of scientific enquiry demands continually the alternate use of both the *inductive* and *deductive* method", he wrote, and he used the metaphor of an ascent to a mountain summit in illustration of his point: "The path by which we rise to knowledge must be made smooth and beaten in its lower steps, and often ascended and descended, before we can scale our way to any eminence, much less climb to the summit."²⁸

The surveyor's blindness in the Black Combe inscription, then, compelled a retreat from the magnified vision presented by the "instruments of art" into the imagination. This allowed the fragmented magnified scenes to be reunited. The state of blindness counteracted the primacy of the material, observable world, temporarily replacing the real mountain upon which the surveyor stood with a "mountain of the mind".²⁹ This enabled the individual scenes framed within the telescope to be contextualised within a vast panorama. Minute observation must be accompanied by abstracted imagination, in order to render the former practically and philosophically relevant. The surveyor's eye must be accompanied by the poet's imagination, and, in *The Prelude*, Wordsworth emphasised exactly this the mutual dependence of "poetry and geometric truth".³⁰ In his Black Combe inscription, the poet blinded the surveyor to this end, compelling him to retreat from the observation point at the mountain's summit into his own imagination. The next section of this article will explore the

²⁶ Wordsworth, 'Star-Gazers.' 234-5.

²⁷ George Berkeley, *An Essay Towards a New Theory of Vision*. Dublin: Pepyat, 1709, 127.

²⁸ John Herschel, *A Preliminary Discourse on the Study of Natural Philosophy*. Chicago: University of Chicago Press, 1987, 174-5.

²⁹ Robert MacFarlane, *Mountains of the Mind: A History of a Fascination*. London: Granta, 2003.

³⁰ William Wordsworth, *The Fourteen-Book Prelude*, ed. W.J.B. Owen. Ithaca, NY: Cornell University Press, 1985, v, 65 (95).

nature of the panorama revealed through this alternation of magnification with blinded thought.

Unification

The scene available to the geographic Labourer was described in the Black Combe inscription as a "grand terraqueous spectacle, / From centre to circumference, unveiled!" The footnote which accompanied the poem in its first published form elaborated that Black Combe's "summit commands a more extensive view than any other point in Britain".³¹ A second poem on the same subject, also published in the two volume *Poems* of 1815, described how "from the summit of Black Comb [...] the amplest range / Of unobstructed prospect may be seen / That British ground commands". The 'View from the Top of Black Comb' described that unobstructed prospect further:

- low dusky tracts,
Where Trent is nursed, far southward! Cambrian hills
To the south-west, a multitudinous show;
And, in a line of eye-sight linked with these,
The hoary peaks of Scotland that give birth
To Tiviot's stream, to Annan, Tweed, and Clyde: -
[...] beneath,
Right at the imperial station's western base,
Main ocean, breaking audibly, and stretched
Far into silent regions blue and pale; -
And visibly engirding Mona's Isla
[...] - Yon azure ridge,
Is it a perishable cloud? Or there
Do we behold the line of Erin's coast? [...]
A revelation infinite it seems;
Display august of man's inheritance,
Of Britain's calm felicity and power! ³²

Black Combe's summit granted the surveyor a vision of a vast national panorama, the sight of southern Scotland, northern and central England, north Wales, and the eastern coast of Ireland. This was not fantasy on Wordsworth's part. William Mudge's *Account* of the Ordnance Survey's activities for the years between 1800 and 1809 listed the staggering number and extent of the observation stations visible from Black Combe's summit. These included Helvellyn, Scafell and The Pillar in the Lake District, Bleasdale Forest in Lancashire, Ingleborough and The Calf in the Yorkshire Dales, Snea Fell and North Berule on the Isle of Man, and Bengairn and Criffel in Dumfries-shire, in southern Scotland. Wordsworth's poem wondered "do we behold the line of Erin's coast?", and, on a rare and preternaturally clear day, Ireland was indeed visible from Black Combe. Wordsworth's *Guide to the Lakes* described how Mudge had viewed Ireland "more than once" from the mountain, "but not when the

³¹ Wordsworth, 'Inscription.' II, 285 (fn 1).

³² William Wordsworth, 'View from the Top of Black Comb', in *Poems by William Wordsworth*. I, 305-6.

sun was above the horizon".³³ An Ordnance surveyor's own account described an attempt to conduct the longest observation ever conducted, between the mountain of Slieve Donard in Ireland and Scafell in the Lake District.³⁴

The view from the top of Black Combe presented an emphatically united kingdom to the eye, a kingdom whose disparate elements might be brought together through the alternation of telescopic magnification and abstracted imagination. The blinding of the surveyor at the end of the Black Combe inscription allowed him to perceive the grounds upon which each region of the nation shared "some connexion in Nature, either with respect to co-existence or succession", as Berkeley had written. This led to an ensuing revelation of "Britain's calm felicity and power!", a revelation which was then etched onto the Ordnance Survey map. By the time that Wordsworth was composing his Black Combe poems, the Ordnance Survey had acquired a function as propaganda for such a harmoniously united kingdom. The Ordnance Survey was the first cartographic project that had sought to accurately map England, Wales, Scotland *and* Ireland, although the Irish section wouldn't be started until 1824. Its maps created images of the unified and inherently ordered state of Britain's landscape, and illustrated the capacity of such landscape to be represented through the harmonious geometry of triangulation and the longitudinal-latitude grid. In an period in which, under the pressure of the Napoleonic wars, continental geography had become so fragmentary and changeable, the capacity of the Ordnance Survey to serve as conservative, pro-union propaganda was powerful.

The geographic Labourer of Wordsworth's Black Combe poems thus acquired a political function: to bolster the historical and recent unions between England and Wales, England and Scotland, and England and Ireland. The elevated, abstracted nature of the surveyor was important. It chimed with Wordsworth's growing sense that the political commentator should be above and apart from the masses. This continued the eighteenth-century tradition of landscape poetry that I referred to earlier, in which elevation above sea-level functioned as a marker of social privilege. John Barrell described how such elevation was the preserve of the gentleman: "it was the happy man as country gentleman who, having retired from the conflicts of the world, could "see" the relations among those still blindly engaged in conflict."³⁵ This type of abstraction from the world was described by Wordsworth in his political pamphlet *The Convention of Cintra*, published in 1809. Wordsworth characterised political commentary as:

within the reach of him who – taking no part in public measures, and having no concern in the changes of things but as they affect what is most precious in his country and humanity – will doubtless be alive to those genuine sensations which are the materials of sound judgment. Nor is it to be overlooked that such a man may have more leisure (and probably will have a stronger inclination) to communicate with the records of past ages.³⁶

³³ Wordsworth, 'Introduction.' 8.

³⁴ Portlock, 5.

³⁵ Barrell, *English Literature in History*. 35.

³⁶ William Wordsworth, *The Convention of Cintra, Concerning the Relations of Great Britain, Spain, and Portugal, to Each Other, and to the Common Enemy, at this Crisis*. London: Longman, Hurst, Rees, and Orme, 1809, 129-30.

Wordsworth's Black Combe poems, and *The Convention of Cintra*, implied that abstraction from a ground-level, hands-on contact with the populace was a prerequisite for a political philosophy that favoured union over independence, and "metaphysic principles" over utilitarian democracy, in Edmund Burke's words.³⁷ "Who does not rejoice that former partitions have disappeared," Wordsworth wrote in the pamphlet, "and that England, Scotland, and Wales, are under one legislative and executive authority; and that Ireland (would that she had been more justly dealt with!) follows the same destiny?"³⁸

The figure of William Mudge, the Ordnance Survey's first director, encapsulated these elements entirely, rendering him an ideal model for the associations Wordsworth constructed in the Black Combe poems. When surveying, he was physically elevated above the landscape; he was treated on rare occasions to the sight of the vast national panorama described in the Black Combe inscription; and he benefitted from technology of such rare sophistication that it set his visual faculty far apart and above that of the amateur observer. All these facets of Mudge's surveying career combined with a very real political role, in which Mudge's map served as propaganda for a United Kingdom whose "calm felicity and power" depended upon the fixed, conservative nature of its landscape; and in which such political power was granted to the minority, who upheld metaphysical political philosophy above the "numerical principle" of Reform, "the scheme of regulating representation by arbitrary lines of property or numbers", in Wordsworth's sneering words.³⁹ Wordsworth's blinding of the surveyor at the end of the Black Combe inscription served to emphasise and enforce his abstraction from the material, utilitarian world beneath him, the "boisterous visitants" who traversed the "far-travelled storms of sea and land, / A favourite spot of tournament and war".⁴⁰

The association of abstraction with a faculty of vision that seeks unity had a philosophical foundation. The onset of the surveyor's blindness compelled the inversion of his outward observation into insight. This evoked a landscape of the imagination in place of the external scene. Immanuel Kant described the landscape of the imagination, the nature of a pure space that existed "absolutely independent of all experience". For Kant, such pure spaces always tended towards unification. "Space is essentially one", he wrote in the *Critique of Pure Reason*, and, similarly, "time has only one dimension; different times are not successive but simultaneous."⁴¹ William Mudge's blindness in the Black Combe inscription, then, not only confirmed his aptness for political commentary, but it also articulated the nature of his political bent: towards constitutional union. The panorama afforded from the mountain's summit, a panorama partially constructed from the imagination and partially from magnified fragments of landscape, materialised Wordsworth's utopian vision of a United Kingdom in which "former partitions have disappeared", and England, Scotland, Wales and Ireland "are under one legislative and executive assembly".

³⁷ Edmund Burke, *Reflections on the Revolutions in France*, ed. J.C.D. Clark. Stanford: Stanford University Press, 2001, 346.

³⁸ Wordsworth, *Cintra*. 152.

³⁹ William Wordsworth, Letter to Lord Lonsdale, in *The Letters of William and Dorothy Wordsworth*, 2nd edn, v: *The Later Years, Part 2: 1829-34*, ed. Alan Hill. Oxford: Clarendon Press, 1979, 468 (9 November 1831 and [?] December 1831).

⁴⁰ Wordsworth, 'Inscription.' 286.

⁴¹ Immanuel Kant, *Critique of Pure Reason*. trans. Norman Kemp Smith. Basingstoke & New York: Palgrave Macmillan, 2003, 3, 69, 75.

The surveyor's role and significance in the Black Combe inscription, published in 1815, marked a radical departure from Wordsworth's description of an observer of landscape seventeen years previously, in 'The Thorn'. In the last third of 'The Thorn' the narrator "climbed the mountain's height" "with my telescope, / To view the ocean wide and bright". Just as in the Black Combe inscription, the observer's telescopic aspirations were thwarted by the weather: "A storm came on, and I could see / No object higher than my knee".⁴² In the later inscription, the blinding of the surveyor allowed him to ascend from contemplation of a magnified, detailed scene into the large-scale abstract generalisations afforded by the imagination. However, in 'The Thorn', the opposite occurred. The telescope had presented a generic scene of 'the ocean wide and bright'. Its sudden redundancy upon the storm's descent compelled the observer to turn around, and to see the minutiae of human life that stood, previously unseen, beside him:

'Twas mist and rain, and storm and rain,
No screen, no fence could I discover,
And then the wind! in faith, it was
A wind full ten times over.
I looked around, I thought I saw
A jutting crag, [...]
Instead of jutting crag, I found
A Woman seated on the ground.

I did not speak – I saw her face,
Her face it was enough for me;
I turned about and heard her cry,
"O misery! O misery!" [...]⁴³

In both the Black Combe inscription, and in 'The Thorn', telescopic imagery and landscape observation were overwritten with political implications. In the earlier poem telescopic vision was associated with a fixation with distance. It represented an unhealthy social abstraction, which was abandoned for a utilitarian compassion for the 'common man'. By 1815, however, telescopic vision had come to stand for the opposite of distance for Wordsworth. It was associated with magnification, with the far-away brought into proximity, with detail. It was associated with precisely such attention to the utilitarian 'nitty-gritty' of material life that 'The Thorn' had celebrated, but that it had set up in *opposition* to telescopic vision. The 1815 Inscription did not celebrate such a utilitarian form of vision, however. It emphasised that telescopic vision must be accompanied, and ultimately superseded, by a retreat into the imagination, a physical, psychological and social abstraction from the "boisterous visitants" of the plains beneath, and a celebrated, elevated state of blindness. Practice was overtaken by theory, and utilitarian democracy was overtaken by abstract "metaphysic principles" of political philosophy.

⁴² William Wordsworth, 'The Thorn', in *Lyrical Ballads, and Other Poems, 1797-1800*, ed. James Butler and Karen Green. Ithaca: Cornell University Press, 1992, 77-85 (83).

⁴³ Wordsworth, 'The Thorn.' 83.

Abstraction

In the final section of this article, it will be important to note how the mapmaker of Wordsworth's Black Combe inscription departed from the elevated, abstracted observers of eighteenth-century landscape poetry. I have already referred to John Barrell's identification of the retired country gentleman as the figure most suited to such observation and its political implications. This aptness was largely attributed to the gentleman's abstraction from all forms of work, his consequent impartiality, and his ability to provide an overview of the labour division of eighteenth-century England; and to the opportunities for literal elevation afforded by the gentleman's landscaped estate.

Wordsworth's inscription consciously contradicted this tradition. He designated his landscape observer as a "geographic *Labourer*" [my emphasis]. The surveyor was not a gentleman at all, but a worker. He was elevated above a landscape to which he was connected, not through deeds of ownership and not even necessarily through electoral enfranchisement, but through his power to represent that landscape to the public. In this respect, the Ordnance Survey mapmaker was aligned with the landscape poet in Wordsworth's eyes. Both were workers, engaged in a lonely, arduous task. Both poetry and mapmaking sought to read, interpret and translate the landscape into a different language: into lines of verse, or into the lines of a map. Both roles were hard graft as Wordsworth represented them, and, in his poem 'Resolution and Independence', both the surveyor and the landscape poet shared much with the hardworking leech-gatherer.

The leech-gatherer was conjured up as Wordsworth reflected upon the hard life of Thomas Chatterton, and how "Poets in our youth begin in gladness; | But thereof come in the end despondency and madness". The sight of the old man, whose body told the story of his life of hardship and exposure, prompted the narrator of 'Resolution and Independence' to discourse upon "cold, pain, and labour, and all fleshly ills; / And mighty Poets in their misery dead". Wordsworth described how the poet, leech-gatherer, and mapmaker all paced "about the weary moors continually, / Wandering about alone and silently". All three fed off the landscape, collecting leeches, or images for poetry, or measurements for maps. All three were aided by "instruments of art": in the poet's case, a pen; for the mapmaker, a theodolite; for the leech-gatherer, "a long grey staff of shaven wood" with which he stirred a pond "which he coned / As if he had been reading in a book".

But, despite the sympathy that Wordsworth identified between the "geographic Labourer" and the landscape poet, the Ordnance Survey's director William Mudge, the inspiration for the mapmaker of Wordsworth's Black Combe inscription, was not a working-class labourer. He was a former member of the army's Artillery Corps, who would rise to the rank of Major-General, and who was also an acclaimed Fellow of the Royal Society. This final section of the article will describe how Mudge's scientific affiliations proposed an alternative social identity for the abstracted observer, an alternative to the retired gentlemen of eighteenth-century landscape poetry.

The surveyor was associated with abstraction on a level that exceeded the metaphorical. The Ordnance Survey's project to map the United Kingdom began with a triangulation, a trigonometrical survey, and for the first thirty years of its existence it was generally referred to as the 'Trigonometrical Survey of England and Wales', or the 'General Survey', rather than the 'Ordnance Survey', by which it is now designated. Trigonometry and triangles occupied an important place within abstract

philosophy. Immanuel Kant described how the isosceles triangle exemplified the practice of pure reasoning:

A new light flashed upon the mind of the first man (be he Thales or some other) who demonstrated the properties of the isosceles triangle. The true method, so he found, was not to inspect what he discerned either in the figure, or in the bare concept of it, and from this, as it were, to read off its properties; but to bring out what was necessarily implied in the concepts that he had himself formed *a priori*.⁴⁴

In this abstract philosophical context, to designate a landscape through a language of triangles was to reinvent it as a landscape of the imagination, an abstracted world "absolutely independent of all experience".⁴⁵ And, in *The Prelude*, Wordsworth did apply geometrical images to dream-worlds. Book Five described a dream vision of an "Arabian waste" over which a Bedouin carried Euclid's *Elements*, the foremost treatise of ancient geometry.⁴⁶ The figure of the mapmaker, then, who dealt in triangles and trigonometry, was theoretically implicated with the type of abstraction that Wordsworth associated him with physically and politically in the Black Combe poems.

In September 1827, Wordsworth met a man who embodied this tentative association of trigonometrical mapmaking with abstract philosophy, scientific kudos, and a physical and political removal from the "boisterous" masses. This was William Rowan Hamilton, a highly precocious young man who became Irish Astronomer Royal and Professor of Astronomy at Trinity College, Dublin, whilst still an undergraduate. Wordsworth was introduced to Hamilton when the latter came to the Lake District to climb Helvellyn, and Wordsworth commented that he was "a young man of extraordinary genius" and "singularly like Coleridge": high praise indeed!⁴⁷ William Rowan Hamilton's interests lay in pure science, and his friend Aubrey de Vere recalled his consequent unsuitability as Professor of Astronomy. Hamilton "did not look through his telescopes more than once or twice a year!" de Vere exclaimed. "He was so much occupied with the purely abstract part of science that its material phenomena interested him only so far as they revealed laws."⁴⁸ Hamilton was particularly intrigued by the function of geometry and algebra as the two languages of, respectively, pure space and pure time. Following Kant, Hamilton posited geometry as an articulation of abstract scientific thought. In this equation, the mapping of a landscape through trigonometry appropriated that landscape for the imagination. Importantly, Hamilton became close friends with the men who were directing the Ordnance Survey's activities in Ireland between 1824 and 1842, and his notebooks revealed how he began to interpret mapmaking, and trigonometrical surveys, in association with philosophies of abstract space.⁴⁹

⁴⁴ Kant, 19.

⁴⁵ Kant, 43.

⁴⁶ Wordsworth, *Prelude* (1805), in *The Prelude 1799, 1805, 1850*, ed. Jonathan Wordsworth, M.H. Abrams, and Stephen Gill. New York and London: Norton, 1979, v, 87-88 (156).

⁴⁷ Wordsworth, Letter to Christopher Wordsworth, in *Letters*. v, 120 (5 September 1829); Aubrey de Vere, *Recollections of Aubrey de Vere*. New York and London: Edward Arnold, 1897, 41.

⁴⁸ de Vere, *Recollections*. 47.

⁴⁹ I have more extensively described Hamilton's interpretations of the Ordnance Survey's activities in Ireland, and his mediation of such information, in the context of the scientific philosophy of pure space,

Hamilton considered his scientific interests to possess clear correlations in political and social action. During the potato famine, Aubrey de Vere criticised Hamilton's refusal to provide practical aid. "My time is all taken up with details which would be insignificant, if they were not just now so nearly connected with some of the humblest yet some of the closest ties of our humanity", de Vere wrote to Hamilton. However, "you", he accused, "are ranging beyond the visible bounds of the universe in mathematical poetry, or "sounding on a dim and perilous way" in regions where few can follow you".⁵⁰ Hamilton defended himself. His "best hope of being useful to Ireland", he retorted to de Vere, was "to be found in the pursuit of those abstract and seemingly unpractical contemplations to which my nature has a strong bent".⁵¹ Hamilton's behaviour materialised an equation that Terry Eagleton has made between the abstract scientists of the protestant ascendancy in Ireland, and their conscious political abstraction from working-class culture. He argued this is because:

those who do little labour can afford to imagine that ideas are autonomous of reality, while those like the industrial middle-class who work closer to the ground value experience and experiment, what they can see, taste and handle [...] The upper class cannot descend to a practicality, while the middle class cannot rise to an abstraction.⁵²

William Rowan Hamilton was unknown to Wordsworth when he was composing the Black Combe poems. Indeed, Hamilton would have been only a child. But twelve years after their publication, Wordsworth would have seen in Hamilton, in his scientific philosophy, in his Ordnance Survey connections, and in his politics, a living encapsulation of the surveyor-commentator he had described in those Black Combe poems. Wordsworth's enthusiastic embrace of Hamilton's friendship confirmed his delight at locating one who provided an alternative model to the eighteenth-century gentlemanly landscape observer. The privileged, elevated position of this alternative model might be interpreted as deriving from an immersion in abstract science rather than the possession of a remote, appropriately landscaped estate. Immersion in abstract science similarly provided a context for the manifestation of the retired political commentator described in *The Convention of Cintra*, who, "taking no part in public measures, and having no concern in the changes of things [...] may have more leisure (and probably will have a stronger inclination) to communicate with the records of past ages." Hamilton's real disinclination for hands-on political action combined with his interest in geometry as the language of pure space, his close connections with the Ordnance Survey, and his unionist politics, to render him an embodiment of the disparate strands articulated by Wordsworth's formulation of the "geographic Labourer" in the Black Combe poems.

In this reading, blindness in the Black Combe poems functioned as a positive pathology, symptomatic of the turning inwards of vision, away from the tangible scene into the imagination. Such a renunciation of the fallible human visual faculty made way for the emergence of a quasi-celestial power of observation, which

to Wordsworth, in "Wordsworth and the Ordnance Survey in Ireland: "Dreaming o'er the Map of Things", published in the *Wordsworth Circle*, 38 (Spring 2006), 80-85.

⁵⁰ De Vere, Letter to Hamilton, in *Life of Sir William Rowan Hamilton*. Robert Perceval Graves. Dublin: Hodges, Figgis, 1882, III, 556.

⁵¹ Hamilton, Letter to de Vere, in *Ibid.* III, 558.

⁵² Terry Eagleton, *Scholars and Rebels in Nineteenth-Century Ireland*. Oxford: Blackwell, 1999, 86-87.

established the observer of landscape as a figure of minority skill and privilege who, guided by abstract philosophy, sought unity in diversity and subscribed to the ensuing political implications. However, the inscription remained ambiguous. The mountain was described as "blinded"; the surveyor remained "sate alone, with unclosed eyes". I have chosen to interpret the surveyor's continued attempt to see through his blindness as symptomatic of the turning inwards of that power of vision, with all the effects described throughout this article. However, the mapmaker's futile struggle against the blinding effect of the cloud's descent could equally be understood as the thwarting of science by nature. Such an interpretation might be supported by the resemblance to a map shown by *The Prelude*'s description of the mundane intellect "parcel[led] out [...] by geometric rules, / Split like a province into round and square".⁵³ The 1805 edition of *The Prelude* explicitly associated the Infant Prodigy's freakish opposition to the natural, spontaneous generation of knowledge, his "rational education", with cartography. The Prodigy's "massy and ponderous" discourse was accompanied by

the ensigns of empire which he holds,
The globe and sceptre of his royalties [which]
Are telescopes, and crucibles, and maps.⁵⁴

Mapmaking was opposed to the wide-ranging abstracted imagination, not a way into it. Coleridge claimed such thinkers as the Infant Prodigy "were marked by a microscopic acuteness; but when they looked at great things, all became a blank and they saw nothing – and denied (very illogically) that any thing could be seen [...]. They called the want of imagination Judgment, and the never being moved to Rapture Philosophy!"⁵⁵ Blindness here is stupidity, not insight.

This context certainly provides material to justify a negative reading of mapmaking in the Black Combe inscriptions, a negativity which found its articulation in the blinding of the surveyor. However, Wordsworth's understanding of cartography and its philosophical implications radically altered over time. In the 1850 *Prelude* the passage in which the dull Infant Prodigy clutched his cartographic ensign of empire was struck out.⁵⁶ *The Excursion* described cartography as the intellectual realm in which "Fancy" dreamed "o'er the map of things".⁵⁷ Map metaphors dominated Wordsworth's imaginary utopias. This later re-evaluation of cartography's significance and its relation to pure science and abstract space was, no doubt, partially attributable to his conversations with William Rowan Hamilton. The Black Combe poems were written prior to the men's first acquaintance, and they accordingly articulated an unresolved interpretation of the mapmaking impulse and the function of the surveyor's eye, an interpretation that was suspended between approval and condemnation. Wordsworth's uncertainty would eventually resolve into wholehearted approval, in which mapmaking was considered to reflect the minds of the minority

⁵³ Wordsworth, *The Prelude, 1798-1799*, ed. Stephen Parrish. Ithaca, NY: Cornell University Press, 1977, II, 242-44 (60).

⁵⁴ *Prelude* (1805), v, 320, 321, 328-30 (168).

⁵⁵ Coleridge, Letter to Thomas Poole, in *Collected Letters of Samuel Taylor Coleridge*, ed. E.L. Griggs. Oxford: Clarendon Press, 1956-71, I: 1785-1800 (1956), 354-55 (16 October 1797).

⁵⁶ *Fourteen-Book Prelude*. v, 316-29 (102).

⁵⁷ Wordsworth, *The Excursion*, in *The Poetical Works of William Wordsworth*, ed. Ernest de Sélincourt and Helen Darbishire. Oxford: Clarendon Press, 1949-54, v: *The Excursion and The Recluse* (1949). 1-312 (III, 218 (81)).

population of gentlemen, poets, philosophers, surveyors, all those who exhibited what Coleridge defined as "*surview*", that "prospectiveness of mind [...] which enables a man to foresee the whole of what he is to convey [...] as an organized whole".⁵⁸ The Black Combe poems attached such a philosophy of vision to the patriotic ability to perceive a harmoniously, naturally United Kingdom. Blindness functioned, not as a disability, but as the purest incarnation of such patriotic abstraction.

⁵⁸ Samuel Taylor Coleridge, *Biographia Literaria; or Biographical Sketches of My Literary Life and Opinions*, ed. James Engell and W. Jackson Bate. Princeton: Princeton University Press, 1983, II, 58.

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Byron and the Pathology of Creativity; or, the Biogenesis of Poetic Form

Jennifer Lokash

In Canto I of Byron's frequently bawdy epic *Don Juan*, following several stanzas about Wordsworth's poetic "transports" and Coleridge's lofty metaphysical speculations, we find our pubescent hero, gentle Juan, strolling pensively by "glassy brooks" and through "leafy nooks"—those parts of the natural world where "poets find materials for their books"—in an attempt to deal with his building sexual desire for Donna Julia (90).¹ The Byronic narrator depicts young Juan as lost in typically Romantic, abstract contemplation of "himself, and the whole earth, / Of man the wonderful, and of the stars," sublimely wondering "How many miles the moon might have in girth," and musing on the flight of "air balloons" (92):

He poured upon the leaves, and on the flowers,
And heard a voice in all the winds; and then
He thought of wood-nymphs and immortal bowers,
And how the goddesses came down to men:
He missed the pathway, he forgot the hours,
And when he looked upon his watch again,
He found how much old Time had been a winner—
He also found that he had lost his dinner. (94)

One possible interpretation of the punch line of this episode is that since, as the narrator tells us earlier, "no one likes to be disturbed at meals / Or love" (89), Byron is suggesting that it is the body that yields the real satisfactions in life and not the metaphysical meanderings and eroticized, but wholly imaginative, communions with a surrogate lover found in nature. By condemning the tendency he sees among first generation Romantic poets to neglect the fundamental claims of the body, like shelter, warmth, and here, sex and food, Byron is making a comic argument in favor of the ultimate priority of these elemental, biological needs: if you attempt to spiritualize your desire too much, you go hungry and sexually unsatisfied.

Although according to one critic, this scene is designed to show that it is "unprofitable in the midst of the spiritual and poetic to forget the physical", Byron may also be demonstrating that purely imaginative indulgence, if possible at all, requires that one ignores the otherwise persistent realities of bodily existence, which, as we will see, poses a significant and far less humorous problem for Byron than what he presents here.² The pensive, philosophical, poetic mind, possessed of "Longings sublime, and aspirations high" (93), must be cut off from its own real source of desire in the body: in this instance, the desire for sex *qua* sex. The narrator, in his typically

¹ Unless otherwise noted, all quotations from Byron's poetry are taken from *Byron: The Complete Poetical Works*, ed. Jerome J. McGann. 7 vols. Oxford: Oxford University Press, 1980-86. Parenthetical references to both *Don Juan* and *Childe Harold's Pilgrimage* are to stanza numbers rather than line numbers; for all other poems, line references are used.

² Ernest J. Lovell, *Byron: The Record of a Quest*. Hamden, Connecticut: Archon, 1966, 54

punning manner, highlights the disjunction between the poetic contemplation of sex and the real physical act:

Nor glowing reverie, nor poet's lay,
 Could yield his spirit that for which it panted,
 A bosom whereon his head might lay,
 And hear the heart beat with the love it granted (96)

Though the first two lines address the spiritual reverie facilitated by poesy, it is not, finally, the “poet’s lay” that Juan requires, as the rime riche makes plain. The bodily nature of Juan’s desire is emphasized further as it encroaches upon the remainder of the stanza. With the jarring image of the spirit “panting” – panting is an unambiguously physical act – the mind-body split collapses utterly, and the stanza settles into the world of corporeal things, like cushiony bosoms and audible heartbeats. Even if such poetic posturing and nympholeptic fantasy can temporarily elide the need for or take the place of physical satisfaction, the reality of the body simply cannot be ignored and will ultimately assert itself. Although this episode reads like a satirical cautionary tale for overly romantic adolescent males (not to mention escapist Romantic poets), it hints at the ways in which the supremacy of the body was a more menacing reality throughout Byron’s life and work.

Lord Byron and all his messy business has always been interesting to his readers. Though critics have never completely disregarded the details of Byron’s physical body, criticism had tended to focus on the intriguing, adventurous, often scandalous events that shaped Byron’s life, as well as the spiritual, emotional, or otherwise mental volatility that makes him such a preeminent example in the tradition of the mad genius.³ Byron’s experience of his actual body – and its role in his writerly life – is a difficult issue for him, though it has not been discussed in any sustained manner in relation to his creative production or his formal choices. Byron’s body was arguably his most compulsive and inescapable object of preoccupation and source of conflict. Although he was unable to deny the sensual pleasures his body afforded – infamous libertine, carouser, and man of passion that he was – he was plagued by a feeling of entrapment in a deformed and degenerating body that went beyond the typical Romantic grappling with human mortality, mutability, or questions of mind-body dualism. Unlike Wordsworth, who in “Tintern Abbey” relates the meditative poetic and therapeutic experience of “being laid asleep in body” to “become a living soul”, Byron was unhealthily unable to imagine the spiritual or mental apart from the corporeal.⁴ The power of Byron’s bodily existence eclipsed everything else, so that even if his thoughts could take a Wordsworthian excursion, they’d always come home to roost in a body fraught with problems. I want to suggest that Byron’s identity as a man and as a poet, as well as his ideas about poetic composition, and ultimately, perhaps, his formal practices, are rooted in and defined by the inescapable experience of his body, which involves his persistently morbid sense of physical ruin, fragmentation, uncontrollability, and rapid decay. Byron’s articulations of both his

³ For a brilliant recent articulation of the pathologization of genius and the poetic vocation, with particular reference to Byron and Walter Scott, see Dino Felluga’s *The Perversity of Poetry: Romantic Ideology and the Popular Male Poet of Genius*. Albany: State University of New York Press, 2005.

⁴ William Wordsworth, *William Wordsworth: Selected Poems and Prefaces*, ed. Jack Stillinger. Boston: Houghton Mifflin, 1965, 46-7.

physical existence and his attitudes towards the process of writing share a common pathological vocabulary, indicating that for Byron the underpinnings of creative endeavour may be fundamentally biological.

Artistic Toxicity

There is a long and varied history that links literature to matters of illness, health, and healing. We can thank Plato for establishing the foundations for the perception that insanity and creativity are linked with his notion of the *furor poeticus*: the madness of artistic inspiration. As Rudolph and Margot Wittkower clearly outline in their classic study of the nature and personality of the artist and the psychological origins of creativity, “in historical perspective the problem of the ‘mad artist’ confronts us with three intrinsically different forms of madness: first, Plato’s mania, the sacred madness of enthusiasm and inspiration; secondly, insanity or mental disorders of various kinds; and thirdly, a rather vague reference to eccentric behavior”.⁵ For the Wittkowers, this “otherness” has been generally accepted throughout history, as there appears the unanimous belief that “artists are, and always have been, egocentric, temperamental, neurotic, rebellious, unreliable, licentious, extravagant, obsessed by their work, and altogether difficult to live with”.⁶ Lionel Trilling concurs and calls the connection between genius and madness “one of the characteristic notions of our culture”.⁷

The emphasis on these explanations is on psychological or mental illness as a necessary condition for creativity and genius. In their thoughts on “Literature and Psychology,” however, Wellek and Warren explain how one early and persistent conception in this tradition is that the poet’s “gift” is compensation for psychological or social deficiencies, but also for physical handicaps or deformities. They offer as a precedent the scene in the *Odyssey* in which the Muse blinds Demodocos but gives him “the lovely gift of song,” just as Tiresias is blinded but has prophetic vision. They list several other examples, Byron among them: “Pope was a hunchback and a dwarf; Byron had a club foot; Proust was an asthmatic neurotic of partly Jewish descent; Keats was shorter than other men; Thomas Wolfe much taller”. This seemingly random selection of facts is clearly intended to show that the connection between handicap and endowment is somewhat suspect, given that “everyone has liabilities which may serve him as spurs”.⁸ Their argument is that although handicap and creative endowment are not necessarily correlative, there nevertheless persists the widespread view that malady of some sort differentiates the artist from less creative types.

The Platonic distinction between clinical insanity and creative insanity becomes more difficult to maintain by the time of the Romantics, in part because developments in science and enlightenment thought gave rise to explanations of madness that emphasized its bodily, pathological component.⁹ By the early nineteenth century, according to G. S. Rousseau, clinical findings, particularly about the

⁵ Rudolf and Margot Wittkower, *Born Under Saturn: The Character and Conduct of Artists: A Documented History from Antiquity to the French Revolution*. New York: Random, 1963, 101.

⁶ Wittkower and Wittkower, xix. See also 98-132.

⁷ Lionel Trilling, *The Liberal Imagination: Essays on Literature and Society*. New York: Doubleday, 1953, 159.

⁸ Rene Wellek and Austin Warren, *Theory of Literature*. 3rd edn. New York: Harcourt, Brace and World, 1956, 81.

⁹ Roy Porter, “‘All Madness for Writing’: John Clare and the Asylum.” *John Clare in Context*, ed. Hugh Haughton et al. Cambridge: Cambridge University Press, 1994, 268.

operation of the nerves and brain, had revealed that there was a connection between genius and physical illness: if genius could be diagnosed as a genuinely morbid condition or a symptom of constitutional abnormality, artistic activity could be regarded fundamentally as a product of a diseased body.¹⁰ Further smudging the line between body and spirit, the Romantics inherited a rather dubious legacy in the eighteenth-century literary and philosophical obsession with sensibility. With its morbid excesses of feeling and sensation, this trend encouraged the belief that a vigorous and hearty constitution was actually disadvantageous to poetic genius, not to mention moral sense. In Britain in the eighteenth century, the doctor George Cheyne (himself a materialist) confirmed that melancholy was “The English Malady,” while on the continent, Germans deeply affected by Goethe’s *The Sorrows of Werther* were exhibiting similarly gloomy tendencies. Indulgence in one’s own (as well as in others’) physical pains, psychological depressions, and general misfortunes had become quite fashionable. As the recent wave of scholarship focused on the Romantic body has demonstrated, the scientific and medical research that was most influential on Romantic writing – such as David Hartley’s *Observations on Man* (1746), Joseph Priestley’s *Disquisitions Relating to Matter and Spirit* (1777), or Sir William Lawrence’s lectures on corporeal psychology (1815-16) – was predominantly concerned with the materialist underpinnings of all mental activity generally, which significantly blurred the dualistic divide of body and mind.¹¹

As Frederick Burwick notes, with its emphasis on subjective experience – and, I would add, the fact that Romantic writers were, on the whole, a genuinely sickly bunch – Romantic literature quite naturally reflected contemporary developments in science, medicine, and psychology.¹² Not surprisingly, then, psychobiographical portraits of creative figures – “pathographies,” as Dino Felluga so winningly puts it¹³ – were increasingly widespread in the Romantic era, and gave renewed currency to the traditional, Platonic archetype of the sick artist while initiating new considerations of what Annette Wheeler Carafelli calls “the pathogenesis of art.”¹⁴ Felluga, looking back to Carafelli’s wonderful essay on “Byron and the Pathology of Genius,” cites William Hazlitt’s 1815 essay “On the Causes of Methodism” as a significant crystallization of the period’s ideas about the pathological sources of creative production. In the essay, Hazlitt – a friend of Byron’s who had in fact suggested that

¹⁰ G.S. Rousseau, ‘Nerves, Spirits, and Fibres: Towards Defining the Origins of Sensibility.’ *Studies in the Eighteenth Century III: Papers Delivered at the Third David Nichol Smith Memorial Seminar*, Canberra 1973, ed. R.F. Brissenden and J.C. Eade, 1976, 137-57.

¹¹ For a recent survey of body-based developments in Romantic criticism, see Alan Richardson, ‘Romanticism and the Body.’ *Literature Compass* 1 (2004): 1-14. See also Roy Porter, *Flesh in the Age of Reason: The Modern Foundations of Body and Soul*. New York: Norton, 2003.

¹² Frederick Burwick, *Poetic Madness and the Romantic Imagination*. University Park: Pennsylvania State University Press, 1996, 9-12. Mary Shelley’s *Frankenstein*, to offer one classic example, is remarkable for its Gothic absorption of contemporary scientific theories. Gothic fiction and drama, such as works by Ann Radcliff and Matthew Lewis, commonly make use of developments phrenology, physiognomy, and psychology to explore various facets of human deviance. Substantial scholarly work has been done to establish the debts of numerous other Romantic-period writers—who were frequently sick themselves—upon scientific and medical research, among them Coleridge, Percy Shelley, and, of course, Keats, who also had formal training.

¹³ Felluga, 115.

¹⁴ Annette Wheeler Carafelli, ‘Byron and the Pathology of Genius.’ *Rereading Byron: Essays Selected from Hofstra University’s Byron Bicentennial Conference*, ed. Alice Levine and Robert N. Keane. New York: Garland, 1993, 205.

the poet's "misshapen feet...made him write verses in revenge"¹⁵ – suggests that, like religious fanaticism, poetic enthusiasm is the product of "an uncomfortable mind in an uncomfortable body".¹⁶ Hazlitt overturns the more common eighteenth-century notion that creative productivity makes the artist weak and sick and replaces it with the idea that the writing life is pursued by those with inherent intellectual and physical inadequacy. Though, as I have suggested, Hazlitt's argument is not exactly original, Carafelli describes the essay as "a contemporary landmark in the study of creativity, locating artistic predisposition in constitutional infirmity and articulating perhaps the first general theory of the pathology of artistic genius".¹⁷

The essay is also especially relevant to a consideration of Byron, given the extent of pathologization that surrounds both the body of the man and his poetic corpus. As Felluga elegantly argues in *The Perversity of Poetry*, especially in the case of Byron, the metaphorical language of health and disease that was part of the late eighteenth- and early nineteenth-century pathologization of the poetic vocation emerged as a key feature of his literary and personal reception.¹⁸ From the star-making moment of the publication of the first two Cantos of *Childe Harold's Pilgrimage* onwards, naysaying critics tended to represent Byron's poetry as a rampant pandemic infecting the body politic. For Peacock, the melancholic, angst-ridden, and misanthropic Byronic Hero was a toxic figure, capable of "poisoning" its "reading public".¹⁹ This conservative, censorial critical mode would reach a fever pitch in the wake of *Don Juan* many years later, as reviews were often virulent in their loathing for both the satire and its author. The publisher William Blackwood, for instance, claims that "I never in my life was so filled with utter disgust...I felt such a revolting at the whole book," while Southey, one of Byron's more rabid critics, describes *Don Juan* as one those "lascivious books" written by "men of diseased hearts and depraved imaginations" who "labour to make others as miserable as themselves, by infecting them with a moral virus that eats into the soul!".²⁰ Of Byron's work's first arrival and popularity in America, Peter Parley Goodrich describes the "fearful plunge" readers took from the elevated moral tone of New England's popular literature at the time into "the dreary if not blasphemous skepticisms of the new poet...What was at first revolting became a fascination...Byron could no more be kept at bay than the cholera".²¹ By embracing and cultivating the self-image of the mad genius, the poet is himself patient zero for "Byromania," the wonderful term coined by Annabella Milbanke to describe the frenzied fandom that spread first throughout England, then to the continent, and beyond. The view that emerges is of Byron the infectious pervert, the monster of immorality, the madman of the kind who can "make men mad / By his contagion," as the poet once said of Napoleon (*Childe Harold's Pilgrimage* III.43). Byron exploited this body-based, highly metaphorical, medicopathological rhetoric as part of an effort

¹⁵ M.H. Abrams, *The Mirror and the Lamp: Romantic Theory and the Critical Tradition*. Oxford: Oxford University Press, 1971, 142.

¹⁶ William Hazlitt, *The Complete Works of William Hazlitt*, ed. P.P. Howe, 21 vols. London: Dent, 1930-34, 4.58.

¹⁷ Carafelli, 205.

¹⁸ Felluga, 2-3.

¹⁹ Thomas Love Peacock, *The Letters of Thomas Love Peacock*, ed. Nicholas A. Joukovsky, 2 vols. Oxford: Clarendon Press, 2001, 1.123.

²⁰ Andrew Rutherford ed., *Byron: The Critical Heritage*. New York: Barnes and Noble, 1970, 164, 180.

²¹ Leonard, William Ellery. *Byron and Byronism in America*. New York: Haskell Press, 1964, 19-20.

to perpetuate the perception of his genius and to flaunt the transmission of his popularity, and if that meant being “mad, bad, and dangerous to know,” he could live with that. His own body, however, was much more difficult to live with.

The Foot, the Hair, and the Battle of the Bulge

“Everyone knows me – I am deformed,” was Byron’s rather dramatic and deeply sad response to a friend’s observation that the street boys always recognized him. Byron is referring specifically to the incurable clubfoot with which he was notoriously born, a malformation that taught him early about the power of bodily limitation and difference. About the overall impact of this physical distinction, biographers tend to concur, identifying it as “the greatest personal disaster of his life”²² and “the crucial catastrophe of his life,” causing him “emotional injury beyond any other psychic wound he would ever sustain”.²³ Though for the most part he seems to have borne with stoic pride, and occasional rage, both the physical pain of his treatments and special boots and the emotional indignation associated with his limp and his extremely thin calf, he always felt himself to be physically deficient, disabled, and like his most famous Byronic hero, Childe Harold, “Droop’d as a wild-born falcon with clipt wing” (*Childe Harold’s Pilgrimage* III.15). Byron was acutely sensitive about and always conscious of his relative inability to demonstrate the physical prowess he otherwise felt came naturally to him. Perhaps in an attempt to prove himself he never shied away from sports, playing cricket, boxing, and pistol shooting frequently.

He was, most famously, a proficient swimmer,²⁴ a reputation he firmly established for himself in May, 1810, when he swam the Hellespont from shore to shore. Given the challenging nature of the task, the poem Byron generated out of this apparent triumph might have been more celebratory. Instead, in “Lines Written After Swimming From Sestos to Abydos,” Byron undermines his significant natatory accomplishment and in doing so reinscribes the very idea of physical weakness he had aimed to overcome. First, he contrasts his single successful swim, which he hastens to point out occurred “in the genial month of May” (10), with those of Leander, Byron’s legendary object of imitation who regularly made it to Hero’s doorstep despite the weather. Whereas Leander’s story ends tragically with his drowning and Hero’s subsequent suicide, Byron’s ends ironically:

’Twere hard to say who fared the best:
Sad mortals! Thus the Gods still plague you!
He lost his labour, I my jest:
For he was drowned, and I’ve the ague. (17-20)

Indeed, Byron made it to the other shore, but only at the cost of his health. As the neat parallelisms in the final couplet demonstrate, he still perceives his victory as a “loss” because he catches a cold. The note of physical vulnerability on which this poem ends

²² Phyllis Grosskurth, *Byron: The Flawed Angel*. Boston: Houghton Mifflin, 1997, 11.

²³ Benita Eisler, *Byron: Child of Passion, Fool of Fame*. New York: Knopf, 1999, 13. For a discussion of his actual medical condition and overall health, see A.B. Morrison, ‘Byron’s Lameness.’ *Byron Journal* 3 (1975): 24-30 and Philip Marshall Dale, MD, *Medical Biographies: The Ailments of Thirty-Three Famous Persons*. Norman: University of Oklahoma Press, 1952.

²⁴ Grosskurth points out that Byron always swam in long trousers so as not to reveal his withered leg (32).

reflects Byron's awareness that although one may gain temporary mastery over parts of one's body, the whole is beyond one's control.

Though his foot may have been the most obvious way in which he felt he lacked control of his physical existence, the issue of control was central in other aspects of Byron's bodily life. The awareness of his malformation was only amplified by a feeling of persistent deformation or degeneration. He was obsessed with his health as well as with his doctors, whom he distrusted profoundly, though would never cease to need for his fits and fevers, hemorrhoids, kidney stones, venereal diseases, catarrhs, and countless other ailments that he writes about with often embarrassing detail. He was also unusually attuned to his own aging, a natural process he pathologizes as one chronic debilitating disease, his "constant plague," he calls it, regularly noting his thinning hair, his loosening teeth, his yellowing and withering skin.²⁵ Even at the relatively young age of seventeen, a time when most adolescents are still feeling invincible, Byron was woefully conscious of the fleetingness of youth, aware:

That the time must arrive, when, no longer retaining
Their auburn, those locks must wave thin to the breeze;
When a few silver hairs of those tresses remaining
Prove nature a prey to decay and disease... ("To Caroline" 9-12)

The notion of being a "prey to decay" underscores Byron's sense of the ultimate futility of any efforts he might make to prevent the often unpleasant changes that come with growing older, recognizing that he is, as are all human beings, an unwilling, though inevitable, *victim* of time. Although this kind of sensitivity to the mutability of all things was by no means unique to Byron among his literary and philosophical peers, the morbid extent of his personal focus on the issue is remarkable.²⁶

Most notably, however, he found himself stuck in a body that kept getting fat. Byron was a chubby boy, but as he grew up, it was as if excess weight was always stalking him and it was a constant battle for him to stave it off. In an effort to manage his troubling corpulence, he engaged in a variety of what he called "reducing methods," highly aberrant, self-destructive eating habits and other weight-loss tactics—many of which today would be associated with eating disorders like anorexia and/or bulimia, diseases largely driven by the sufferer's desire to control his or her body through its relation to food.²⁷ By the fall of 1806, he weighed over two hundred

²⁵ Leslie A. Marchand, *Byron: A Biography*. 3 vols. New York: Knopf, 1957, 1.155.

²⁶ For detailed examinations of Byron's sensitivity to time and age and how it is revealed in a variety of forms and themes, see Itsuyo Higashinaka, 'Byron's Sense of Ageing,' *Byron Journal* 7 (1979): 48-60 and Ronald A. Schroeder, 'Byron's Sense of Time and Age Before 1810,' *Byron Journal* 11 (1983): 4-20.

²⁷ According to Grosskurth, Byron's manic dieting, which began when he was in his late teens, was an attempt to disassociate himself from his fat mother, suggesting that becoming thin was a kind of adolescent rebellion (134). Eisler corroborates this view by pointing out the similarities between Byron's equation of starvation and self-mastery and the testimony of girls suffering from anorexia (308, note). In *Lord Byron's Relish: The Regency Cookery Book*. Glasgow: Dog and Bone, 1990, Wilma Paterson discusses Byron's anorexic tendencies and the links between his eating and his sex life, while gastroenterologist Jeremy Hugh Baron and psychiatrist Arthur Crisp work together to diagnose Byron's eating disorder in 'Illness and Creativity: Byron's Appetites, James Joyce's Gut and Melba's Meals and Mesalliances,' *British Medical Journal* 7123 (20-27 Dec. 1997): 1697-1703.

pounds, which, as biographer Benita Eisler points out, is “more than pleasingly plump” for a young man, 5 feet 8 1/2 inches tall.²⁸ This near obesity prompted the first of a series of slimming regimens involving extraordinarily rigorous measures that Byron would periodically employ throughout the rest of his life in order to shed pounds and enhance the delicacy of his features.

As he confesses quite openly throughout his letters and journals, he was prone to “*thinning...with fasting and purgatives,*”²⁹ erratically denying and voiding his body. When he wasn’t deliberately starving himself or eating only foods with absolutely no nutrition like boiled potatoes and vinegar or hard biscuits and soda water, he would feast on food and wine in such excessive amounts as to cause vomiting: “I have been eating and drinking; which I always do when wretched,” he wrote in a letter to lady Melbourne, “for then I grow fat and don’t show it” (*BL&J* August 20, 1813). Induced sweating through extreme physical exertion and really hot baths which he hoped would “boil off his fat” was a favorite approach, one he often combined with a restrictive, sometimes wildly idiosyncratic diet and a bit of purging:

I shall continue my Exertions, having no other amusement, I wear *seven* Waistcoats, & a great Coat, run & play at Cricket in this Dress, till quite exhausted by excessive perspiration, use the hot Bath daily...no Suppers, or Breakfast, only one meal a day..., & Take physic occasionally, by these means, my Ribs display Skin of no great Thickness, & my Clothes, have been taken in nearly half a yard, do you believe me now?” (To Hanson, *BL&J* 1.113-14)

The rather sudden drop in Byron’s weight since January 1807 caused some concern in his acquaintances that he might be suffering from a life-threatening illness, since a little excess weight on a body was considered a sign of good health at the time: “you will be surprised to hear I am grown very thin,” he writes earlier in the letter to Hanson, “however it is the Fact, so much so, that the people here think I am going.” But, as Byron proudly explains his intentions, there is no cause for alarm since “I have taken every means to accomplish the end, by violent exercise, & fasting, as I found myself too plump” (*BL&J* 1.113). By the fourteenth of May he had lost over twenty-

Obviously, suggesting that Byron was suffering from *anorexia nervosa* as we understand it today – a disease that was not named officially until 1874 – raises certain methodological issues despite the substantial evidence of Byron’s extreme body consciousness and fraught relationship with food. There have been a number of other studies of Byron’s eating habits and attitudes about food that attempt to avoid this potentially anachronistic “diagnostic” method, focusing more on Byron’s issues with power and self-control. In ‘The Order and Disorder of Eating in Byron’s *Don Juan*.’ *Disorderly Eaters: Texts in Self-Empowerment*, ed. Lilian J. Furst and Peter W. Graham. Pennsylvania: Pennsylvania University Press, 1992, 113-23, Peter Graham, for example, explores the ways in which eating is a means of self-empowerment in *Don Juan*, and Christine Kenyon Jones addresses Byron’s understanding of the ideology of food and eating as a cultural activity (“‘Man is a Carnivorous Production’: Byron and the Anthropology of Food.” *Prism(s): Essays in Romanticism* 6 (1998): 41-58). Focusing on the character of Conrad in *The Corsair*, Tom Mole explores the relation for Byron among food, self-control, and celebrity (*Byron’s Romantic Celebrity: Industrial Culture and the Hermeneutics of Intimacy*. Basingstoke: Palgrave, 2007). For a sustained treatment of the anorexia in literature (that doesn’t discuss Byron), see Maud Ellman’s *The Hunger Artists: Starving, Writing, and Imprisonment*. London: Virago, 1993.

²⁸ Eisler, 120.

²⁹ Lord George Gordon Byron, *Byron’s Letters and Journals*, ed. Leslie A. Marchand. 12 vols. London: J. Murray, 1973, 8.165. This will be abbreviated hereafter as *BL&J*.

seven pounds, at which point he admits to being “metamorphosed not a little” (*BL&J* 1.119). He claims to have lost a total of fifty-six pounds by January of 1808, which was enough weight to have altered his appearance so dramatically that even when he returned to Cambridge six months earlier in June of 1807, he was unrecognizable to those who had known him. This self-transformation brought Byron to an emaciated state so unnatural that he looked, by his own account, a bit vampiric, with a “figure & visage [of] preternatural Longitude” (*BL&J* 1.121-22). Rather than feeling awkward about looking sickly and unnatural, however, the change was reportedly empowering for him. “Far from sinking his spirits,” claimed one of Byron’s kinsmen, “he felt himself lighter and livelier for it; and that it had given him a greater command over himself in every other respect”.³⁰

Byron was trying literally to dematerialize himself by steadily getting rid of his bodily mass – a rather odd method detaching the self from the body, by trying to, in a sense, detach the body from the self. Part of what motivated Byron’s compulsive efforts at physical reform was certainly that his body had become a commodity; superficial image was then, as it is now, a crucial aspect of the celebrity package, and he wanted to control what others saw as much as possible (he was also notorious for showing up to public events in costume). Acquaintances, admirers, and total strangers would fetishistically, often savagely, comment on and gossip about individual aspects like his hair, his hands, his face, and, everyone’s favorite, his weight. If gossip about Byron was frequent while he was still a part of London society, it only increased after his exile, as reports of those who saw him while traveling abroad made their way home. Newton Hanson, who had seen a lot of Byron during his earlier years of fame, was appalled by the man he met again in Venice in 1818: “Lord Byron could not have been more than thirty but he looked forty. His face had become pale, bloated and sallow. He had grown very fat, his shoulders broad and round, and the knuckles of his hands were lost in fat”.³¹ Lord Glenbervie, in his diary, would confirm the “multiplied anecdotes of Lord Byron’s metamorphoses into a fat, fat-headed, middle-aged man. Slovenly to the extreme, unkempt, with long, untied locks that hang down on his shoulders, shabbily dressed...”.³² In combination with his own hypercritical self-scrutiny, awareness of this attention taught him that his body was something to be experienced part by part rather than as a healthy whole, and as an object that could be taken apart and analyzed in bits and pieces. It would have been nearly impossible for Byron to feel like he had any structural integrity. Byron, rather pathetically, gives an account of his own appearance at thirty-two years old in a letter to Wedderburn Webster in July 1819 that reflects precisely the fragmented, dis-integrated way in which he views himself:

With regard to the imputed ‘Corpulence’—my size is certainly increased considerably; but I am not aware that it amounts to that ‘Stupendous’ degree which you enquire after. At eight and twenty I was as thin as most men, and I believe that hitherto I have not exceeded the decent standard—of my time of life. However, my personal charms have by no means increased; my hair is

³⁰ Robert Charles Dallas, *Correspondence of Lord Byron with a Friend...Also Recollections of the Poet*. 3 vols. Paris: Galignani, 1825, 1.129.

³¹ Higashinaka, 50.

³² Marchand, 2.746.

half grey, and the Crow's-foot has been rather lavish of its indelible steps. My hair, though not gone, seems going, and my teeth remain by way of courtesy; but I suppose they will follow, having been too good to last." (*BL&J* 6.174)

If this pathological perception of his own body prevents him from experiencing himself as a whole that can overcome the limitations of its parts, it is not surprising that images of architectural fragments figure so prominently throughout much of Byron's poetry, as they are suggestive to him of his fleshly imperfections, of his deformity, and of his degeneration. Embedded in the panoramic scenes through which Byron travels in Canto IV of *Childe Harold's Pilgrimage*, for example, are "chiefless castles" with "grey but leafy walls, where Ruin greenly dwells" (46). In spite of the natural growth garnishing their facades, the many now empty fortresses along the Rhine River have proven to be, like his own human body, vulnerable, slowly crumbling houses for their ambitious occupants.³³ Rather than being able to relate his own poetic fertility to the natural abundance in the area, Byron feels drawn to identify instead with the crumbling structures he sees along the way, the kind of sites at which he will continue to "meditate amongst decay, and stand / A ruin amidst ruins" (IV.25).

The architectural analogy of body and building offers other possibilities for Byron to express his sense of physical confinement. The language of bondage and imprisonment that Byron uses so copiously in his letters, journals, and more autobiographical poetry reveals a general association of the body with a lack of freedom; the body is depicted as a powerful, unavoidable impediment to genuine self-mastery. In other words, if his body is a building, that building functions like a prison, an agent of containment and barrier to creative freedom. "Oh, that I were / The viewless spirit of a lovely sound, / A living voice, a breathing harmony, / A bodiless enjoyment," Manfred exclaims, longing to leave his body behind to become as intangible as music in the air (*Manfred* I.ii, 52-55). In *Childe Harold's Pilgrimage* we find a similar expression of desire for the "bodiless thought," "when, at length, the mind shall be all free / From what it hates in this degraded form, / Reft of its carnal life" (III.74). All efforts at detachment, all wishes to surmount the limitations of the physical, however, produce increased awareness that "mortality predominates" (45). Even though the mind or spirit may have aspirations of its own, it is fundamentally bound by and to his pathological body. Whether he depicts the body as a "sad jar of atoms" or characterizes human existence as "'a Soul which drags a Carcase' — — a heavy chain to be sure," Byron imagines his natural state to be one of "Mortal bondage" (*Oxford Authors* 1016; *Childe Harold's Pilgrimage* IV.5). He is "coop'd in clay" (*Manfred* I.ii.157), a "barr'd up bird" (*Childe Harold's Pilgrimage* III.15), a "link reluctant in a fleshly chain / Classed among creatures when the soul can flee" (72). Byron's vexed relation to his own physical form dramatically intensifies this

³³ There is, of course, a long tradition for the building/body analogy, perhaps going as far back as the Socratic dictum that "the eyes are the windows of the soul." See Leonard Barkin, *Nature's Work of Art: The Human Body as Image of the World*. New Haven: Yale University Press, 1975. During the Renaissance, Paracelsus theorized the body as home for the soul, an image that is taken up by Spenser, among others (see *Faerie Queene* II, in which the House of Alma is a body). For the theme of ruins, see Laurence Goldstein, *Ruins and Empire: The Evolution of a Theme in Augustan and Romantic Literature*. Pittsburgh: University of Pittsburgh Press, 1977, and Rose Macaulay, *Pleasure of Ruins*. London: Weidenfeld, 1953. See also Thomas McFarland, *Romanticism and the Forms of Ruin: Wordsworth, Coleridge, and Modalities of Fragmentation*. Princeton: Princeton University Press, 1981.

general sense of restriction that the body imposes in Byron's view of the human condition.

Formal Therapies?

So what function does art serve in this self-image of inescapable deformity and ruin? One critic has commented that "Art for Byron was anesthesia, an attempt to silence an omnipresent, pained body,"³⁴ though the language Byron uses does not exactly support the notion that art relieves him of somatic feeling, thereby allowing him to forget about his body for a while. Rather, this language remains firmly connected to the body. Just as Byron characterizes his various episodes of ill health as "vesuvian" fevers (*BL&J* 2.44) and sweat-drenched fits, so too does he describe finished poetic works as "fit[s] of writing" (*BL&J* 5.146) that are products of the "fever of [his] mind" (*BL&J* 4.35). "All convulsions end with me in rhyme," he says in a phrase that beautifully captures the bodily generation of his verse (*BL&J* 2:295). This association of poetry and illness is made even more explicit in a letter to his mother from Greece in which he explains that in order to remember the scenes of his travels most clearly he employed an artist to paint some of the views, a method that "will be better than scribbling, a disease I hope myself cured of" (*BL&J* 2.35).

If poetry is a disease, however, Byron also depicts it as a potential cure, or at least as offering some form of relief through expression. Composing poetry may be a "torture" and "a great pain" that "he must get rid of" (*BL&J* 5:215), but like his loosely autobiographical persona, Manfred, his "pangs shall find a voice!" (*Manfred* II.ii.50). Writing is therefore another example of Byron's overall penchant for removing things from his body. Echoing the language of purging and sweating that characterize his writings about weight loss, Byron bemoans the process of "sweating poesy" and the passionate need to "write to empty [his] mind" (*BL&J* 4.284). One of Romanticism's familiar tropes, manifested in a wide variety of forms, is the analogy between the expressive, creative act and the natural process. In *Don Juan*, for instance, Byron refers to those "unquiet feelings," "As on the beach the waves at last are broke, / Thus to their extreme verge the passions brought / Dash into poetry" (IV.106). Byron's most memorable metaphor for poetic creation compares expression to volcanic activity: "poetry," he sublimely writes, "is the lava of imagination, whose eruption prevents the earthquake" (*BL&J* 3.405). This "lava" metaphor prompted M.H. Abrams, in his brief discussion of the Romantic period's manifestation of the Aristotelian legacy, to refer to the "hydrodynamics of the poetic process" whereby cathartic expression often yields from pent-up emotion.³⁵ It seems that Abrams is reading Byron's remark as a revision of Wordsworth's famous definition of poetry in his "Preface to the *Lyrical Ballads*" as the "spontaneous overflow of powerful feelings".³⁶ Significant is Abrams's choice of the word "hydrodynamics," by which he intends to suggest the fluid nature of emotions that eventually bubble to the surface of the Romantic fountain of mind, and, to complete the metaphor, pour onto the page in the form of poems. By drawing increased attention to the implications of imagery of "overflow," Abrams throws into relief the natural, and, therefore, material sources of

³⁴ Steven Bruhm, *Gothic Bodies: The Politics of Pain in Romantic Fiction*. Philadelphia: University of Pennsylvania Press, 1994, 136.

³⁵ Abrams, 138.

³⁶ William Wordsworth, *William Wordsworth: Selected Poems and Prefaces*, ed. Jack Stillinger. Boston: Houghton Mifflin, 1965, 448.

these kinds of expressive metaphors. For Byron, however, the earthly world and its natural processes that provide the source of such metaphors are clearly related to his complicated relationship with his own body (which is, materially, of nature). In fact, Byron draws a three-way analogy among earthly processes, creative processes, and human bodily processes. Byron's grand geological image for poetic production, despite its obvious psychological underpinnings, transforms the natural process of the earth's eruptions into what is essentially a human bodily process. The buildup of pressure from within the body of the Earth becomes a fitting analogy for the buildup of pressure within one's own body (especially when we see it in light of Byron's fondness for purging and sweating).³⁷ When Byron compares his own impulse to create poetry to the rumblings within the Earth, and the eventual imaginative effusion to a volcanic eruption that may be explosive but is the very thing that prevents a much more serious natural disaster, he suggests that his own poetic impulses are similar to the natural processes that protect Earth's body. According to Byron's metaphor, writing reduces the risk of being blown apart by his own insides.

Perhaps the finest example of the link between Byron's bodily model and his views on poetic composition is his humorous implication that reading Wordsworth—whom he more than once refers to as “Mr. Turdsworth” (*BL&J* 7.158, 167, 168, 253; 8.66, 68) – worked like a medicinal laxative. “Shelley, when I was in Switzerland, used to dose me with Wordsworth physic,” Byron reportedly claimed, making the somewhat vulgar, though not original, link between poetic creativity and the expulsion of bodily waste.³⁸ (In its original usage, physic refers to knowledge of the human body, diseases, and their treatments, but in its more specific usage in the medical sciences, physic is the word for any drastic remedy for constipation, like a purgative or aperient.) Byron's intimations of the potentially cathartic effect of composition – the dematerializing, the getting rid of – thus seem rooted in and derive from his physiological experiences.

But this purgative vocabulary is in tension with a discourse (that Byron also employs) that figures writing itself as potentially compensatory process of embodiment, a wish to “body forth the heated mind” (*Childe Harold's Pilgrimage* IV.104). At the beginning of Canto III of *Childe Harold's Pilgrimage*, written during a period of particularly intense bodily anxiety (he was in exile for rumours of sodomy and incest; he was fat again), Byron speculates as to the possible therapeutic effects of putting thoughts into form: “’Tis to create, and in creating live / A being more intense,

³⁷ The sublime imagery of earthquakes and volcanoes that Byron employs to describe his inner stirrings recalls Milton's use of the body/earth analogy in *Paradise Lost*, especially fitting since Byron is often read as a Satanic figure. In Book I, in an epic simile describing Satan, Milton compares him to the volcanic Mount Aetna, “whose combustible / And fuell'd entrails thence conceiving Fire, / Sublim'd with Mineral fury, aid the Winds, / And leave a singed bottom all involv'd with stench and smoke” (John Milton, *John Milton: Complete Poems and Major Prose*, ed. Merritt Y. Hughes. New York: Macmillan, 1957, 230-37). Another volcano is similarly described as a body, “whose grisly top / Belch'd fire and rolling smoke; the rest entire / Shone with a glossy scurf, undoubted sign / That in his womb was hid metallic Ore” (I.670-73). For more of Milton's use of the analogy, see the description of Earth's body in Book I, ransacked by “impious hands” who “Rifl'd the bowels of their mother Earth / For Treasures better hid” (686-88), and similarly in Book VI, when the devils “Part hidd'n veins digg'd up (nor hath this Earth / Entrails unlike) of mineral and Stone” to forge their engines of war (515-16). For a thorough discussion of demonic, or parodic, images of creation like these, see Michael Lieb, *The Dialectic of Creation: Patterns of Birth and Regeneration in Paradise Lost*. Amherst: University of Massachusetts Press, 1970.

³⁸ Thomas Medwin, *Conversations of Lord Byron*, ed. Ernest J. Lovell, Jr. Princeton: Princeton University Press, 1966, 194.

that we endow / With form our fancy" (6). In this passage, Byron imagines the creative act – the shaping of thoughts into forms – quite consciously as a process of embodiment, rather than as a relatively formless or dematerializing cathartic output, such as sweating, purging, or spewing lava. This deliberately constructive depiction of form or embodiment is the precise opposite of Byron's pathologically fragmented and degenerative experience of his body, the view of composition that derives from that experience, and the drive to disembody himself.

To counteract the more challenging aspects of his literal body, Byron turns to the control and manipulation of poetic form, thereby displacing his concern for his own physical structures and surfaces onto a concern for the structures and surfaces of his poetry. Such a reading helps to account for Byron's otherwise odd love of the Augustans. Their neoclassical fondness for decorum and their adherence to strict formal rules and conventions would not have appealed to Byron's rebellious nature and overall mistrust of systems, but they would have appealed to his desire and need for control in his life, for self-mastery. The blank verse, sweeping lyricism, and subjective meditative sequences of so much of the poetry of his contemporaries, however, made him feel "half mad" with disorder (*BL&J* 5.165). Ruins and fragments figure prominently throughout much of Byron's poetry and are suggestive of his sense of his own body. The episodic, multi-generic structure of *Don Juan*, composed in response to an abundance of stimuli, can be seen as a formal analogue for this thematic content, but the effect is very different. The poem's quick transitions between genres and its clever play with the bits and pieces of poetic convention represent the work of an author confidently wielding the tools of his trade, not one at the mercy of a failing body. In addition to the technically demanding Spenserian stanzas of *Childe Harold's Pilgrimage*, many of the other poems written in Switzerland are highly complicated structurally: he composes two Petrarchan sonnets, (which are challenging to write in English), a range of poems in heroic couplets, and one poem in ottava rima, in which all of *Don Juan* would eventually be written (also challenging to write in English because of the paucity of rhyming words relative to the Italian language).³⁹ Byron's claims to spontaneous composition free of editing and revision are frequent in his letters and are announced in a typically exaggerated way in *Don Juan* (IX.41). However, this is clearly a rhetorical move, since the highly structured nature of his verse, from its complex and limited rhyme schemes, to its stanzaic properties, to the balance and symmetries of whole poems, for the most part requires great discipline and control and would have been impossible to write extemporaneously.⁴⁰ It is perhaps in this way, through the mastery of his content via the deliberate mastery of form, that poetic composition proves most therapeutic for Byron – a way for his ruined body to be reconstituted by the formal analogue of the poem itself.

³⁹ Drummond Bone, 'First Look at Exile: Byron's Art in 1816.' *Byron Journal* 19 (1991): 78.

⁴⁰ John A. Hodgson, 'The Structures of *Childe Harold* III.' *Studies in Romanticism* 18 (1979): 363.

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Science, Drugs and Occultism: Aleister Crowley, Henry Maudsley and Late-nineteenth Century Degeneration Theories

Justin Sausman

Science and the Occult in the late-nineteenth century

This article examines the relations between two cultural movements of the late-nineteenth and early twentieth centuries: theories of degeneration that predicted evolutionary regression, and the interest in occultism, especially in relation to psychological research and ritual magic. I will show how questions of pathology, of marking out a boundary between the human and non-human, the progressive and the degenerative, are key concerns of these movements, and that this also marks out the boundary between the scientific and non-scientific. Both theories of degeneration and the occult might be seen as pseudo-sciences, drawing on scientific authority in order to give legitimacy to non-scientific content. However, this term suggests a clearly marked boundary between science and other discourses that is now being questioned, emphasising instead that historically shifting centres of science are always being contested by more marginal theories, as Alex Warwick has put it:

If the creation of a new science is owed simply to the systematic identification of a new object of study, its coming into existence should be relatively straightforward, but what emerges alongside the 'new' science is a simultaneous uncertainty about what constitutes a delimited or even legitimate object of study.¹

This uncertainty about the object of study suggests that a newly emerging science might also need to engage in wider debates in order to establish its claim to legitimacy. I want to stress here the network of debates that surround these two marginal sciences, following Bruno Latour's view that "science – in quotation marks – does not exist. It is the name that has been pasted onto certain sections of certain networks."² I will be examining the ways in which occultism, degeneration and evolutionary theories interact in order to claim scientific legitimacy, by identifying and reversing the trends of evolutionary regression. These themes will be examined through the textual encounter between two key representatives of these theories, the psychologist Henry Maudsley and the ritual magician Aleister Crowley, staged in his 1922 novel *Diary of A Drug Fiend*.

Theories of degeneration applied evolutionary theory in reverse to cultural formations, Max Nordau (1849-1923) predicting the dusk of nations, the gradual regression of entire nations to a more primitive state. This drew upon the work of the criminologist Cesare Lombroso (1835-1909), who measured the bodily features of criminals, in order to show that they all displayed common marks that departed from

¹ Alex Warwick, 'Margins and Centres.' *Repositioning Victorian Sciences: Shifting Centres in Nineteenth-Century Scientific Thinking*, ed. David Clifford, Alex Warwick, Elisabeth Wadge, Martin Willis. London: Anthem Press, 2006, 3.

² Bruno Latour. *The Pasteurization of France*. Trans. Alan Sheridan and John Law. Cambridge, MA: Harvard University Press, 1988, 216.

an implicit norm, and that these were inherited features. In these works the degenerate is requested by such figures as the homosexual, the hysteric, the drug addict and the occultist, whereby social problems are seen in biological terms. These theories have been extensively studied, and it has become an influential paradigm through which the late-nineteenth century is read. Kelly Hurley's *The Gothic Body* examines these theories in relation to Gothic fiction, with its images of "a body metamorphic and undifferentiated."³ She sees the root of this in Darwinian evolutionary theory, which destabilises the notion of the human as a unique pinnacle of creation, showing the shared origins of human and animal. The body here becomes a site of crisis; the more that it is subject to the increasing advances in scientific knowledge, the more it becomes a site where the human loses uniqueness and slips further down the evolutionary tree, instituting both individual and national crisis.

For Nordau, occultism was a symptom of this crisis, one that is characterised by "inexplicable relations between distinct phenomena and ambiguous formless shadows."⁴ The late-nineteenth century saw the proliferation of occult societies and publications, expanding on the popular Victorian spiritualist movement that had originated in America during the 1840s. The Society for Psychical Research, set up to investigate spiritualism on a scientific basis, was founded in 1882, and included among its members the physicists William Barrett and Oliver Lodge, the philosopher Henry Sidgwick, classical scholar Frederic Myers and psychologist William James. The society became increasingly interested in the psychological underpinnings of mediumship, and speculated on a subliminal consciousness that would explain spirit communications, an idea that was seen as an alternative to the Freudian unconscious.⁵ The Hermetic Order of the Golden Dawn was formed in 1888 to teach occult science to initiates through the practice of ritual magic. It drew on Kabala, alchemy and Hermetic magic, and promised to bring about the spiritual regeneration of modern man.⁶ It attracted high profile members, its most famous being W.B. Yeats, and the order's influence on his writing has been well established.⁷ It also included Moina Bergson, sister of the philosopher, who married Samuel MacGregor Mathers, one of the founders, and Aleister Crowley, who was initiated in 1898. Crowley later fell out with other members, and set up a rival group, the Argenteum Astrum, in 1907, and began to publish to publish a periodical, *The Equinox*, which created controversy by publishing some of the secret rituals of the Golden Dawn. Alex Owen has suggested that these societies represented a move towards a more structured, scholarly or scientific investigation of occult ideas compared to the spiritualist movement of the earlier nineteenth century:

In certain respects the 'new' occultism represented a somewhat elitist counterpoint to the hugely successful Victorian spiritualist movement that had preceded it. [...] There was an implicit understanding that it was learning,

³ Kelly Hurley. *The Gothic Body: Sexuality, Materialism and Degeneration at the Fin-De-Siècle*. Cambridge: Cambridge University Press, 1996, 3.

⁴ Max Nordau. *Degeneration*. 1892. Lincoln and London: University of Nebraska Press, 1968, 57.

⁵ For the history of Psychical Research see Alan Gauld. *The Founders of Psychical Research*. London: Routledge & Kegan Paul, 1968.

⁶ For the history of the Golden Dawn see R.A. Gilbert. *Revelations of the Golden Dawn*. London: Quantum, 1997.

⁷ See George Harper Mills. *Yeats' Golden Dawn*. London: Macmillan, 1974.

rather than the less predictable mediumistic ‘gifts,’ that underwrote the new spirituality.⁸

It is important to note that these different practices and beliefs of the occult field do not form a unified body: their magical doctrines drew on an eclectic mix of Eastern and Western esotericism, and ritual magicians were frequently hostile to spiritualism. Crowley defined magic as “the science and Art of causing change to occur in conformity with Will.”⁹ Ritual magic sought to change the perceived world and consciousness through focusing on ritual acts that would heighten the will, often invoking the powers of ancient pagan gods to aid this process. Crowley and other ritual magicians saw themselves as recovering a forgotten scientific knowledge, lost in the process of becoming modern, that could be used for mundane purposes, such as generating money, or for the more ambitious one of the spiritual regeneration of the human. In contrast, spiritualist mediums claimed to contact the spirits of the dead through surrender of the will, allowing the spirits to speak through them via automatic speaking or writing, or to appear as phantom limbs or ghosts. Whereas magic sought to recover ancient traditions, psychical research sought to uncover newly emerging forces on the body, as evidence that the spiritual world was becoming gradually accessible. Nevertheless, these diverging trends shared certain similarities, most notably a belief that their projects would bring about new kinds of knowledge that would overthrow the scientific materialism of the nineteenth century and bring about the evolution of the human body beyond its current limits. Having very briefly set out the background of the occult field, the remainder of this article is divided into three sections: the first considers how psychical researchers saw their project in terms of theories of evolution; the second examines Maudsley’s condemnations of the occult as degenerate; and the third interrogates Crowley’s engagement with Maudsley and the regeneration of the human that it promises.

Evolution

Writers in the occult field in the late-nineteenth century set out to make connections between Darwinian evolutionary theory and their own investigations, arguing that the phenomena of psychical research were evidence of newly emerging powers of the human body. They set out to appropriate the language of degeneration, arguing that the deformations of the body seen in the production of phantom limbs were evidence of new natural forces, not abnormal pathological symptoms. Frederic Myers argued:

The nervous system itself is probably tending in each generation to become more complex and more delicately ramified. As is usual when any part of an organism is undergoing rapid evolutive changes, this nervous progress is accompanied with some instability. Those individuals in whom the hereditary or the acquired change is the most rapid are likely also to suffer from this *peturbation which masks evolution* – this occasional appearance of what may be termed ‘nervous sports’ of a useless or even injurious type.¹⁰

⁸ Alex Owen. *The Darkened Room: Women, Power and Spiritualism in late-nineteenth century England*. London: Virago, 1989, 4-5.

⁹ Aleister Crowley. *Magick in Theory and Practice*. 1929. New York: Dover, 1976, xxii.

¹⁰ Frederic Myers. *Human Personality and its Survival of Bodily Death*. 2 vols. London: Longmans & co. 1903, 93. All subsequent references are to this edition and are given in the text.

Myers here seems to run together two theories, that of evolution and neurasthenia: he seems to suggest that modernity has become more complex, leading to what appears a failure of nervous energy, a condition originally outlined in George Beard's *American Nervousness* (1881). But he also argues that this is only a temporary disturbance, that in fact what psychical research is promoting is an evolutionary leap forward. Hence, he argues that spirit messages "are likely at first to be misinterpreted, and to create an impression of pain or strangeness where, in my view, there is nothing beyond wholesome effort in the normal course of evolution among both incarnate and disincarnate men" (255-56).

The physicist Oliver Lodge, another key member of the Society for Psychical Research, who in the wake of the First World War became an ardent spiritualist himself, investigated the Italian medium Eusapia Palladino in 1894, and refused to pathologise her body as in any way degenerate:

This appearance as of extra limbs is so prominent a feature that actual physical malformation of the medium has been suggested to account for them. But I have authority to say that she has been medically examined, and I know that Mrs Sidgwick and Mrs Lodge took pains to assure themselves that there was nothing whatever abnormal about her external configuration.¹¹

In fact Lodge moves away from seeing her in biological terms at all, suggesting instead that Palladino is an advanced piece of scientific apparatus, a laboratory experiment where new traces of evolution can be discovered:

She is an instrument whose ways and idiosyncrasies must be learnt, and to a certain extent humoured, just as one studies and humours the ways of some much less delicate piece of physical apparatus turned out by a skilled instrument maker. (324)

In the views of both Lodge and Myers, there is nothing contrary to the idea of evolutionary progress in occult phenomena; and there is nothing anti-scientific in the study of them. The most direct example of a positive embrace of both evolutionary theory and the occult is provided by Alfred Russel Wallace, Darwin's co-theorist of natural selection, and an ardent spiritualist. Wallace saw man's creative or moral abilities (which seemed to serve no evolutionary purpose) as evidence of his spiritual nature:

The special faculties [...] clearly point to the existence in man of something which he has not derived from his animal progenitors, something which we may best refer to as being of a spiritual essence or nature, capable of progressive development under favourable conditions.¹²

¹¹ Oliver Lodge, 'Experience of Unusual Phenomena Occurring in the Presence of an Entranced Person (Eusapia Palladino): Report to the President and Council of the S.P.R.' *Journal of the Society for Psychical Research*, 6 (November 1894) 306-360, 321. All subsequent references are to this edition and are given in the text.

¹² Alfred Russel Wallace. *Darwinism*. London: Macmillan 1889, 474.

Indeed Darwin had been sufficiently disturbed by the claims of spiritualism to attend a séance in 1874, although afterwards he declared it to be trickery.¹³ It should also be noted that two of the key figures of degeneration theories, Nordau and Lombroso, later came to embrace spiritual beliefs themselves. In the late 1890s Nordau underwent a conversion to Zionism,¹⁴ while Lombroso, to whom Nordau had dedicated *Degeneration*, rejected his earlier materialist position after investigating Eusapia Palladino, thus bringing to an end his “indefatigable pursuit of a lifetime to defend the thesis that every force is a property of matter and the soul is an emanation of the brain”.¹⁵ Occultism and mysticism here seem to haunt degeneration, suggesting a corrective to its diagnosis of regression. Yet, as the next section will explore, Henry Maudsley, a representative of degeneration theories, attacked occult beliefs as having no part in the process of evolution, or the science that would explain it.

Degeneration

Henry Maudsley (1835-1918) was a key figure in Victorian psychology, editor of the *Journal of Mental Science* from 1863-1878, and founder of the Maudsley Hospital in South London for the treatment and research of psychiatric illness. He was a proponent of psychophysiology, viewing psychological states as symptoms of underlying physiological conditions, so that, as Bruce Haley puts it “a truly psychophysical concept of health evolved, [...] The immediate cause of chronic disease was their failure in a physical sense, but their predisposing condition was their failure in a mental or moral sense.”¹⁶ Maudsley was also a key theorist of degeneration, seeing mental pathology as both symptom and cause of evolutionary regression, as he pessimistically puts it: “There is a broad and easy way of dissolution, national, social or individual, which is the opposite of the steep and narrow way of evolution.”¹⁷

The anthropologist Edward Tylor’s *Primitive Culture* (1871) had argued that spiritual beliefs were survivals, remainders of civilised man’s primitive origins. Agreeing with this view, Maudsley associated spiritual beliefs with the degenerate body, arguing that “in all places and at all times abnormal states of the nervous system, morbid and artificial, in which sense is thrilled in ecstasy, have been esteemed ways of communication with the supernatural.”¹⁸ This pathological condition meant that man began to regress to a more primitive state: “The belief is really a reversion to the old belief of ignorant folk among whom spirits and ghosts abounded; an example of the revival or recrudescence of a still-surviving superstition, not a new conquest of scientific thought” (*Natural Causes*, 84).

¹³ See Roger Luckhurst, ‘Demon Haunted Darwinism.’ *New Formations* 49 (2003) 124-35, see 127-8.

¹⁴ See Todd Samuel Presner, “‘Clear Heads, Solid Stomachs and Hard Muscles’: Max Nordau and the Aesthetics of Jewish Regeneration.’ *Modernism/Modernity*. 10:2 (April 2003) 269-96, and Michael Stanislawski. *Zionism and the Fin-de-Siècle: Cosmopolitanism and Nationalism from Nordau to Jabotinsky*. Berkeley: University of California Press, 2001.

¹⁵ Cesare Lombroso. *After Death - What? Spiritistic Phenomena and their Interpretation*, trans. by William Sloane Kennedy. Boston: Small, Maynard & Co., 1909, 1. All subsequent references are to this edition and are given in the text.

¹⁶ Bruce Haley. *The Healthy Body and Victorian Culture*. Cambridge: Cambridge University Press, 1978, 45. All subsequent references are to this edition and are given in the text.

¹⁷ Henry Maudsley, ‘Lessons of Materialism.’ *A Selection of Lectures Delivered Before the Sunday Lecture Society, Fourth Selection*. London: Sunday Lecture Society, 1886, 15. All subsequent references are to this edition and are given in the text.

¹⁸ Henry Maudsley. *Natural Causes and Supernatural Seemings*. 1886. London: Watts, 1939, 93. All subsequent references are to this edition and are given in the text.

Maudsley believed that spiritualism, which he here takes to mean not just the actual practices of mediumship, but a general philosophical outlook that would also include orthodox religions, turns away from the body to emphasise an intangible spirit, whereas materialism teaches “not to despise and call unclean the last and best work of his Creator’s hand” (“Lessons of Materialism”, 11). Hence he also rejects the idea of sin, suggesting instead that when confronted with a criminal, one should diagnose illness: “There is no question in such case of moral guilt; it is not sin but disease we are confronted with” (“Lessons of Materialism”, 7). Maudsley’s view here makes psychology a biological process, and while it may seem to liberate man from questions of wrongdoing, it simply substitutes the idea of disease, refusing to investigate any social causes of criminality.

With the mind and body intimately linked, belief could thus have a direct physical effect. Along with other nineteenth century psychologists, Maudsley saw will and self-restraint as central to human health or pathology, and thus took a dim view of occult beliefs that involved surrendering the conscious personality to outside forces. Bruce Haley has described the importance that psychologists attached to this idea as promoting “a belief in the special dignity of man and his moral nature. Without the will the mind has no self-sustaining power, no special identity, no health apart from the body’s health” (40). In contrast to the idea that man will keep evolving into a higher spiritual state – an idea shared by many groups across the occult field – Maudsley argues that of all spiritual beliefs “none is perhaps more wildly irrational than that of a complete regeneration of human nature and the coming of a perfect transformation scene on the troubled earth”.¹⁹ These criticisms of spiritualism were not confined to theory: Maudsley was responsible for the confinement of a medium in his asylum during the 1870s.²⁰

Indeed, even spiritualism’s supporters could use the language of degeneracy when describing their beliefs. Lombroso described Eusapia Palladino, who had been responsible for his conversion to spiritualism, in terms that mark her out as a hysteric:

We must not forget that Mme. Eusapia is a neuropath; that in her childhood she received a blow in the left parietal bone, which produced a hole so deep that you could put your finger in it; that she remained subject to attacks of epilepsy, catalepsy, and hysteria. (150)

The views of Lombroso, despite his outright support for spiritualism, seem to place Palladino as a *fin-de-siècle* degenerate, her body displaying the signs of the hysteric, making a direct link between the spiritual, psychological and physical.

However, although Maudsley defines these beliefs as a pathological symptom, he also suggests that there is no way in which they can be cured, and that degeneration is an inevitable result of becoming too civilised: “When the organism – individual, social, or national – has reached a certain state of complex evolution it inevitably breeds changes in itself which disintegrate and in the end destroy it.”²¹ The body is here pitted against civilisation: the biological will undermine the cultural. H

¹⁹ Henry Maudsley, ‘Materialism and Spiritualism.’ *The Journal of Mental Science* 63:263 (October 1917), 494.

²⁰ See Owen, *The Darkened Room*. 183-8

²¹ Henry Maudsley. *Body and Will: Being an Essay Concerning Will in its Metaphysical, Physiological and Pathological Aspects*. London: Kegan, Paul, Trench & Co., 1883, 238-9.

However, Maudsley's degeneration is not actually a sliding back down the evolutionary scale. Instead it is "the transformation of it into a new or abnormal kind; a kind which, incapable of rising in the scale of development, tends naturally to sink lower and lower" (*Body and Will*, 241). Maudsley here uses the same argument as Myers, but with a negative interpretation: the neuroses of modernity are evidence not of newly emerging powers, but of the dissolution of the human. This ends up in a circular movement: man is the end-point of evolution, but his very development means that he is doomed to produce new and abnormal varieties of the human, thus losing his position at the centre of creation. In future it may be that:

a higher race of beings sprung from man and releasing his loftiest ideals shall supplant him; but even if these visions of devout imagination become facts they will only be the steps of a progress that lead progress so much nearer its grave. (*Body and Will*, 317)

For Maudsley there can be no progress beyond the current state, no regeneration beyond the degenerate, but only the constant regression to more primitive forms of life: modernity itself is pathological.

Maudsley's views define the pathology of spiritual beliefs in two ways. Firstly, those who claim to have direct contact with spirits are placed outside of the range of the normal, healthy human. Secondly, this also reflects on modes of knowledge that claim to study these phenomena scientifically. They are made into pathological disciplines, standing outside the range of normal scientific enquiry, being instead a distortion of reality, and a regression to irrational modes of belief. Psychical researchers had defended spiritualism against charges of degeneracy by arguing that the abnormal occurrences of the séance were evidence of evolution. Maudsley argued that they were evidence of degeneration. These two strategies are thus directly opposed, and might seem to lead to a kind of stalemate. Aleister Crowley, however, pursues a third strategy: rather than directly opposing Maudsley and degeneration theories, he appropriates him as part of his magical project.

Regeneration

Aleister Crowley (1875-1947) was (and is) a notorious figure in occult circles, and was described in 1924 as "the wickedest man in the World" (Suster).²² He is a pervasive cultural presence, having appeared in W. Somerset Maugham's *The Magician* (1908), Anthony Powell's *A Dance to the Music of Time* (1951) and as one of the faces on The Beatles *Sergeant Pepper's Lonely Hearts Club Band* (1967). Crowley's life has been recounted in several biographies, and his followers have produced works interpreting his magical system, yet he, along with the field of ritual magic in the late-nineteenth and early twentieth centuries, have only recently begun to the subject of academic investigations focusing on psychological, scientific, and literary histories of the period.²³

²²Gerald Suster. *The Legacy of the Beast: The Life and Work of Aleister Crowley*. London: W H Allen, 1988, 85.

²³Two recent studies that focus on Crowley and the broader field of occultism, science and psychology are Mark S. Morrisson. *Modern Alchemy: Occultism and the Emergence of Atomic Theory*. Oxford: Oxford University Press, 2007 and Alex Owen, *The Place of Enchantment: British Occultism and the Culture of the Modern*. Chicago: Chicago University Press, 2004.

Crowley wrote two novels, *Moonchild* (1917) and *Diary of a Drug Fiend* (1922), a large number of poems (in a traditional style when compared to contemporary modernist experiments) and is well known for his extensive magical writings, often written in dense mystical aphorisms. Crowley's magical motto was "Do what thou wilt shall be the whole of the law". While this sounds a justification for anarchy, in fact Crowley always stressed that this meant the finding and development of one's inner will and self, a view that places him in continuity with psycho-physiologists such as Maudsley.

The aim here is not to trace elements of Crowley's life and magical writings in *Diary of a Drug Fiend*, but to read it in terms of the debates over evolution, occultism and pathology set out above. This will also suggest a different reading of Crowley's ritual magic from that suggested by Alex Owen, who sees his magical experiments as mirroring the contours of modern psychological theories that suggest the contingency of subjectivity, its ability to take on aspects of other personalities and genders.²⁴ Instead, I will suggest a version of Crowley's magic that insists on the importance of disciplined, healthy bodies and correct gender roles as essential for national efficiency.

Diary of a Drug Fiend describes the descent of an English nobleman, Sir Peter Pendragon and his wife Lou into cocaine and heroin addiction, eventually overcoming this by finding their inner will, led by Basil King Lamus, a fictionalised and idealised portrait of Crowley himself. That Crowley is concerned with questions of national progress and degeneration is suggested by the name of Pendragon, showing a lineage with the mythical kings of Britain: what is at stake is not just the health of one individual, but that of the nation. Crowley is suggesting that his project be viewed as a contribution to political and social discourses, not taken as questions of esoteric spirituality. The immediate inspiration for the novel would seem to be what Crowley calls the "diabolical dope act," the Dangerous Drugs Act of 1920, which for the first time regulated the trade in cocaine and heroin.²⁵ Crowley wants to suggest that this legislation is unnecessary, as it restricts the ability of man to discover his true will: his magical system is thus set up as a therapeutic discourse. The slightly more mundane interpretation would be that Crowley, a lifelong heroin addict, is inconvenienced by the new law himself, and that his magical system, in his own case, did not work: he remained addicted until his death, needing ever larger doses to satisfy his cravings.

The problem set by the novel is that of the post-First World War world, where ideals of progress have been destroyed; Pendragon himself has been a war pilot, and at the beginning of the novel is profoundly depressed: "It's a disease of civilization. We're in an intermediate stage between the stupor of the peasant and – something that is not yet properly developed."²⁶ Crowley here seems to combine both the attitude of Maudsley's theory of degeneration that saw modernity as pathological, and the occult field's optimism that man will evolve into a higher state. Pendragon is essentially rich and bored, and turns to drugs as a way of stimulating interest in his life. Like Oliver Lodge's view of mediums as scientific instruments, Pendragon views his drugged body as a laboratory where scientific advance can take place, insisting "on our

²⁴ See Owen, *Place of Enchantment*. 186-220.

²⁵ For a recent investigation into this act see Toby Seddon, 'The Regulation of Heroin: Drug policy and Social Change in Early Twentieth-Century Britain.' *International Journal of the Sociology of Law* 35:3 (2007) 143-156.

²⁶ Aleister Crowley. *Diary of a Drug Fiend*. 1922. New York: Weiser, 1971, 7. All subsequent references are to this edition and are given in the text.

regarding ourselves as pioneers of science and humanity. We were making an experiment; we were risking life and reason for the sake of mankind” (190).

The pleasures of cocaine are seen by Pendragon as healthy, emphasising the purity of the body: “One is bounding with health and bubbling with high spirits. [...] And yet this excitement is singularly calm and profound. There is none of the suggestion of coarseness which we associate with ordinary drunkenness” (48). This purity of vision leads to a heightened consciousness, evolving into a superhuman state: “It was as if we had acquired a totally new mental faculty as superior to the normal course of thought as the all-comprehending brain of the great man of science is to that of a savage” (88). This is expressed in terms that are reminiscent of the degeneration theories of the *fin de siècle*: the taking of drugs allows users to make an evolutionary leap forward, comfortably distancing them from the primitive. This finally results in the belief that individual boundaries have been transcended: “We had sprung in one leap to be coterminous with the Universe” (118). They seem to leave the boundaries of the individual body behind, everyday perception dulling in comparison to the new world they have become part of: “With H[eroin] or C[ocaine], there is never a dull moment; without them the hours drag. It’s difficult to read or write. My eyes won’t focus properly. They have been open to the spiritual world, they can’t see anything else” (226). Here the corporeal effects of drugs are the means to spiritual perception: occultism seems not so much a flight from the body as a way of transforming or sublimating corporeal experience into mystical insights.

Having believed they have ascended to the superhuman they then descend back down the evolutionary scale, in terms that clearly evoke anxieties about degeneration:

The toil of countless generations of evolution had been undone in a month. We still preserved, to a certain extent, the conventions of decency; but we knew that we did so only from ape-like cunning. We had reverted to the gorilla. (120)

The body, previously the medium of spiritual progress, is now the measure of their degeneracy: “H.[eroin] makes one want to scratch, and scratching is infinite pleasure. But that is only a relic of animal appetite” (171). It is at this point that Lamus, who has been reviled throughout the book, is turned to for help. He suggests their addiction is not simply a personal failing, but is a symptom of modernity, in the same terms that Maudsley regarded the inevitability of degeneration:

Just as the Roman Empire began to break down when it became universal, when it was so large that no individual mind could grasp the problems which it postulated, so to-day, the spread of vulgar education and the development of facilities for transport have got ahead of the possibilities of the best minds. The increase in knowledge has forced the thinker to specialise, with the result that there is nobody capable to deal with civilisation as a whole. (251)

Democracy is here called into question; in contrast to psychical researchers’ desire to distribute new knowledge through scientific networks, Crowley’s magic is restricted to an elite that are able to synthesise the knowledge of separate disciplines. The comparison of the fall of the Roman Empire to the contemporary British Empire was

another common trope of theories of degeneration, drawing on Edward Gibbon's *Decline and Fall of the Roman Empire* (1776), and the link with degeneration is made explicit when we are told that Lamus had studied insanity under Henry Maudsley. (252)

In his autobiography Crowley claims he met Maudsley aboard a ship in 1904, where they discussed Eastern Yogic practices of meditation, which in Crowley's view "remove the inhibitions which repress the manifestations of genius or [...] enable one to tap the energy of the universe".²⁷ In Crowley's view Maudsley "fitted in exactly. He was the very man I wanted," and that "Maudsley – rather to my surprise – agreed with all these propositions, but could not suggest any plausible line of research" (386). It is of course entirely possible that this encounter never took place – Crowley was fond of making outlandish claims, so anything he writes should be treated with suspicion. Indeed, given Crowley's own addiction it seems unlikely that Maudsley, who saw the drug addict as a "miserable specimen of degradation, of moral feeling and of impotence of will," would have had much sympathy for him (*Lessons of Materialism*, 7) Nonetheless, the historical accuracy here is perhaps less important than the textual encounter that Crowley stages between them.

Perhaps surprisingly Crowley agrees with Maudsley that "any state of mind is accompanied by a corresponding state of the body" and wonders why exalted spiritual states cannot be created through the methods of modern science: "why then should we not be able to devise some pharmaceutical, electrical or surgical method" (386). The magical and the technological are here complementary ways to accelerate the progress of humanity, rather than opposing theories. Crowley sums up his position as an attempt to find a middle way between science and the occult:

I had been forced into the awkward position of having to be ready to go to the stake with Maudsley, Ray Lankester and Haeckel [...] as against religious superstition, and yet to attack their conclusions with the utmost vehemence in the interests of the impregnable spiritual position which I had built. (314)

In order to stake out a claim for magic as a therapeutic, socially useful science, Crowley shows it as engaging on the same terms as Maudsley's degeneration. Rather than directly opposing the idea of evolutionary regression, Crowley suggests his magic can use the link made by Maudsley to ensure the continued evolution of the human and its political advancement.

This is clearly seen at the conclusion of the novel, where the action moves to Lamus' Mediterranean island retreat, which is a fictional version of Crowley's own magical retreat, the Abbey of Thelema – ancient Greek for will, and the name of Crowley's magical system. Here Pendragon and Lou embrace a primitive existence; not one that is degenerate, but rather is healthy in its simplicity, exemplified in the description of the local wine, in contrast to the cocktail of champagne, cocaine and heroin on which they have previously lived: "There was a sort of vitality in it. It was primitive, like all the arrangements of the Abbey, but the freshness and naturalness of everything made more than amends even to our cultivated palates" (315). The regime

²⁷ Aleister Crowley. *The Confessions of Aleister Crowley: An Autobiography*, ed. John Symonds and Kenneth Grant. 1929. London: Routledge and Kegan Paul, 1979, 386. All subsequent references are to this edition and are given in the text.

at the Abbey also includes rock climbing and football, so that the importance of the disciplined and trained body in the occult field is apparent.

The novel concludes with the discovery of their true wills, resulting, somewhat idealistically, in the conquering of their physical addictions, and they become once more fit political and gendered subjects. However, although a new subjectivity emerges, this psychological re-birth continues to address the concerns of technology, national efficiency, and physical degeneration that have been prevalent throughout the novel, suggesting that even at its moment of triumph the emergence of a magical self still depends upon materiality. Pendragon recalls that prior to his addiction he was designing a helicopter, and the magical and technological emerge together in this rediscovery of his true will: “The true ‘I’ was the mathematician and engineer working on the helicopter, and the interval had been an elaborate nightmare” (342). The magical will here is marshalled in the service of industrial efficiency, allowing Pendragon to take his place in the lineage of warrior kings that his name suggests. Although he has thus escaped the clutches of degeneracy to take his rightful place at the vanguard of technological development, the degeneration paradigm is itself still affirmed, as Lamus showed him how “my heredity, my natural inclination and the solution of my crisis, all pointed to the same thing” (355). Here the designing of helicopters is naturalised, given a genetic basis, so that ultimately the cultural is still seen in terms of the biological.

Meanwhile Lou’s true will is the discovery that she is to serve and help Pendragon, so that the magical is here used in the service of normalising gender relations, rescuing Lou from the pathological status of the sexually liberated, hedonistic female degenerate to that of the angel in the house:

I stopped taking heroin only because I had to fit myself to help you to do your will. That is my will. [...] I’m going to keep this place in order for you and assist you as best I can in your work. (356)

The occult superhuman that Crowley’s system evolves is one that will contribute to the technological progress of the nation, while ensuring that troublesome women stay firmly in their place. The fears of degeneration are thus finally accepted, whilst Crowley suggests that he can provide a way to reverse this. However, when the novel is compared to Crowley’s own magical theories, a crucial element is missing from the novel: that of communication with spiritual beings. Crowley’s magical revelation occurred in Egypt in 1904, where *The Book of the Law*, the first of the “holy” book of Thelema was dictated to him by the demon Aiwaz: this would suggest that Maudsley’s views are less compatible with Crowley’s than in the novel, as Crowley’s system depended on the surrender of will that also characterised spiritualism. A second element is also missing that Maudsley would surely also have disapproved of: that of sexual magic, which was carried out with partners of either sex.²⁸ The novel then, can be seen as a kind of publicity statement for magic, an intervention into scientific debates about the evolution of the human, and the pathology of the occult, and a rationalisation of Crowley’s own occult beliefs.

Crowley’s use of Maudsley suggest he is a figure that still carries scientific authority in 1922, which might also suggest the continuation of anxieties

²⁸ See Owen, *The Place of Enchantment*. 186-220 for a detailed reading of one of Crowley’s homosexual magical rituals in terms of modern ideas of subjectivity

characteristic of the *fin-de-siècle* in one of the foundational years of modernism. Mark S. Morrisson has seen Crowley's magic, in relation to images of alchemy in modern atomic science, as showing "the degree to which the workings of a Hermetic society could be fashioned as a cutting-edge 'new' science, one that predated all existing scientific knowledge by centuries".²⁹ However, the present argument positions Crowley as fashioning his magical system as a more recent science, that of degeneration, and in the process addressing concerns of national progress. Crowley's science of magic here emphasises both the evolutionary optimism that was seen in psychical research, but also affirms the degeneration paradigm through its emphasis on will. Elaine Showalter has argued that "Will, self-restraint, and self-control were still considered the ultimate development of mental health, an ordering that also governed late-Victorian sexual codes and economic policies" and Crowley can be seen clearly addressing each of these aspects.³⁰ Whereas on the one hand he might seem to suggest a more liberating idea of the human subject that rejects conventions in the finding of the true will, he ultimately reinforces the biological interpretation of psychology and the importance of the will in producing healthy, efficient, political subjects.

The views discussed above all suggest that the status of the occult in relation to science at the *fin-de-siècle* depend on the ability to diagnose and differentiate the pathological from the evolutionary. As Roger Luckhurst has argued, the occult should be seen as "oppositional yet also supplemental" to biological theories of evolution, much as theories of degeneration were produced by the apparent ability of Darwinism to explain not just physical evolution but broader cultural formations.³¹ In part this is due to the content of the theory itself which, as Gillian Beer has stressed, was able to be metaphorically applied to a range of subjects outside of orthodox biology: "Its order welcomed difference, plenitude, multifariousness so that the exigencies of the environment were persistently controverted by the genetic impulse towards variety."³² Secondly, as James Moore in *The Post Darwinian Controversies* has argued, the Darwinian theory of evolution did not immediately cause a break between the biological and the spiritual, and the idea of evolution was appropriated by both Christian theologians and writers championing spiritualism and psychical research. Peter J. Bowler has argued that the period from the 1890s, to the emergence of modern genetics during the 1930s, saw the eclipse of Darwinism, where although there was general agreement about the fact of evolution, there was no consensus as to its exact process: whether it be by natural selection, an essentially random undirected process, or some other means - was still open to question.³³

²⁹ Mark S. Morrisson. *Modern Alchemy: Occultism and the Emergence of Atomic Theory*. Oxford: Oxford University Press, 2007, 44.

³⁰ Elaine Showalter. *The Female Malady: Women, Madness and English Culture 1830-1980*. London: Virago, 1987, 106.

³¹ Luckhurst, 'Demon Haunted Darwinism.' 127.

³² Gillian Beer. *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction*. 2nd edn. Cambridge: Cambridge University Press, 2000, 12-13.

³³ Peter L. Bowler. *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades Around 1900*. Baltimore: Johns Hopkins University Press, 1983.

The challenge of the occult to theories of evolution was not simply a distortion, but can be seen as part of the network of debates surrounding models of evolution during the 1890s as a direct result of gaps in biological knowledge, gaps that allowed occult writers to formulate their own alternatives to the materialist theory of evolution. Crowley's novel suggests that if magic is to be considered a science, then it can only be so by addressing the same anxieties as the science of degeneration that also drew upon this gap in biological knowledge. Both suggest that culture can intervene in the evolutionary process. Here two marginal sciences are seen to be competing for the authority to speak on the future evolution of the human, drawing on challenges and gaps in the more orthodox theories of evolution. This in turn suggests that scientific legitimacy is here defined not only by its objects and methods of study, but by the broader social and political anxieties that it can address: it is only through diagnosing a pathological condition, and showing a regeneration into fit political and gendered subjects, that Crowley can mark out a claim for magic in the networks of science.

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Uniting the Two Cultures of Body and Mind in A.S. Byatt's *A Whistling Woman*

Alistair Brown

"The human body is the best picture of the human soul."¹

A.S. Byatt's novels are mirrors within which disciplinary and generic opposites such as humanism and religion, art and science, or critical and creative writing reflect each other. Although it sometimes appears that Byatt vaccinates her works against analysis, since to examine one idea in isolation is to risk shattering the complex illusion of the whole, she also signposts the textual play with recurring metaphors which we recognise in different contexts. For example, in her best known work, *Possession* (1990), the title guides readers across the boundaries of genre and history: in terms of the romance prototype, possession is what happens when one is in love, but also signifies literary critical obsession; in the gothic melodrama and for the Victorian spiritualist, possession was used in the literal sense of the embodied ghost, but even in rational modernity and the postmodern novel we still encounter the almost paranormal way in which our lives seem to be determined by our ancestors. The multivalence of this particular trope allows – indeed demands – that readers and critics consider the significance of its imprinting upon different cultures at a theoretical, even deconstructive, level.

The final novel of the "Frederica quartet," *A Whistling Woman* takes place principally in an imaginary interdisciplinary university in North Yorkshire, against the backdrop of sexual and social revolution in the 1960s. Hosting a broad range of scientists, such as a young mathematician, Marcus Potter and the genetic biologist, Luk Lysgaard Peacock, the University is preparing to stage a major conference on "Body and Mind."² This is organised by the Vice-Chancellor, Gerard Wijn Nobel, a mathematician and grammarian who desires "a cognitive-biological Theory of Everything" (26), and who chooses as one of his keynote speakers Hodder Pinsky, a cognitive scientist. Simultaneously counterpointing this academic setting, we follow the case of Joshua Lamb who, having witnessed his father's Abraham-like sacrifice of his mother and sister, becomes a charismatic Manichaean visionary and eventually leads a cult on the North Yorkshire Moors. Finally, Frederica Potter, the heroine of the four novels, is carving a new role for herself as both an emancipated mother and a Byattian public intellectual, hosting a television series on art, science and politics, which is watched by several of the academics. While *Possession* took the metaphor of demonic possession to cross time, *A Whistling Woman* uses the same trope to traverse academic disciplines and a variety of scientific, philosophical and literary investigations of the phenomena of mind and consciousness. With its wide range of

¹ Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe. Oxford: Basil Blackwell, 1953: 178. Byatt notes this quote in her essay on Henrik Ibsen: A.S. Byatt, "The Age of Becoming," rev. of *Henrik Ibsen and the Birth of Modernism*, by Toril Moi, *The Guardian Review*. 16 Dec. 2006, Guardian Unlimited, 16 Oct. 2007
<<http://books.guardian.co.uk/reviews/artsandentertainment/0,,1973176,00.html>>

² A.S. Byatt, *A Whistling Woman*. London: Chatto, 2002. All subsequent parenthetical page references refer to this text.

characters and their different epistemologies, the demon provides an image that orientates disciplinary perspectives against a common point of focus. Despite preconceptions, the demon does not offer a Frankensteinian critique of science through the deployment of a monstrous myth that defies realist analysis, thereby concocting a “two cultures” hierarchy in which literature has representational privileges over science. In an article for *Nature* entitled “Fiction Informed by Science,” Byatt elaborates on the central scientific motifs around which the novels of the quartet were structured: the synaesthetic solving of mathematical problems through visualising landscapes in *The Virgin in the Garden* (1978); the nature of perception in *Still Life* (1985); the Fibonacci spiral in *Babel Tower* (1986); and synaptic and biological connections and patterns in *A Whistling Woman* (2002).³ Over the two decades of the quartet’s conception, science has provided a central inspiration, and so in spite of its demonic keynote *A Whistling Woman* represents scientific concepts for the value they possess in and of themselves.

In *A Whistling Woman*, Byatt’s exploration of the shared and alternative ways of knowing the disciplines is governed by her representation of consciousness and the connections and patterns, metaphorical or synaptic, between mind or soul (traditionally the preserve of the arts and religion) and the body or the material brain (subject for scientific scrutiny). The first section of this essay will trace the range of demonic signification as it attests to the gap between physicalism and mentalism as this divergence maps on to the two cultures. On one religious interpretation a demon is a physical agent performing the metaphysical will of God, transmitting messages which the receptive mind can interpret. With his apparently allegorical character it is this orientation Lamb – a Lamb of God? – takes. But if Lamb’s mind is possessed by demons such that his mental attitude stands for something outside his own embodied self as a religious symbol, this implies a return to Christian dualism over scientific materialism, as if minds alone contain meaning. Such allegorical determinism limits the referential multiplicity with which a postmodern novel like *A Whistling Woman* plays in its denial of a single authoritative perspective on the issue of consciousness as encapsulated in the multivalent demon trope. Ironically, though, cognitive science is not unlike religion in this respect, as although it represents brains and bodies as synchronously material, it treats brains as simple deterministic devices such that it is hard to see how they can produce the full and exciting variety that characterises human culture, such as literature or religion, or demonic myth. For although the demon may not exist in “reality,” it possesses such a common cultural currency as denoting a state of mind (the demon of schizophrenia, for example) that its existence must be justified even from the most fundamentally objective position; the demon exists because people think it so, although there may not be a single neuron that constitutes the demonic other. As Byatt shows, cognitive science uses demons as placeholder terms in theorising brain, and the use of a mythical metaphor within science suggests that mind cannot be reduced to its neurological components, but must demand a literary as well as empirical sort of interpretation.

The first section of this paper is concerned with understanding these questions from the perspective of the reader, and points to Byatt’s reworking of any extant two cultures problem as the analogue of Cartesian dualistic thinking. However, in this translation Byatt attempts to show the value of epistemological plurality in the vein of postmodernism, without succumbing to the anti-science stance revealed so

³ A.S. Byatt, ‘Fiction Informed by Science.’ *Nature* 424 (2005): 294-297.

antagonistically in the science wars of the 1990s. I then follow Byatt's writerly efforts to describe mind in terms of body, such that the novel's representation of character can overcome the limitations of reading according to single frameworks offered by logocentric religious allegory or scientific determinism. As Byatt is aware through her connections with real-life biologists such as Steve Jones and neuroscientists such as Antonio Damasio, the body increasingly is proposed as the site from which thought is governed.⁴ This rejection of dualism leads to an aesthetic and moral problem for the novel as it attempts to incorporate such findings. How can it represent minds as embodied things, when the only mode of representation is language and metaphor which is always abstract and disincarnate? And if it puts too much stress on embodied thinking, do the novel's metaphors start to seem artificial, whilst morally it implies mind as biologically determined?

Deceiving Demons of Mind

At the heart of the demonic web of connections, and the figure against whom all the other metaphors of the demon are contextualised, is Joshua Ramsden (or Josh Lamb, as he calls himself symbolically). Haunted by his childhood experiences, as an adult Lamb reaches a kind of epic visionary status, receiving Manichaean messages which instruct him to spread their word, and he sees the world overlaid with images of blood and light. As his name is intended to suggest, in a Christian era he would have been welcomed as a prophetic figure, an intermediary through whom visions from God flow, their messages not about Lamb himself, but pointing towards some theological truth outside of him. But in Byatt's rendering of his psychology, we cannot dogmatically assume such a connection between the individual and what he analogically evidences about wider society. In one passage which is symptomatic of the representations of Lamb's schizophrenic consciousness, the God-like, omniscient narrator describes Lamb's struggle to come to terms with his personal trauma as he learns about the Biblical scripture which beguiled his murderous father:

In the *Arabian Nights*, it has been said, a man has his Destiny written on his forehead, and his character, his nature, is that Destiny and nothing else. A boy, a man, like Josh Lamb, Joshua Ramsden, who has found himself tumbling in the dark sea outside the terrible transparent mirror of the fragile window-pane, persists perhaps by linking moments of conscious survival into a fine suspension-bridge of a personal destiny, a narrow path of constructed light, arching out over the bulging and boiling. (106)

Lamb's visions are given form only by the authorial potency which designs their metaphorical correspondence, symbolically writing his destiny on his forehead. Moreover, our readiness to isolate Lamb as a paradigmatic case of a theological allegory is made complicated because the knowledge of Lamb's mind presented to the reader is not absolute or diagrammatic. Carefully crafted though the image is, the metaphors do not link internal thoughts with a verifiable reality outside the self; rather, they describe a passion wholly internal, and the metaphorical linkages are

⁴ The acknowledgements page of *A Whistling Woman* reads like a roll call of the most prominent contemporary scientists, including Steve Jones, Richard Dawkins, Matt Ridley, Antonio Damasio, Semir Zeki and John Maynard Smith (422).

formed between the images, as the series of nouns and adjectives work together intuitively: now a terrible mirror, now a fine suspension bridge, now a path of light. These images are denotative of Lamb's state of mind, but their subjective interconnections are only sparsely connotative of external, allegorical links. Is the "bulging and boiling" over which Lamb's life moves supposed to be seen as Hell or the subconscious? What does it signify about the role of destiny when Lamb finds himself tumbling in a sea outside a transparent mirror (not that there can be such a thing) of a particularly fragile (for an unspecified reason) window-pane? In a writer less assured than Byatt, it would be tempting to condemn this passage as a hopeless collection of mixed metaphors. In the case of a novelist who takes metaphor as one of her focal subjects, however, the strangely articulate meaninglessness of the passage deliberately confronts us with a phenomenological experience. The only thing that we can be clear of here is that consciousness itself is happening in an imagistic stream, that the world of the text is being experienced through the consciousness of the other, and that any of the actual entities posited or "intended" (to use Husserl's phrase) by that consciousness can not be regarded as things in themselves.⁵

The fact that there is not one but multiple consciousnesses (the author's, Lamb's and the reader's) working to concretise the moment into being, means that we can never observe the psychological sensation reliably and objectively.⁶ Earlier in the novel, Ramsden sits in his room in a psychiatric hospital, observing blood dripping from the walls and clothes. When the narrator tells the reader that "He watched the blood" blanket his world, we necessarily watch by proxy and, since we share his vision, then in one sense the blood cannot be private to him but must be public, physically in *the* world (at least of the novel) as well as psychologically in *his* world. This is not simply a theoretical view of the paradoxes inherent in the third-person narratorial standpoint; rather, this complication is explicitly what makes his visions, in Lamb's ironic phrase, "an interesting phenomenon." Lamb wonders of the blood:

Was it there or not there? He was certainly seeing it – with his eyes – noting its viscosity and flow. He was not making it up. It wasn't a projection of his state of mind, which was calm, not bloody. It was not a metaphor.

On the other hand, he was almost entirely certain that if he picked up the soaked sock, it would be white wool, and would not drip red. (35)

The person ultimately "making it up" is the novelist, with whom we are complicit as readers, and the novel's metafiction makes us uncomfortable. If the blood is not a metaphor which projects publicly something otherwise private (the disturbed mind of a madman or religious prophet) then what is it? Surely a novel is wholly an analogy or displacement of the real? As Heidi Hansson argues in relation to Byatt's *Morpho Eugenia*, because metaphors "divide the sign, exposing its arbitrariness...the allegorical impulse in contemporary literature can be seen as a reflection of the postmodern emphasis on the reader as coproducer, since it invites the reader's active participation in meaning making."⁷ But actively to reconstruct meaning in the absence of an external and uncontested frame of reference such as the Christian one, is to

⁵ Edmund Husserl, *Logical Investigations*, trans. J.N. Findlay. Abingdon: Routledge, 2001. I, 193.

⁶ On the specific context of "concretise" in Roman Ingarden's reader-orientated theory, see n.9 (below).

⁷ Heidi Hansson, 'The Double Voice of Metaphor: A. S. Byatt's "Morpho Eugenia".' *Twentieth-Century Literature* 45.4 (1999): 452-66.

distort reality by assuming *a priori* that a textual phenomenon, such as Lamb's visions or his Christ-like name, must mean something publicly authentic to us as secular sceptics and not simply privately valid to him as a historically religious figure. Byatt seems to be suggesting that the novel is privileged in giving us access to the interior mind of a character, but that we can never use a novel to enter someone else's thought processes objectively, without mutating them into something they are not, symbols rather than an empirical perception of the mind of the other. In relation to consciousness, therefore, a novel is not automatically a better medium of interpretation than science. A few pages earlier, the novel mentions Heisenberg's uncertainty principle (26), which asserts that the fact of observation may change the state of a particle being observed. Just as if Lamb touches and picks up the sock the illusion of blood (if "illusion" is what it is) will be dispelled, it seems as if the moment we interrogate the passage this changes the nature of the blood which we observe from the omniscient perspective, the novel's equivalent of the empirical view from nowhere. Whilst it seems "real" for Lamb, the moment we read it we cannot help but turn it into an abstract symbol, doing as readers precisely what Lamb does to a dangerous extent in interpreting his visions as indications of a religious vocation. As Roman Ingarden theorised, because literary works typically contain "spots of indeterminacy" the "reader usually goes beyond what is simply presented by the text (or projected by it) and in various respects completes the represented objectivities."⁸ As Heisenberg's uncertainty principle emphasises a probabilistic Nature in which it is not possible to monitor all the properties of a system simultaneously, so in the literary knowledge available here the implicit presence of a readerly observer does not force the logic one way or another, towards reality or unreality, physical or mental phenomenon. The novel's representation of Lamb is the surface of a more extensive subterranean ontology of consciousness. Like the Cartesian deceiving demon, Lamb's demons prove only the limited fact that consciousness is happening and must be accepted as such in its own bizarre and bloody terms; they do not determine what is being thought and how it relates to a reality either objectively or relatively.

The poised doubt about whether the blood is present in the world or just in Lamb's mind implicitly recognises that the legacy of Cartesian dualism remains, in the discrepancy between the "easy" problem of consciousness (the observation of neuro-chemical states and the implementation of specific rules in artificial intelligence) and the hard problem (how those discrete states give rise to the variety of conscious experience).⁹ In the case of literature, language – analogous to the observable electro-chemical impulses of consciousness – does give rise to a complex state of consciousness both in the open-ended characterisation of Lamb and in the reader struggling as analyst. However, if postmodernism seems to deny the possibility of an absolute "reality" in a world always filtered through a culturally determined discourse, cognitive neuroscience as it was developing in the 1960s simultaneously with postmodernism seemed poised to provide a stabilising antidote to this linguistic and psychological relativism.¹⁰ If reading turns everything into analogy, and language

⁸ Roman Ingarden, *The Literary Work of Art: An Investigation on the Borderlines of Ontology, Logic, and Theory of Literature*, trans. George G. Grabowicz. Evanston, IL: Northwestern UP, 1973: 252.

⁹ David J. Chalmers, *The Conscious Mind: In Search of a Fundamental Theory*. New York: Oxford UP, 1996: xi-xiii.

¹⁰ For one representation of this synchronous history of cybernetics and postmodernism, see Jean-Pierre Dupuy, *The Mechanisation of the Mind: On the Origins of Cognitive Science*, trans. M. B. DeBevoise

is a variable epiphenomenon intended by the Husserlian consciousness rather than reliable evidence of discrete thought processes, then cognitive science and artificial intelligence in its most reductionist guise promises get back to the origins before phenomenology, not *analogy* but the *logos*.

One of the central characters in the novel is Hodder Pinsky, a cognitive psycho-linguist who “used computers to explore what he believed to be the deep and universal structures of human thought” (29). Unsurprisingly, Byatt admits his name is a conflation of Steven Pinker and Noam Chomsky, and she also may also have had the prophet of cybernetics, Marvin Minsky, in mind as well.¹¹ Appearing on Frederica’s television show to debate about the mind with a Jungian psychiatrist, Pinsky announces:

There is...an interesting computer programme [sic] called *Pandaemonium*, which is psychologists’ everyday comic poetry, not sublime, though it takes its name, I suppose, from the industrious underworld of *Paradise Lost*. This programme has a hierarchy of mechanical demons who are devised, or designed (by us, their masters), to recognise patterns in rushes of random information, to create order from noise. It depends on what we call “parallel processing.” There are the “data demons” who recognise images, and shout. There are the computational demons who recognise clusters of recognised images, and shout. There are the cognitive demons who represent possible patterns, and collect the computed shouts. And there is the “decision demon” who identifies the stimuli by the loudest shouting. The system can learn. It can identify printed letter, and morse code. It may one day understand what is so – unrepeatable – about *Hamlet*, or Beethoven’s Third. (153)

This “society of mind” model which Minsky expounded (drawing on the work of O.G. Selfridge) and which Daniel Dennett develops as the multiple drafts model in his popular *Consciousness Explained*, seeks to unite the easy problem of consciousness with the hard problem.¹² These models assume that mind is made from smaller systems (agents or demons) that individually perform processes which do not require thought but that collectively constitute consciousness; thus this model of consciousness lends itself well to computer programming and artificial intelligence.¹³ There is an anachronism here, in that the novel set in 1968 quotes theories and books

Princeton: Princeton UP, 2000. Byatt read this work in preparation for *A Whistling Woman*: ‘Fiction Informed by Science’ 296.

¹¹ Byatt, ‘Fiction Informed by Science’. 296.

¹² Marvin Minsky, *The Society of Mind*. New York: Schuster-Touchstone, 1988, especially 18-23, 274, 327. Minsky describes the demon as “an agent that constantly watches for a certain condition and intervenes when it occurs.” The concept of the demon in parallel processing originates with Oliver Selfridge, ‘Pandemonium: A paradigm for learning,’ *Proceedings of the Symposium on Mechanisation of Thought Processes*, ed. D. V. Blake and A. M. Uttley. London: H. M. Stationary Office, 1959: 511-529. Also O. G. Selfridge and U. Neisser, ‘Pattern Recognition by Machine,’ *Scientific American* 203 (1960): 60-67. The quotation from *A Whistling Woman* may be a partial paraphrase from this latter article, which in a similar anthropomorphism notes that “a Pandemonium program can handle the situation by having the demons shout more or less loudly” (66). However, probably most readers will have been made aware of the cognitive “demon” through Daniel C. Dennett, *Consciousness Explained*. London: Penguin, 1993.

¹³ Indeed, the Linux operating system uses “daemons,” small subroutines that rest latently in memory, activated only when necessary to perform specific tasks such as retrieving email.

dating two decades later. This reflects Byatt's didactic impulse to convey her breadth of reading and interest in scientific ideas, again preventing them from merely being dismissed, even if they are critiqued (certainly, as I discuss below, a similar but clearly very deliberate anachronism is deployed in relation to biological science, in order both to present and undermine it in a way that avoids traditional two cultures oppositions). In this case, however, the problem with this form of cognitive science is made most clear aesthetically, through the demon trope. Whilst asserting pandemonium as an empirical model, the literary reference to Milton and the use of the demon rather than a more neutral term such as subroutine, turns the model into a metaphor for what cannot be known in the multiple and complex connections between the two problems; rather than allowing us a non-relativistic index for signification constructed outside of the system of the objectively observed mind, cognitive science is orientated in parallel to the reader's position looking in on Lamb's ambiguous mental images. Further, Pinsky does not see that the fact that the demons are "designed by us (their masters)," ironically lends credence to Lamb's earlier view that his mind is a conduit from the divine designer who despatches his demonic agents. As a rationalist, this is something Pinsky would not accept. However, as John Searle has pointed out, whilst artificial intelligence fulminates against dualism, the whole thesis of strong artificial intelligence relies on it, since "it rests on a rejection of the idea that the mind is just a natural biological phenomenon in the world like any other."¹⁴ In *A Whistling Woman*'s comparable aesthetic critique, the different intersections at which the demonic metaphor appears intuit that the cybernetic argument assumes that mind can reside independently of the body on circuit boards or in software; that it is led through that same Cartesian tradition to invoke concepts of a Platonically abstractable mind that might one day understand the qualia of music that is otherwise linguistically "unrepeatable"; and that this results in a search for recursive levels of homunculi-like demons every bit as mysterious as those agents who possess the Manichean messenger.

Despite the chaos of signification that Lamb's psychology exposes, at least the demonic metaphor in relation to Lamb leads us to an understanding with moral implications, because it forces us, as readers, to confront the fact that we inhabit a universe of plural experiences, in which the mind of the insane still deserves our attention and interest. In this respect, Byatt's project inherits the moral legacy of George Eliot's perspectival relativism in a novel such as *Middlemarch*.¹⁵ In contrast, the only message to emerge from the Pandemonium model is that it must collapse in on itself, since even as Pinsky claims through his cognitive probes and computer models to circumvent the need to explain mind through analogy it is predicated on a metaphor of hazy "demons." This is not to suggest that Byatt represents literature as systematically superior to science (later in the book, at the Body and Mind conference, Pinsky speaks with admirable circumspection about the current state of his science). However, through metafiction the novel can recognise its own limits in representing consciousness. A highly self-reflexive novel open to multiple interpretations, particularly of Lamb's character, *A Whistling Woman* presents itself as

¹⁴ John Searle, *Minds, Brains and Science: The 1984 Reith Lectures*. London: British Broadcasting Association, 1984: 38.

¹⁵ Thinking particularly of the liminal moment in which George Eliot demands, "but why always Dorothea? Was her point of view the only possible one?" Here she rejects the romantic idealism through which the lonely mind constructs the world, and provides a paradigm of pluralism. George Eliot, *Middlemarch*. Oxford World's Classics. Oxford: Oxford UP, 1997: 261.

the embodiment of the hard problem with all the irreducible variety that entails, rather than supposing that objectively to measure the easy problem is automatically to extrapolate the subjective quality of the hard problem. What makes this transcend the conventional two cultures dialectic in which literature cultivates superiority because it is not reductionist, is that the neuroscientific problem of consciousness, essentially a problem of the relationship between body and mind, is shown to bear affinity with literary allegory, which can be equally determinate, particularly in the form of Manichaeism's binary division of the universe into light and dark. Without a postmodernist scepticism as to the reality concretised by a text, the allegorical tradition assumes that language – the easy problem – corresponds directly to particular external theological signifieds, or the mind and book of God.

A *Whistling Woman* evidences how fundamental metaphor is to thought, such that literature, religion, and cognitive science become in their attempts to explain mind simply epiphenomenal ways of talking around the same thing – the origin of “The desire to believe in a metaphor” to use Wallace Stevens’ analysis of the problem¹⁶ – which is lodged somewhere deep within our skulls. But as Lamb’s visions hint, there should be something that is “not a metaphor,” that does not evasively mutate into analogy as soon as we try to study it. Though novelist and novel strive to transcend the traditional two cultures opposition and affirm the value of science and arts as different ways of looking at the same phenomenon of mind, it is not easy to reconcile science and literature because they seem so inextricably predicated on the analogous dualism of body and mind. As a result, representations of mind tend to be extracted from the embodied individual as representing some position outside the text, implicitly asserting subjective didacticism over objective, realist representation. As a writer traversing the two cultures, how is it possible to work in a non-allegorical way, such that psychological sensations are represented as being unique to the person having the thoughts such that they cannot necessarily be defined according to some external scheme, whether religion, literary postmodernism, or the subroutines of cognitive science? Byatt’s attempts to represent holistically embodied rather than singularly allegorical minds, which are not determined but can be interpreted variously by her (postmodern) readers, accounts for the strange second-half of the novel. In a number of ways, this seeks to negotiate a way between genetic and cognitive determinism of the body, and a conversely indeterminate aesthetics of the transcendent mind. Firstly, and not without paradox, Byatt deploys physical metaphors to describe the activities of mind, drawing on the recent neuroscience of embodied cognition. Secondly, she denies biologically deterministic forms of science through juxtaposing these with other scientific paradigms which are coincidentally more amenable to literary variety. The effect of both these moves is to encourage in the reader (including, potentially, the scientist) the cultivation of an open-minded, agnostic attitude towards meaning, avoiding the tendency to move decisively into empirical or allegorical determinism.

Incarnate Ideas

Byatt has been very explicit in acknowledging the value of George Eliot in the tradition of the intellectual novel, describing her as “the great English novelist of

¹⁶ Wallace Stevens, ‘The Pure Good of Theory,’ *Collected Poems*. New York: Knopf, 1978: 332.

ideas.”¹⁷ Eliot’s characterisations are successful, she argues, because unlike didactic writers such as Orwell, Peacock, or Huxley, Eliot’s characters do not “represent ideas like allegorical figures” but the inverse: ideas “are as much actors in her work as the men and women who contemplate the ideas.” The same could be said of Byatt’s multidimensional weaving of disciplines into a mesh that places the intellectual quality of ideas, more than any one particular character, at the formal centre not only of the book’s theme but also of its plot and setting.

However, when one of these ideas is the science of consciousness, there applies a more literal and more problematic sense in which ideas can be embodied in a novel at the level of the sentence or paragraph. Byatt also notes of Eliot that she “saw her work as making incarnate certain ideas that she apprehended in the flesh, i.e., sensuously, materially, through feeling,”¹⁸ something achieved particularly in *Middlemarch*, “the great novel of the body-mind exploration” written by a novelist who acts like “an embodied mind.”¹⁹ This feeds well into T.S. Eliot’s concept of the “dissociation of sensibility.”²⁰ Although Byatt acknowledges that T.S. Eliot’s beliefs perhaps seem slightly odd today, she admits that she still found them useful in writing *The Virgin in the Garden* about “the body-mind problems of a young woman interested in her own sex-versus-intellect conflict” and about metaphor, “interested in the brain’s excitement about making connections between disparate things.”²¹ Indeed, towards the end of *A Whistling Woman*, Frederica, who has studied T.S. Eliot’s metaphysics, experiences epiphanically when reading and teaching *The Great Gatsby* something of a combination of the bodily feeling and the mental expression Eliot claimed to have been lost after the seventeenth century, reading the “achieved simplicity” of its concluding paragraph and feeling “something she had always supposed was mythical, the fine hairs on the back of her neck rising and pricking in a primitive response to a civilised perfection, body recognising mind” (269). Like Frederica, in her essay on “Memory and the Making of Fiction,” Byatt uses several physical metaphors to describe the process of thought: one “is of feathers – being preened, until the various threads, with their tiny hooks and eyes, have been aligned and the surface is united and glossy and gleaming”; another “is of a fishing net, with links of various sizes, in which icons are caught in the mesh and drawn up into

¹⁷ A.S. Byatt, ‘George Eliot: A Celebration,’ *Passions of the Mind: Selected Writings*. London: Chatto, 1991: 72-76.

¹⁸ George Eliot, *Selected Essays, Poems and Other Writings*, ed. A.S. Byatt and Nicholas Warren, introd. A.S. Byatt. London: Penguin, 1990: xxix. Byatt also draws attention to Eliot’s review of Robert Mackay’s *The Progress of the Intellect*, in which Eliot, like Byatt, asserts that “Religion and science are inseparable,” and describes civilisation and religion as “an anomalous blending of lifeless barbarisms, which have descended to us like so many petrifications from distant ages, with living ideas, the offspring of a true process of development.” *Selected Essays*. xxi.

¹⁹ A.S. Byatt, ‘The Feeling Brain,’ review of *Looking for Spinoza*, Antonio Damasio, in *Prospect* 87 (2003): 73-4.

²⁰ “Characteristic of the type of poetry I am trying to define is that it elevates sense for a moment to regions ordinarily attainable only by abstract thought, or on the other hand clothes the abstract, for a moment, with all the painful delight of flesh.” T.S. Eliot, “Introduction: On the Definition of Metaphysical Poetry,” *Clark Lectures*, ed. Ronald Schuchard. London: Faber, 1993: 43-64. The “dissociation of sensibility” meshes also with Eliot’s conception of literary tradition as something felt “in the bones.” T.S. Eliot, “Tradition and the Individual Talent,” in *Twentieth-Century Literary Criticism: A Reader*, ed. David Lodge. London: Longman, 1972: 71-77.

²¹ Byatt, ‘Fiction Informed by Science.’ 294.

consciousness”; a third is rhythmic memory as a kind of knitting.²² Rather than ideas acting being incarnated at the level of plot (something Byatt achieves successfully throughout almost all her fiction) here ideas are incarnated – described in bodily terms – at the scale of the unique psychological moment. Though resonating with the modernist aesthetics of the two Eliots, how can these metaphors for the individual consciousness meet with empirical science, as they must if the novel is to articulate the multiple disciplinary ways of looking at the same subject? Rather than clinging to an older tradition in literary criticism, Byatt’s many representations of memory as something physical as well as psychological are increasingly endorsed by modern neuroscience which stresses embodied cognition, given the persistent failures of a purely cybernetic artificial intelligence work. Foremost among these later scientists has been Antonio Damasio, whose concept of embodied consciousness is, Byatt approves, “leading us to reconsider all kinds of aesthetic problems and proceedings.”²³

The value of embodied cognition from this meeting of science and aesthetics is explored significantly through the mathematician, Marcus, whose thoughts often paraphrase Byatt’s personal writing about memory and resonate pertinently with Damasio’s work. In the first book in the quadrilogy, *The Virgin in the Garden*, Marcus synaesthetically experienced equations as a kind of garden, in which the answer to a particular problem was revealed through colours and shapes. Now in *A Whistling Woman* Marcus works at the University on a project entitled “The Computer as a Model for the Activity of the Brain,” but complains that it is mere “Number-crunching. A primitive automat that mimics a limited number of operations in the brain” (220). Marcus instead feels an affinity with Bowman, who conducts physiological work on the corporeal structure of brain cells. Mid-way through the novel, Marcus has a liminal conversation with a Wittgensteinian philosopher, Hodgkiss who, like the philosopher he studies, observes “Marcus’s body as an expression of Marcus’s mind” (293). Numerous places throughout *A Whistling Woman* deploy synaesthetic descriptions of memory that relate thought to mathematical shapes, or biological entities such as the spiral shells of snails or flighty birds.²⁴ However, thinking so continually through analogy evidences simultaneously the innate dilemma of a novel: forced to use metaphors to express consciousness, the novel implicitly disembodies thought from its origin, doing precisely what the representation of Lamb’s mind warns against in moral terms, or Pinsky’s demonic model in theoretical ones. Metaphor relies on the absence of connection between different entities, and is hence an unreliable vehicle to reconcile body and mind. Though Byatt praises Damasio’s work on embodied cognition, metaphor and language must always strain to reconcile word and world, which is why the Eliots’ concepts seem anachronistic in relation to postmodern theory that stresses the absence of a centre for meaning. Marcus explains that whilst he can move finite numbers around on paper, constituting them as “real things” rather than forms, he experiences infinities synergistically:

²² A. S. Byatt, ‘Memory and the Making of Fiction,’ *Memory: The Darwin College Lectures*, ed. Patricia Fara and Karalyn Patterson. Cambridge: Cambridge UP, 1998: 47-72.

²³ Byatt, ‘The Feeling Brain.’ 73.

²⁴ Some symptomatic examples from *A Whistling Woman*: shapes, 216-222; birds, 374-75 and 298-300; heat and light, 257.

Did Wittgenstein hate angels? Did he think they were all really demons? Oddly, I feel the infinities with the whole of my body, not only my mind – they don't feel cerebral. I feel as though I'm *in* them, I *am* them – as opposed to observing them. It's possible I can't so to speak get out of them because human beings made them up. (219)

Are numbers real things or phantoms? Marcus implies here – and the reference to demons enforces further – that because demons and infinities exist in the mind they must at least possess some sort of reality, but as with Lamb's demons it is not possible to “get out of them,” to occupy a scientific view from nowhere on them, because to leave the mind of the person who perceives is also to destroy the possibility of that perception existing in the first place. The difference with Marcus is that he feels the infinities with his whole body – not as dualistic mentalisms – but even as this seemingly opens the possibility of a scientific study such as pursued by Damasio, the only way he can make this feeling available to himself and to Hodgkiss is “By analogy. I have to substitute other things – things I do understand – for the infinities I don't” (219). Paradoxically, the more embodied – physical – mind or mental images seem to become, the harder it is for science to get a representative grip on them. Thus literature, being a total analogy of the world, can provide a substitute. However, Byatt simultaneously acknowledges that it is a necessarily limited one, as language in both Byatt's non-fictional reflections and Marcus's thoughts is stretched to its adhesive limits, in the attempt to describe, positively, that which is known to be unknown, as unrepeatable in the symbolic order of words as Beethoven's Third is in Pinsky's cognitive model.

Byatt's desire is to reconcile realism and myth, in parallel with the realisation that science and literature are two ways of looking at the same natural order, as encapsulated in their common use of metaphor and analogy.²⁵ Although in an era before the MRI scanner the Eliots' ephemeral “embodied mind” or “dissociation of sensibility” might have been allowed to stand on the basis of their aesthetic persuasion, modern science (and the modern reader) may be more sceptical. However, it remains unclear quite how theories such as Damasio's embodied cognition might be reconciled with a literary sentiment that necessarily disincarnates consciousness by representing it through language; nor is it self-evident how one might both acknowledge that science might in the future offer ways to understand consciousness, whilst preserving for literature the ability to represent in the best but necessarily limited way the incarnate mind. One temporary option might be to present science as a string of aesthetic symbols that precedes their empirical content: Pinsky's Pandemonium model may be empirically suspect, but it is nevertheless a fun and imagistic analogy; likewise Frederica, whilst ignorant of the science of mind, “knew the words, neurone, synapse, dendrite, and she liked them because she could do their etymology” (355). Clearly, though, such a linguistically-orientated view is missing something important about the core science. More systematically, the author might be tempted into overemphasising the role of the body in thought, pushing it almost towards endorsing the biological determinism of genetics. As Marcus admits, what he feels as the infinities “may only be flashes in the brain”; but as we have observed in the case of Minsky's demons the purely cognitive or strong artificial intelligence

²⁵ For example, A.S. Byatt, interview with Nicolas Tredell, *Conversations with Critics*. Manchester: Carcanet, 1994: 58-76.

angle is ready to dismiss the biological attachment Marcus intuitively makes to numbers. Indeed, the idea of the synaesthetic mathematical genius who sees things such as numbers differently because of a special biological status might come close to echoing Steven Pinker's view that we are not blank slates upon whom cultural experience and ideologies are forced, but actually have genetically predisposed capacities.²⁶ This is a version of embodied psychology George Eliot unwittingly invoked in her review of Wilhelm Heinrich von Riehl's *The Natural History of German Life*, in which she noted approvingly that Riehl "sees in European society incarnate history," for example, viewing the peasantry as defined by their physique.²⁷ The moral and political risks of this view – risks that in part account for the contemporary anger directed at Steven Pinker by cultural relativists – is that it has its extreme realisation in racism; Byatt is evidently alert to the historical extension of Riehl's logic of the incarnate idea and Pinker's blank slate critique, since it is the presence of Eichenbaum, a suspect scientist who worked in Nazi Germany, that sparks riotous protests against the body and mind conference by the anti-university. There is thus an unresolved tension between literature that presents itself as the best way of representing thoughts because its currency is abstract metaphor, even as it appreciates the value of current cognitive science to harden this hazy sense of where and how thoughts such as the infinite occur in embodied reality. It must also avoid extending this appreciation towards legitimating a deterministic science that posits not only the synaesthetic genius as biologically predestined, but also implicitly the inferior race or class.

The character of Peacock, the evolutionary biologist, represents one way of both expressing and relieving this difficulty of moving away from a two cultures model in which literature axiomatically holds prestige in matters of mind, but without approaching scientific dogmatism. Described as "a bristling genetic predestinarian and moral pessimist," he appears the archetype of a genetic determinist such as Pinker, and the antithesis of a Romantic, both philosophically and sexually, when he is attracted to Jacqueline:

He thought of Lorenz's studies of the behaviour of other creatures. Most unreceptive females bit, or scratched or snarled. This one just took a step or two out of reach. The signs were quite clear. She did not want him. What puzzled him as a scientist, given the unambiguous clarity of her discreet messages, was how much he wanted her. (21)

Behavioural psychology sees language as incarnate, the body literally the picture of the human soul, but unlike Byatt's reflections on the weaving of memory, it is stripped of the aesthetic sensitivity to human action. Peacock's language is dispassionately asexual, scrutinising Jacqueline as any other scientific object, not as a subjective entity in her own right: heavy in sense, it lacks sensibility. This is an exchange the omniscient narrator can tell us Peacock regrets, although he does not admit it publicly. For example, Peacock accepts that in the interests of his research he

²⁶ Steven Pinker, *The Blank Slate: The Modern Denial of Human Nature*. London: BCA-Penguin, 2002. This is the clearest expression of Pinker's nature focused approach, although *The Blank Slate* was published after both *Babel Tower* and *A Whistling Woman*. Byatt is thus drawing on similar ideas which were expressed throughout earlier works such as *The Language Instinct* and *How the Mind Works*.

²⁷ George Eliot, *Selected Essays*. 107-139.

ought to stop counting spirals on snail shells in the wild and use instead lab-based electrophoresis, but still he cannot help but prefer to be outdoors, from where “He measured the world from inside the balance of his own body” (69). This ironic discrepancy between how Peacock thinks he acts, and how we know him to feel before he acts as the archetypal behavioural determinist, is summarised by the fact that this scientist who dogmatically asserts that “his world was washed clean of human stories” (188) is actually the central character of one, sharing (like Lamb) a highly significant, even allegorical name (Lysgaard, Byatt notes, is a “common Danish name meaning garden of light, a paradisaal reference”²⁸).

Thus we are prepared to applaud when Frederica argues against Peacock that evolutionary and biological causes can not in themselves explain why metaphor and artistic perception are so central the human experience, that “theories of natural selection don’t explain why human beings find peacock feathers beautiful” (409) or, by ironic extension, why Frederica will fall in love with this particular Peacock by the end of the novel. However, whilst it might be tempting to see this opposition between biology and literature, Peacock and Frederica, as enacting the stereotypical disciplinary binary, the historical novel makes a further ironic attack from *within* the scientific field, presenting the metaphorical interest of biological science whilst not wholly endorsing its logical findings. The working title of Peacock’s conference paper is *The Cost of Sex and the Redundant Male*:

You might say, said Luk Lysgaard-Peacock, thinking of Frederica and her inconvenient assertion that mental cobwebs [such as astrology] were real things – you might say, that if an idea has survived for a very long time, it has its own adaptive fitness. You could argue that religions and moral instructions survive in the world because they are like larger organisms, struggling for existence. You could argue that Christianity spread to be a world religion because it had better survival characteristics than Manichaeism....But a faith is not an organism, and survival works at the level of the fitness of cells, through the adaptation of cells. I would like you to recall the admonitions made yesterday by Professor Pinsky, against thinking loosely with analogies and metaphors. (38)

Whilst Peacock speaking in the fictional context in 1968 argues for survival working at the level of cells, he is necessarily naïve – whilst the reader is probably alert – to the fact that *The Selfish Gene* of 1976 would argue for adaptation at the level of the gene, initiating a paradigm shift.²⁹ This undermining by anachronism ensures that science is contested in terms of other branches within science, and as part of a historically adaptable series of paradigm perspectives, rather than simply by an aesthetic shudder against reductionism of any sort. Further, Peacock’s argument here is elusive. Using the mode of the double negative, in which an argument is presented only to be demolished, this therefore raises the possibility that religion and stories *are* understandable in evolutionary terms, even if this is subsequently denied. In itself, this analogy would be provocative, as indeed was Dawkins’ use of the memetics-genetics comparison. However, though he argues against his own metaphor as evidencing the danger of thinking by analogy, Peacock then takes it a stage deeper, deploying

²⁸ Byatt, ‘Fiction Informed by Science.’ 296.

²⁹ Richard Dawkins, *The Selfish Gene*. 1976; Oxford: Oxford UP, 2006.

evolution not as a loose analogy for the work of stories in the world, but making the connection irrelevant, since survival takes place only at the level of cells. Contrary to Frederica, the only “real thing” objectively in the world is biological material that is objectively quantifiable and explicable. He thus moves unselfconsciously from a soft to a hard evolutionary reductionism, the reductionism Steve Jones, the biologist to whom *A Whistling Woman* is dedicated, actively contests. In opposition to Pinker, Jones argues that cognitive science will not achieve “a universal exegesis of the set within the skull, a mental theory of everything” through recourse to evolutionary biology.³⁰ Indeed, adding to his unwittingly ironic status in the novel, Peacock’s hesitancy in his speech – “you could argue,” “you might say” – implies also that this is to be read as an argument with which the scientist is not entirely happy, it being intended rather to be provocative, having been inspired by a former student jilting him after she miscarries his baby.

On the one hand, the brilliance of science Byatt admires is that it does not succumb to the easy escape into Romanticism’s evasive myth of the transcendent mind and consequent anti-empirical stance; on the other hand, representing the embodiment of ideas in relation to the novel’s characters risks using dense analogies that either admit the dualism on which the novel is formally predicated as it uses metaphor to express body, or move towards a biological or cognitive-biological determinism. The best attitude to adopt, therefore, is agnosticism rather than dogmatism. As Byatt has set this philosophy out, “I don’t like novels that preach or proselytise. (I fear people with very violent beliefs, though I admire people with thought-out principles.) The novel is an agnostic form - it explores and describes.”³¹ As well as implicitly demanding a fidelity to realism, and in terms which remind of E.M. Forster’s injunction against the thumb of morality destabilising the novel, this can also be taken – when Peacock’s representation in *A Whistling Woman* is considered – as a recognition that the optimum scientific perspective on reality is always self-aware. As Dawkins’ idea of the meme admits in the final chapter of *The Selfish Gene*, or as the ironic way in which Peacock is treated suggests, genetic determinism can not account for the indeterminate way in which we apprehend the world from our own self-deluding encultured perspective. Thus for Peacock, the more he dogmatically assumes himself to be driven by genes and sexual selection, the more this draws attention to himself as determined by a literary code. But this is not just to promote literature at the expense of science. The fact that we know, as Peacock does not, that his view of survival taking place at the level of cells will be ultimately condemned by the historical arrival of *The Selfish Gene* reminds us that agnosticism is also scientifically healthy, since to remain dogmatic is to be closed to the Popperian possibility of new paradigms superseding the old. Politically, too, agnosticism prevents the risk of extending the biological logic of genetics towards a racist politics. Finally, for the reader, the agnostic attitude permits the incarnation of ideas as the property of each individual, rather than idealistically belonging to a Platonic world outside them. It is the attitude inculcated in the practice of reading pluralistically figures such as Lamb who might otherwise be unambiguously (hence dogmatically)

³⁰ Steve Jones, ‘The Set Within the Skull,’ review of *How the Mind Works*. Steven Pinker, in *New York Review of Books* 44.17 (1997): 13-16.

³¹ A.S. Byatt, ‘Author Statement,’ *Contemporary Writers*, 2002, British Council, 28 Feb. 2008 <<http://www.contemporarywriters.com/authors/profile/?p=auth20>>. Byatt reiterated this sentiment about agnosticism at a recent lecture: A.S. Byatt, ‘In Conversation with A.S. Byatt,’ Durham Literature Festival, Gala Theatre, Durham, October 8, 2008.

allegorically determined; learning to accept Lamb as having an autotelic, if schizophrenic, consciousness in his own right allows us to critique his particular brand of fundamentalist religion (which leads to a fiery disaster) whilst not asserting equally fundamentally the value of our rational view, or denying his right to have a consciousness in the first place.

Cultivating the spirit of the agnostic in this vein gives us a potential map for interpreting the ending, which seems initially bewildering and unsatisfying. In an overtly symbolic union of multiple intellectual cultures, the novel and quartet concludes with Frederica carrying Peacock's baby, a literal reincarnation of artistic and scientific minds, of creativity and evolutionary determinacy, the lottery of genetics played through the instinctive game of romance. The pair look out over the moors, in a vision which echoes *Paradise Lost*, the book which above all inspires Frederica's imagination as the dominant "meme" in her cultural consciousness, as well as being the ironic inspiration for the Pandemonium model of mind:

They stood together and looked over the moving moor, under the moving clouds, at the distant dark line of sea beyond the edge of the earth. In the distance, the man-made Early Warning System, three perfect, pale, immense spheres, like visitors from another world, angelic or demonic, stood against the golds and greens and blues. Frederica said to Leo "We haven't the slightest idea what to do." Everyone laughed. The world was all before them, it seemed. They could go anywhere. "We shall think of something," said Luk Lysgaard-Peacock. (421)

This is unfittingly pastoral given the generally realist tendency of the novel; equally, the romance plot is unconvincing, since Frederica and Peacock have been for the majority of the novel diametrically antagonised, both intellectually and emotionally. However, it is arguable that its awkwardness as allegory and romance defines its status against a generic or genetic determinism. Its ambivalence – "We shall think of something" – denies the novelistic writing of destiny on the forehead, leaving characters in possession of their independent consciousness, rather than dogmatically orientated participants in an allegorical and intentional scheme (*Paradise Lost* being one such master allegory) that exists outside of them and deprives them of independence. As Frederica asks early in the book, "What's the real end? The end is always the most unreal bit" (10). In parallel, technology, the applied incarnation of science, is agnostic, as evidenced dramatically in atomic science of the 1960s (the Early Warning System refers to the Fylingdales radar, used to detect Soviet missile launches) which can be turned either for productive or destructive ends, angelic or demonic but not decisively Frankensteinian.³² The populist poet in the novel, Mickey Impey, opines to Frederica, "Listen, darling, science is a Bad Thing...Don't teach little kids science. Teach them human things, making love, painting pictures, writing poems, singing songs, meditation" (43). Driven by anti-nuclear sentiment, Impey's dogmatic humanist liberalism is now viewed as being as deterministic as biological eugenics, which he protests about in relation to the Body and Mind conference.

³² For example, President Dwight D. Eisenhower's 1953 'Atoms for Peace' speech to the United Nations. Dwight D. Eisenhower, 'Atoms for Peace,' United Nations General Assembly, New York, 8 Dec. 1953, transcript, International Atomic Energy Agency, 19 Oct. 2007 <http://www.iaea.org/About/history_speech.html>.

In the conclusion of Peacock and Frederica's romance, and the representation of nuclear arms as morally ambivalent, Byatt tests the reader's willingness to transcend either polarity of the two cultures and to admit that the capacity of science to create new technological images and metaphors which can substitute for the absence of religion – the pale and immense spheres which remind of Lamb's Manichaeic visions – must occur simultaneously with a refusal dogmatically to triumph the literary alternative. The central discussion of consciousness around the trope of the demon forces us to recognise that literature does not have the unique privilege to access mind unobtrusively, since allegory can slip quickly to logocentric dogmatism in a too-decisively demonic way. On the other hand, science does not necessarily affect the body brutally, but can in understanding mind through physically embodied brains raise a new range of metaphors that can be recruited by literature as descriptions of mind, however paradoxical this may appear to be when conducted in the novel's disincarnate form.

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Christine Ferguson, 'Eugenics and the Afterlife: Lombroso, Doyle, and the Spiritualist Purification of the Race.' *Journal of Victorian Culture* 12.1 (2007): 64-85

Scholarly interest in nineteenth-century theories of degeneration has flourished over the last two decades and much has been published on the prominent theorists, Cesare Lombroso and Max Nordau. Indeed, Daniel Pick's influential *Faces of Degeneration: A European Disorder, 1848 – 1914* (1993) has led the research on the theory of degeneration in the Victorian period to a large extent. Christine Ferguson's exploration of the relationship between science and spiritualism is ambitious; however, through her apt choice of prominent Victorian scientific writers Arthur Conan Doyle and Lombroso, she has made an original contribution to the field. She presents a refreshing approach to the study of Victorian popular culture when she unites these much-discussed figures of literary science in their quest for spiritual meaning.

In this article, Ferguson does not attempt to reject or refute recent assessments of spiritualism's political and ideological commitments, but rather to develop them towards a greater understanding of the role of eugenics in Western scientific history. The contemporary implications of such a study are clear: we live in a society that strives to live longer, to cheat death, to evade the inevitable through quasi-scientific procedures such as cryonics. The pursuit of biological perfection through artificial natural selection that flourished towards the end of the nineteenth century, like spiritualism, sought to eliminate death altogether. In a useful discussion of the biological implications of eugenics on the Victorian concept of the spiritual afterlife, Ferguson demonstrates that, while the Victorians had not yet discovered advanced technological methods to deal with the biological imperative of death, spiritualism incorporated terminology belonging to the theory of eugenics to show that, with death, came perfection. For Conan Doyle, she argues, there was consolation in a eugenic afterlife; in his fiction, he strongly advocated the idea that death brings (meta)physical and moral perfection. The value of life in this sense, according to Ferguson, becomes ambivalent, while death proffers a curative, restorative power. Lombroso's interpretation of the afterlife presents an alternative view. For Lombroso, she points out, the loss of man's corporeal frame through death was debilitating rather than liberating. Lombroso argued conversely that the dead required a psychic through which to communicate with the living world, and he celebrated openly the fact that many such mediums were fraudulent. No higher spirits could be sought, he claimed, without the corrupted mediums to lend them their bodies.

Ferguson's article successfully provides a new context through which to understand Conan Doyle's and Lombroso's conversion to spiritualism. However, her most convincing argument lies in her analogy between the eugenic ideal (a society in which sickness and suffering have been eliminated) and the spiritualist conception of the afterlife. Both movements, she argues, encapsulate the desire for physical, moral, and mental respectability that justified Victorian mores. Furthermore, moving from social considerations of the presence of eugenics in Victorian scientific culture to fictional representations of the eugenic ideal in the spiritualist romance, Ferguson presents her reader with a fully evolved argument. In her assessment of spiritualist eugenics in literature, she shows how the spiritualist breeding experiment fails in Hugh Conway's 'The Daughter of the Stars' (1884), yet proves more successful in

George Du Maurier's 1898 text, *The Martian*. She argues that the sense of evolutionary achievement central to *The Martian* may derive from its engagement with a late century scientific culture driven by issues concerning declining national fitness and the hereditary transmission of crime.

'Eugenics and the Afterlife' adds considerably to the published literature on Victorian science, but it is also an important document for historians interested in nineteenth-century popular culture. What Ferguson does not exploit fully, and must be mentioned here, is that her work in this area has significant implications for current research in the history of science. While we may consider the University of Edinburgh's feat in creating the clone Dolly an innovative achievement, what Ferguson's superb research shows, is that the concept that underpins such technological advancement (the struggle and desire for biological perfection) had begun during one what was arguably the most exciting epoch in scientific history: the late Victorian period.

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Joan Roughgarden, 'Challenging Darwin's Theory of Sexual Selection.' *Daedalus* 136:2 (2007): 23-36

Whilst evolution and Darwinian natural selection continue to attract criticism or disdain from those with religious views to maintain, it is perhaps less common for evolutionary biologists to mount serious challenges to Darwin's work. However, Stanford biologist Joan Roughgarden has recently put together a sustained critique of Darwin's theory of sexual selection, a key component of modern evolutionary biology. This article constitutes an extension of her controversial 2004 book, *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People*. Her aim is to challenge gender identity, sexual orientation and sexual behaviour in animals, particularly attitudes about sex and gender that were current when Darwin was writing 150 years ago, and are still with us today.

Roughgarden begins by asking whether a biologist may criticise any of Darwin's theories without risking insult, ridicule, anger, and intimidation. Such emotive language immediately suggests that defenders of Darwin do so not intellectually, but by otherwise less savoury means. This allows Roughgarden to cast herself in the role of victim, a theme to which she returns at the end of the article when she addresses criticisms of her thesis and the suggested basis for those criticisms. However, the history of the development of evolutionary ideas suggests that Darwin is not quite the sacred cow she portrays, and one also wonders whether her own sense of victimhood is real (she has more than 30 years of academic publication under her belt), or more of a literary device to elicit our sympathies.

The main focus of the article, though, is Roughgarden's attack on Darwin and his sexual selection theory, a confrontation through which she conflates various different narratives. First, she rebukes Darwin as a Victorian scientific thinker and takes an indignant view of his use of language. Second, she opposes vehemently Darwin's theory of sexual selection. Third, she takes an aggressive stance against the current theory of sexual selection by effectively denouncing the modern theoretical model as fundamentally flawed. She therefore takes her assertion that Darwin was mistaken when he wrote his theory of sexual selection (because his ideas about sexual identity and gender were subjective), and uses this to criticise all subsequent developments in the theory of sexual selection.

To attack Darwin as a thinker, however, one has to consider the social context within which he worked. He must be read as both an historical as well as a scientific text, and therefore be placed within an appropriate historical framework. Darwin lived in a patriarchal Victorian society in which women were actively encouraged to behave in a modest and unassertive way, while men dominated the spheres of law, medicine, education, and commerce. How Darwin chose to write about evolution, and the examples he used, are clearly influenced by this social and cultural world. This does not *a priori* undermine the basic empirical truth of those biological examples or the scientific interpretation of them however. Whilst modern biologists place a different emphasis on male and female roles in reproduction (not least thanks to the evidence gained over the last two decades concerning the near-ubiquity of female multiple mating in animals), we should not uncritically let historical context get in the way of our appreciation of Darwin's insight.

Second, what of Darwin's theory? In *The Origin of Species*, gender stereotypes are firmly in place: Darwin does introduce sexual selection in terms of "a

struggle between the males for the possession of the females”, or female birds “selecting... males, according to their standard of beauty”. However, by 1871 Darwin could assert confidently in *The Descent of Man* that sexual selection “depends on the advantage which certain individuals have over others of the same sex and species solely in respect of reproduction.” This concept is akin to modern definitions of sexual selection, and eschews gender roles and stereotypes. Therefore, sexual selection, as envisaged by both Darwin and modern biologists, does not in fact require particular male or female roles. Whilst Roughgarden is justified in addressing gender identity in science and society, there is no rationalization for equating sexual selection with a particular gender construct. This fundamental misunderstanding has led to much criticism from the biology community.

Roughgarden then promotes a theory based upon the concept of cooperation, rather than competition, claiming that males and females reproduce cooperatively through ‘animal friendships.’ In a discussion of how anthropologist and gender theorist Gayle Rubin’s ‘sex-gender system’ may be applied to the privileging of one gender over another, Roughgarden argues for ‘social’ rather than sexual selection, suggesting that there is a lack of sexual conflict between animals because they have to combine resources in order to ensure the successful production of offspring. To some extent this is correct; a certain level of cooperation must exist in order for procreation to take place. Although many biologists question her interpretation of how animals typically behave (are ‘animal friendships’ relevant for most insects, for example?), this part of the article is the most useful, generating predictions about animal behaviour. However, it is also in this section that she fails to separate “sexual selection” from what might have been Darwin’s view of gender stereotypes: put simply, modern sexual selection theory is not as myopic as she pretends.

In *The Origin of Species*, Darwin made the humble admission that his research constitutes nothing more than a mere stepping-stone to a higher and more advanced scientific understanding of the natural world. Despite the arguments presented by Roughgarden, these are stepping-stones still worth taking.

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Etienne Lepicard, 'An Alternative to the Cosmic and Mechanic Metaphors for the Human Body? The House Illustration in Ma'aseh Tuviyah (1708).' *Medical History* 52 (2008): 93-105

In the Early Modern period, the new mechanical philosophy profoundly influenced the way people imagined their bodies. Descartes' striking description, in his *Traite de l'homme*, of the body as 'an earthen machine' echoes around the contemporary literature, lingering into the twenty-first century. Over the past fifty years, and provoked by the ubiquitous presence of the computer, cyborg literature has revisited the idea of the machine-man and considered its sinister ramifications. It is not surprising then that so-called mechanical bodies have been a key discussion point in recent years for inter-disciplinary scholars of the arts and sciences, and that the research of early modern scholars has been prominent in cross-period discussions. At the last conference run by the Association for the Medical Humanities, in September 2006, Margaret Healy delivered a plenary on 'Writing, Illness, and Contemplating Machine Bodies Prior to Descartes' in which she discussed Montaigne's fascination with water technology in relation to his trouble with the stone. A year later, at the conference held by the Research Centre for Literature, Arts and Science at the University of Glamorgan, Jonathan Sawday gave a stimulating lecture on anti-machines, with special reference to John Wilmot, Earl of Rochester's thoughts about his body as a malfunctioning sex-machine.

Etienne Lepicard's article does not challenge the importance of the machine-body in pre-enlightenment thought, but it does offer evidence to complicate the discourse. Tobias Cohen's *Ma'aseh Tuviyah (The Work of Tobias)*, published in 1708, is a Hebrew medical treatise; as Lepicard cites David B. Ruderman, it is 'the most influential early modern Hebrew textbook of the sciences, especially medicine'. Lepicard's article focuses in on an illustration that falls at the start of a chapter on pathology, a section entitled 'A New House'. The intriguing illustration, reproduced in the article, depicts a man's opened abdomen next to an analogous four-story house. The stomach is depicted as a cauldron in the 'kitchen', with the heart a floor above in a gently ventilated chamber fit for the 'master of the house'. Lepicard explores the drawing in relation to Cohen's loyalties to the iatrochemical depiction of the body as a distillery, continuing to discuss the origins of the house metaphor in a series of lectures Harvey delivered at the College of Physicians in London in 1616, and the use of the image in John Donne's poetry. The house-man, Lepicard tells us, might have been a mnemonic device for medical students at Padua, where Cohen moved to study with Solomon Conegliano, after he and his companion suffered bad treatment at the medical school in Frankfurt-on-Oder. The second half of the article offers a close analysis of how Cohen's particular lived experience at these two medical schools could have prompted him to use the house-man illustration.

This article helpfully draws attention to one pre-enlightenment way of depicting the body that differs from the main discourse of body-as-machine – until 1923, when Le Corbusier would bring the images full-circle by describing the house as 'a machine for living in' (*Vers Une Architecture*). Whether the image and idea of the house-man is still present in the twenty-first century, dominated by a concern over posthumanism as well as the man-machine, is perhaps a topic for future research.

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Ellen Burton Harrington, 'Nation, identity and the fascination with forensic science in Sherlock Holmes and CSI.' *International Journal of Cultural Studies* 10:3 (2007): 365-82

Forensic crime fiction has emerged as a significant sub-genre in the last two decades, given impetus by the work of Patricia Cornwell, who published her first forensics-focussed novel in 1990. Nevertheless, academic discussions of imagined forensic science in fictional contexts have taken an historical view, most persuasively in Ronald R. Thomas's *Detective Fiction and the Rise of Forensic Science* (1999). Harrington's article can be placed within the critical frameworks created by Thomas, and extended in some significant work on Cornwell's fiction by Rose Lucas (2004). Harrington bridges much of the twentieth century's interest in emerging sciences of identity-detection by placing in dialogue the crime fiction of Arthur Conan Doyle and the procedural forensic television franchise, *CSI*. In reading these very different fictions Harrington aims to investigate and elucidate the importance of (fictionalised) forensic science in discovering, determining and constructing individual and, by extension, national identities.

One of the key problems with the article, however, is its failure to attend to the existing critical scholarship, and thereby the various critical consensuses, on crime fiction as a genre of literary writing. For example, Harrington lacks a genre-consciousness in her reading of *CSI* as an example of the police procedural. Her claim that this genre's uniqueness (I would argue it is a sub-genre of crime fiction) is the enactment of a conservative ideology designed to restore order through organised detection, forgets that similar motivations can be seen at work in many examples of crime fiction, from Agatha Christie's Poirot novels to Chandler's Philip Marlowe series, all of which reclaim order from the chaos of crime by submitting 'clues' to rational analysis.

It is, though, in her reading of the role of science in the Sherlock Holmes stories that Harrington is most limited. Arguing that Holmes' scientific training, his investigations into 'trace evidence' (tobacco ash, the influence of trade on the human body), and his employment of a scientific rationalism in his criminal deductions, are all essential ingredients of Doyle's fiction is hardly unique. Indeed Thomas has done the finest work in this area, but many critics of the Holmes stories make the same claims as Harrington does here, and with greater attention to the impact of science on the construction of various identities (personal, national, and imperial).

More productively, Harrington offers a reading of *CSI* as a fictional narrative dealing with the role of forensic science within postmodernity; with the clash between the identity-securing forensic material (such as DNA) on the one hand, and the fragmentation and elusiveness of postmodern identity politics on the other. In a useful discussion of a single episode of *CSI*, focussed on gender re-alignment surgery, Harrington argues that forensic science reveals a privileging of the ever-more embodied scientific 'clue'. While gender surgery can indeed embody the male as female, DNA will reveal the falsity of this apparent embodiment of biological sex, although not, of course, the socialised gender of the individual under discussion. In this way, forensic science offers a truth that cannot be found by normalised vision while at the same time denying the truth of an individual's ideological identity.

In her concluding remarks Harrington applies this understanding of forensic science as the gaze that penetrates to the truth of identity to national politics. Making a case for the similarity between *CSI* and the Sherlock Holmes stories, Harrington argues that, like its predecessor, *CSI* promotes a comforting safety in science, a safety imbued by the belief that scientific knowledge can reveal the hidden dangers of society to its custodians, the scientists. Here, then, we have the scientist as hero (or heroic detective), a position that elides (as, unfortunately, does this article) the more complex representations of science and the scientist in both the late nineteenth and twenty-first centuries.

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Notes on Contributors

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