

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

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“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 Wijnobel, 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

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.

investigations of the phenomena of mind and consciousness. With its wide range of 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

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

postmodernism, without succumbing to the anti-science stance revealed so 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;

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).

rather, they describe a passion wholly internal, and the metaphorical linkages are 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

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).

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 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

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

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.

with postmodernism seemed poised to provide a stabilising antidote to this linguistic and psychological relativism.¹⁰ If reading turns everything into analogy, and language 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

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 (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.

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 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*

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.

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.

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 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.

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

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 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

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.

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 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

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.

around on paper, constituting them as “real things” rather than forms, he experiences infinities synergistically:

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 unrepeatably 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

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

towards endorsing the biological determinism of genetics. As Marcus admits, what he feels as the infinites “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 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

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.

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 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*

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

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

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 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

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.

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) 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

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>.

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.

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 Manichaeian 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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