# *Looking 'before and after':*

# *Reading Wordsworth through Evolved Cognition*

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Abstract

This thesis brings Wordsworth's poetry and core poetic concerns into dialogue with emerging ideas in cognitive and evolutionary science, an area of research that broadly attempts to elucidate cognition and culture in relation to evolutionary history. It is well documented that Wordsworth considers the role of science in poetry and meditates on the relationship between his mind and nature. Yet while many critics have indeed sought to locate his poetry in relation to the history of science, illuminating the contemporary influences on his work, fewer have considered how the relationships of nature and mind in Wordsworth might be read in the light of modern science or how his own poetics might relate, specifically, to cognitive reading. To articulate and redress this interpretive gap, the thesis situates Wordsworth's poetics in relation to evolved cognition. The thesis places a number of Wordsworth's core poetic foci, along such key dimensions as permanence, survival and the relationship between imagination and meaning making, into relation with emerging ideas in the modern study of human cognition and its evolutionary history.

# Introduction

This thesis brings Wordsworth's poetry and core poetic concerns into dialogue with emerging ideas in cognitive and evolutionary (CE) science — an area of research that broadly attempts to elucidate cognition and culture in relation to evolutionary history. It is well documented that Wordsworth considers the role of science in poetry and meditates on the relationship between his mind and nature. While many critics have sought to locate his poetry in relation to the history of science, few have read nature and mind in Wordsworth in relation to modern science. To articulate and redress this interpretive gap, the thesis situates Wordsworth's poetics in relation to CE theory concerning the relations between mind, perception imagination and nature. More specifically, it deploys a CE approach to expand on Wordsworth's core poetic focus upon the limitations of human introspection, the relative stability — or invariance — of how the mind relates to nature over time, and the role of imagination in making meaning.

Wordsworth tells us in the 'Preface' to *Lyrical Ballads* that: 'Emphatically may it be said of the Poet, as Shakespeare hath said of man, "that he looks before and after."'[1] In this thesis I show that where Wordsworth looks 'before' in attempting to trace the origin of his thinking and creative life, he articulates creatively and imaginatively ideas that were immanent in his own time, but which also align with concepts derived from modern scientific enquiry pertaining to cognition and evolution. The thesis looks 'after' Wordsworth to the extent that I use ideas drawn from modern CE science in reading his work. The thesis identifies nonconscious cognition and continuity in change in modern CE science and reads Wordsworth's own insights into his 'before', consisting in limitations to self-awareness, and

[1] William Wordsworth, 'Preface and Appendix to *Lyrical Ballads*', in *Wordsworth's Literary Criticism*, ed. by W. J. B. Owen (London: Routledge, 1974; rpr.2016), pp.68-95.

inherent, continuing structures that connect mind and nature, through these concepts. The experience of nature through the limitation of human perception and thinking is shown to be common to Wordsworthian and CE insight. Mind and nature in Wordsworth's texts should be read through evolved cognition because both Wordsworth and his human reader share a cognitive and evolutionary history. This history informs the cognition through which both he and his reader perceive and conceive of the world. The thesis depends on the presence of that common history informing the moment of perception and conception and on the ability to draw out the relevance of evolutionary and cognitive stories for reading Wordsworth's texts. This common history is important because despite changes over time, certain aspects of cognition remain relatively stable over time, allowing readers to connect present to past through shared universal structures.

Using CE evidence to read Wordsworthian texts, the thesis negotiates a particular relationship between literature and science. Romantic literature has been interpreted for decades through the lens of modern science, under the wider umbrella of what Steven Meyer (2018) calls the 'tolerably new discipline' of Literature and Science.[2] Literature and Science, and critical approaches in Romantic literature and science, provide an important critical context to cognitive and evolutionary approaches. The use of modern science in the way I advocate sits uneasily with much current work in Literature and Science that emphasises historicist approaches but, on the other hand, it relates directly to recent calls to diversify the field and negotiate the spectre of the 'two cultures' anew. In relation to these calls my approach leverages differences between CE science and literature to bring aspects of human experience into focus that persist over time. I recognise an eclecticism in scientific and critical work on cognition and evolution. Ultimately, however, my approach presents a case

[2] Steven Meyer, 'Introduction', *The Cambridge Companion to Literature and Science* (Cambridge, Cambridge University Press, 2018), p. 8.

for how evolved cognitive mechanisms should be related to literary reading by engaging with specific Wordsworthian texts and interceding in concrete critical problems.

This introduction will go on now to survey the field of Literature and Science and position the use of modern science in critical reading within it, before homing in chronologically on the 'sub-field' of Romantic period literature and science, and further to the context of modern CE science in relation to Wordsworth. The emphasis here will be on surveying the broad critical context, before chapter one examines the CE project in criticism minutely alongside its key terms, in relation to the texts I will engage. The introduction will outline key foundational studies for the thesis and, finally, give an overview of the arc-argument in the thesis as a whole.

*I. The Literature and Science Field*

While there have been many important contributions to the literature-science discussion, many of which will be covered below, the field of Literature and Science is often seen to have its beginnings in the late 1970s', with the publication in 1978 of George Rousseau's 'State of the Field', a text, often read as an 'obituary' for the field, but which in fact heralded a flourishing of work.[3] Commentators have divided the field into two or three waves, with Rousseau's essay as a watershed. Devin Griffiths considers three waves, whereas Steven Meyer in his *Companion to Literature and Science* (2018) suggests two, with the first consisting in two phases.[4] The first wave, or phase, considers the impact of science on literature. The subsequent wave or phase 'complicates this stance by emphasizing the

[3] Michael H. Whitworth, 'Literature and Science', *Oxford Research Encyclopaedia of Literature* (Oxford: Oxford University Press, 2020) <doi: https://doi.org/10.1093/acrefore/9780190201098.013.990>; George S. Rousseau, 'Literature and Science: The State of the Field', *Isis* 69.4. (1978), 583-591.
[4] Meyer; Devin Griffiths, 'Darwin and Literature' in *The Cambridge Companion to Literature and Science* ed.by., Steven Meyer (Cambridge, Cambridge University Press, 2018).

influence of literature on science instead' (Meyer, p.4). Then following Rousseau's 1978 essay, a second or third wave developed into the modern state of the field. The division of the Modern Language Association (MLA) specialising in literature and science, whose existence had seemed in doubt when Rousseau surveyed the field, now has a membership numbering in the thousands. Meyer suggests that: 'What happened in the interim is best understood as the displacement of one field, called Literature and Science, by another, also called Literature and Science' (4). One result is an apparent '*disconnect between what individuals outside the field think Literature and Science should be — something resembling what it really was prior to 1980—and what it now actually is*' (emphasis original, 4). Yet 'what it now actually is' remains in flux.

Earlier practices — corresponding to the first wave —still inform current critical discourse. Michael H. Whitworth, a noted scholar in Literature and Science, provides an excellent (2020) overview of Literature and Science as a field on which I will draw.[5] Whitworth notes a number of key antecedents between 1926-1978.[6] Scholars such as Carl Grabo and Marjorie Hope Nicholson were concerned with the conceptual traffic from science and into literature. These scholars spoke, as Whitworth notes, of 'systems of thought at a supra-individual level: an era's "mentality" or "imagination"', uniting literature in science in a 'common field' but also, conversely, in terms of the 'impact' of science on literature, implicitly separating the two areas once again (Whitworth, p. 3). In the background of such work was scholarship in cultural history, such as that of A.N Whitehead and Arthur O. Lovejoy.[7]

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[5] Michael H. Whitworth, 'Literature and Science', *Oxford Research Encyclopaedia of Literature* (Oxford: Oxford University Press, 2020) <doi: https://doi.org/10.1093/acrefore/9780190201098.013.990>.

[6] Whitworth notes works between 1926-1978 including: Carl Grabo in *A Newton Among the Poets* (1930) studied the place of science in the poetry of Percy Bysshe Shelley. Marjorie Hope Nicholson published *The Microscope and English Imagination* (1935) and *Newton Demands the Muse* (1946). These early critics were primarily concerned with 'how the concepts, images, aims, and technologies of a given science had significantly informed the literary texts of its era'.

[7] For example, A. N. Whitehead's *Science and the Modern World* (1926), and work in the 'history of ideas', such as Arthur O. Lovejoy's *The Great Chain of Being* (1936).

The publication of Rousseau's essay marked a turning point 'at which earlier critical practices and vocabularies were rejected' (Whitworth, p.3). What was read as an obituary for the field actually stands, albeit with the benefit of hindsight, at the beginning of a second wave of work informed by the Theory revolution of the 1970s. Joseph Drury notes that signs of decline were indeed evident when Rousseau wrote his survey.[8] There was a declining membership of the MLA division concerned with literature and science and this apparent waning was reflected in the number of published articles on the subject (Drury, p.1). Scholars were apparently turning to structuralism, psychoanalysis and Foucauldian approaches. It seemed they would consequently have little use for 'painstaking intellectual histories of the lines of thought linking a period's science to its works of literature' (1). It appeared, then, that the work from the 1940s (with Lovejoy and Nicholson emphasizing one-way traffic) was being undermined by the Theory revolution in the 1970s (1). Looking back after forty years, Drury notes that Rousseau's fears were never realized, so that: 'Far from undermining the field, the theoretical ferment of the 1970s led to a dramatic new surge of interest in literature and science...consolidated in the foundation for the Society for the Study of Literature, Science, and the Arts in the mid-1980s and its flagship journal *Configurations* in 1993'(1).[9]

From the 1970s onwards, scholars moved 'beyond the asymmetrical relation that dominated earlier work in which scientific influence dominated the literary and the cultural' (Whitworth, p.3).[10] Markley notes that work across disciplines on nineteenth-century science

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[8] Joseph Drury, 'Literature and Science in Enlightenment Britain: New Directions', *Literature Compass* 14.6 (2017).

[9] Another viewpoint on theory in relation to Literature and Science, as Whitworth notes, is that the authority of psychoanalytical and structuralist literary critical approaches in particular came in practice from 'the scientific status of the specialist bodies of theory on which they drew'. Granting that the status of these disciplines as science was always a matter of debate, such work may be read as implicitly about 'literature and science' if not explicitly concerned with those categories.

[10] This turn was also informed by work that by 1978 already existed, notably: 'The Darwinian Revolution and Literary Form' (1978) by A. Dwight Culler, and *The Tangled Bank: Darwin, Marx, Frazer and Freud as Imaginative Writers* (1962) by Stanley Edgar Hyman, which engaged in the literary analysis of scientific texts, as opposed to treating them as objective and transparent windows to fact. Other antecedents included *Darwin, Marx, and Wagner* (1958) by Jacques Barzun, and *Man's Rage for Chaos* (1965) by Morse Peckham.

in particular has 'led to a rethinking of the seemingly bedrock narratives of the origins and development of evolution and "modern" biological knowledge'.[11] A number of works on Charles Darwin represent this turn.[12] Foremost among these were Gillian Beer's work, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction* (1983) and George Levine's *Darwin and the Novelists: Patterns of Science in Victorian Fiction* (1992).

Whitworth helpfully identifies key figures and resources that have informed critical work in literature and science and which remain points of reference, including Thomas Kuhn, Michael Polanyi, Mary Hesse and Max Black. These figures inform what he puts forward as a primary challenge for the field: 'how to bring science within reach of the concepts and practices of literary criticism without dissolving it as a distinct object of attention' (Whitworth, p. 4).

Thomas Kuhn in *The Structure of Scientific Revolutions* (1962) argued that scientists usually work cumulatively within a 'paradigm', but that over time anomalies would come increasingly to light that would elicit a 'paradigm shift' or an overhaul of prevailing scientific theory. Of importance was a focus on change and the implication that, as Whitworth observes, 'at such moments scientific theorization was open to nonscientific influences', and the suggestion that 'conceptual structures create "ways of seeing'' that may enable discovery or, indeed, obstruct it' (4). Michael Polanyi's, *Personal Knowledge* (1958) developed the idea of tacit knowledge, knowledge acquired by doing science, rather than by learning its rules.

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[11] Robert Markley, 'As If: The Alternative Histories of Literature and Science', *Configurations* 26 (Summer 2018) pp.260-61 (p.262).

[12] See for example: Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction*, second ed. (Cambridge: Cambridge University Press, 2000). Other important works in this turn noted by Markley include: George Levine, *Dying to Know: Scientific Epistemology and Narrative in Victorian England* (Chicago: University of Chicago Press, 2002); Laura Otis, *Membranes: Metaphors of Invasion in Nineteenth-Century Literature, Science, and Politics* (Baltimore: Johns Hopkins University Press, 1999), and Otis, *Networking: Communicating with Bodies and Machines in the Nineteenth Century* (Ann Arbor: University of Michigan Press, 2001); Laura Dassow Walls, *The Passage to Cosmos: Alexander von Humboldt and the Shaping of America* (Chicago: University of Chicago Press, 2009); and Robert Mitchell, *Experimental Life: Vitalism in Romantic Science and Literature* (Baltimore: Johns Hopkins University Press, 2013).

Such expertise guides scientific querants to identify out of a great variety of data and experimental options, the information that will likely bear fruit. Hence tacit knowledge inserts an apparently non-rational element into the heart of otherwise rational and logical inquiry. This change led to a less distinct boundary between metaphor and analogy, although each has been theorized to have differing roles.

Mary Hesse and Max Black set up the conditions for a historicist approach, 'in which nonscientific external elements play a role in science in the making' (Whitworth, p.5). Hesse's *Models and Analogies in Science* (1963, revised and expanded, 1966) and Black's work encouraged a turn away from a view on which the '"metaphorical' is 'viewed as a decorative supplement to a literal core of meaning' (Whitworth, p.5). In contrast, a cognitive view of metaphors emerged on which all humans 'including scientists, think through metaphors and although metaphors can inhibit understanding, they can also assist in the modelling of reality'. Both Kuhn and Hesse's approaches are, as Whitworth notes, 'internalist' models of science, saying little about influences external to science.

Michel Foucault, according to Whitworth, had an ancillary role in the history of the field.[13] In *Crystals, Fabrics, and Fields* (1976), Donna Haraway observes that Foucault's ability to trace analogies across multiple fields was an innovation allowing a new kind of historical investigation into literature and science. Speculating as to the relatively small role played by Foucault, Whitworth suggests that though there are similarities between 1980s study of literature and science and the work in New Historicism at the same time, 'the sidelining of Foucault suggests that the aspects of his work most prominent in the 1980s—the social sciences rather than the natural sciences, the asylum and the prison, and a focus on

[13] For example *The Order of Things* (1966, translated into English 1970) and *The Archaeology of Knowledge* (1969, translated into English 1972) is mentioned briefly in surveys of the field.

subjectivity and state power—were imperfectly aligned with the concerns of literature and science' (Whitworth, p.5).

A different approach is found in North American scholarship's greater focus on Bruno Latour 'to crystalize' the 'methodological presuppositions' or scholarship on Literature and Science, in contrast to a British tendency to be concerned primarily with 'historical literature and culture' without always making its theoretical presuppositions explicit (Whitworth, p.10). At the same time Whitworth finds many implicit methodological assumptions in British scholarship that parallel Latour.[14] Key aspects of Latour for a survey of the field include an acknowledgement that science and scientific facts are constructed, rather than 'discovered', allowing *how* science is done and facts constructed to be examined. They include a sense in which scientific work can itself be viewed as a form of 'literary inscription', so that 'inscription is present in contemporary science' and that 'the kinds of inscription generated by laboratory computers may be as worthy of the name as the writing in a scientist's notebook or a paper in a scholarly journal'. Finally, a survey should note the notion of the 'black box' view of science, on which only the input and output of science are considered, rather than its internal workings (Whitworth, p.11).

Latour's *Laboratory Life* (1979) for example describes an anthropological study of a laboratory, as if the workers were being encountered by an ethnographer for the first time. *The Pasteurization of France* (1988) examines historical scientific journal texts to focus on Louis Pasteur's 'transformation of medicine and hygiene into a science' (Whitworth, p.9). The work includes an expansive range of 'actors, agents, and actants' broadening out into 'nonhuman, collective, and figurative entities' (Whitworth, p.9). *Science in Action* (1987) brings a 'performative' notion of scientific fact to the fore, 'according to which the factuality

[14] Latour's influence derives from his work in the late 70s and 80s, namely *Laboratory Life: The Social Construction of Scientific Facts* (1979) co-authored with Steve Woolgar, *The Pasteurization of France* (published in French in 1984, and in English in 1988) and *Science in Action: How to Follow Scientists and Engineers through Society* (1987).

of a fact was secured by its being accepted and used by later scientists' (Whitworth, p.10). The influence of Latour in the North American context is illustrated by the fact that his work was given 'prominence in the first and second issues of *Configurations*' (Whitworth, p.10).

Finally, if work in Literature and Science after Rousseau's 'obituary' for the field tends to challenge traditional accounts of science and emphasize the connections between literature and science, it is nevertheless also itself challenged by scientifically-derived information — i.e. by the essentially non-literary subject matter with which science deals. Markley notes, for example, that the 'complexities' involved in tracing scientific inquiry extend 'beyond the horizon of historical representation'.[15] These tensions are frequently articulated in relation to C .P. Snow's drawing of a fault line between the 'two cultures' of literature and science.

*II. The Two Cultures*

Literature and Science as a modern discipline is widely recognized as beginning in the 1970s with Rousseau's essay. Yet C.P Snow's famous Rede lecture, 'The Two Cultures and the Scientific Revolution' alongside his book *The Two Cultures* (1959), continues to exert an influence over how the discipline has developed and how its debates are framed. Snow's iconic work also offers the potential for further critical re-orientation in response to new science.[16] Snow's two cultures presented a view on which 'literary intellectuals' and scientists occupied opposite poles within a large spectrum of specialists (Meyer, p.6). The spectre or 'horizon' of the 'two cultures' paradigm is never far away in the field, even after

[15] Robert Markley, 'As If: The Alternative Histories of Literature and Science', *Configurations* 26 (Summer 2018) pp.260-61 (263); Sarah Dillon, 'On the Influence of Literature on Science', *Configurations*, 26.3 (2018), 311-316 (314).
[16] C.P. Snow, *The Two Cultures and the Scientific Revolution* (Cambridge, UK: Cambridge University Press, 1969).

seventy years, and its relevance for what could or should constitute the field is a matter of continued debate (Whitworth, p.2).

The divide between literature and science goes back to the waning of the Enlightenment. In his survey, for example, Whitworth brackets off the debate around Snow's two cultures from historicist accounts of Literature and Science, into a tradition of debate around the value of culture in relation to 'scientific ideals of knowledge' (2). This debate begins in the early 19th century, and is famously addressed by Wordsworth, for example, in the 'Preface to *Lyrical Ballads*', and emblematised in such phrases as 'We murder to dissect' and John Keats', 'Unweave the rainbow'.[17] The debate becomes more fully articulated later in the century in arguments between Matthew Arnold and T.H. Huxley (on the relative merits of scientific and Classical education) and reaching an emblematic moment in Snow's work and the rancorous controversy that ensued between Snow and the critic F.R Leavis.[18] Debate about the value of culture in relation to scientific ideals has been seen to view literature, science, poetry and related terms ahistorically so that 'history, if it figures at all, is present only in the form of a narrative of decline of one side or another' (Whitworth, p. 2). Whitworth concedes, nevertheless, that the two cultures represent a 'horizon of expectations' for historicist studies consisting as it does in 'a range of ingrained beliefs' about science and 'culture' that continue to influence critical work (2). The 'horizon of expectations' is Hans Robert Jauss' phrase, used to examine how historical background informs readerly experience. This horizon is formed because the 'interpretative reception of a text always

[17] William Wordsworth, 'The Tables Turned', Nicholas Halmi, *Wordsworth's Poetry and Prose* (New York: Norton, 2014); — 'Preface and Appendix to Lyrical Ballads', in *Wordsworth's Literary Criticism*, ed. by W J. B. Owen (London: Routledge, 1974; rpr. 2016), pp.68-95; John Keats, *Lamia, Isabella, The Eve of St. Agnes* (London: Taylor and Hessey, 1820).

[18] Matthew Arnold, 'Literature and Science', in *The Complete Prose Works*, ed. by Robert Henry Super (Ann Arbor: The University of Michigan Press, 1974 [1882]), vol.10, pp. 53-73; Thomas Henry Huxley, 'Science and Culture', *Nature*, 22 (October 1880), 545-548; See Stefan Collini', 'Introduction' C.P Snow, *The Two Cultures* (Cambridge: Cambridge University Press, 2012), p.xiv.

presupposes the context of experience of aesthetic perception'.[19] Whitworth points out that the idea of the two cultures continues to inform the expectations that historicist scholars bring to their critical work, exerting an influence over the field.

Meyer observes that 'Literature and Science' as the name of a discipline, 'conveys the strongest possible position against the radically conservative "two cultures" stance' (7). The perspective now commonly associated with Snow, Meyer observes, is that 'literature and science stand at the opposite ends of pretty much everything'. On the contrary 'their direct conjunction' in the name of a critical discipline is a 'slap in the face' for this view of the two cultures, according to Meyer, because ostensibly the field aims to bring both into its purview (7). Meyer notes the discipline as 'tolerably new' and that advancing into its fourth decade, 'shows no signs of letting up' (8).

From the 'shift to overcome the asymmetry in which scientific influence was said to have dominated the literary and the cultural' in the 1970s, later work has sought to show that 'literature and science do not actually represent separate cultures' (Meyer, p.7). Literature and Science scholarship now presents a complex and perhaps 'less navigable divide' than the one exemplified in Snow's 'two cultures' (Meyer, p. 8). Practitioners speak in terms of complex connections, shared use of metaphor, asymmetry and symmetry and 'traffic' both one and two-way. Robert Markley notes, for example, that after 30 years' attendance of SLSA conferences, 'debates about the "two cultures" have given way to a host of complex networks and alliances that resist being summed up by convenient oppositions' (260).[20] Meyer notes that the current field is not even limited 'to literature and science as such', and 'triangulates any number of foci in the arts, the non- or extra-literature humanities, and the social sciences'

[19] Hans Robert Jauss and Timothy Bahti, *Toward an Aesthetic Reception* (Minneapolis: University of Minnesota Press, 1982), p.23.
[20] Robert Markley, 'As If: The Alternative Histories of Literature and Science', *Configurations,* 26.3 (Summer 2018) 260-61 (p.260).

(6). If this pan-disciplinarity resists summing up, however, fault lines persist between literature and science.

At the same time as developing a more complex approach and lexicon, the field has not resolved either theoretical or methodological distances between the disciplines. Meyer notes that '...it cannot be denied that in the context of increasingly specialized practices of inquiry, literature and science, speaking very broadly, do appear at considerable variance (to put it mildly)' (6). The variance between the disciplines remains a challenge. Despite its 'generous embrace' of interdisciplinarity, Literature and Science, at an institutional and pragmatic level, has remained largely the preserve of literary specialists and has struggled to recruit scientists. For example, in a 2016 article in a special issue of *Configurations*, the flagship journal for the American Society of Literature Science and the Arts, Jay A. Labinger, reviewing the state of the field, was still able to ask: 'Where are the Scientists in Literature and Science?' [21] The field may have successfully developed into a 'pan-disciplinary' endeavour that earlier practitioners had desired, yet Labinger tallies that out of 356 individual contributions to *Configurations* at the time of his writing, only six authors identified themselves as affiliated with a scientific discipline in the biographical sketches at the end of each issue. Labinger laments that 'It was not supposed to be like this' (65).

Sarah Dillon writes in the same special issue that the evident dominance of literary scholars shows 'clearly that the directions the field has taken have not yet succeeded in practical terms in drawing literature and science together, nor in convincing scientists of the importance and relevance of what we do'.[22] Hence although C.P Snow's 'two cultures' represents a clearer cut definition than even he was comfortable with, a practical and

[21] Jay A. Labinger, 'Where are the Scientists in Literature and Science?', *Journal of Literature and Science*, 10.1 (2017), 65-69 (65).
[22] Sarah Dillon, 'On the Influence of Literature on Science', *Configurations*, 26.3. (2018), 311-316 (314).

theoretical distance between ‘literature’ and ‘Science’ remains part and parcel of Literature and Science as a field (Whitworth, p. 2).

In respect to the continued problematic between literature and science, Whitworth’s bracketing of debates around the value of culture in relation to scientific ideals may be misleading to the initiate (2). Although Snow focused on institutional differences, the concept of two cultures remains useful to frame the field as articulating a distance between science and literature and with arguments about how the gap might be crossed and re-crossed. Of course, just as literary criticism has developed in its approach to science, the diverse specialisms that now constitute scientific enquiry also change rapidly. Markley argues that the history of the field is usefully understood as a series of ‘metabolic rifts’ (261). On this view literature and science redefines history ‘not in terms of literary or cultural periods...philosophical movements...or even benchmarks in material production...but in the complex transformations that accompany metabolic rifts in technologies, organisms, species, and ecologies’ (262). From this perspective, salient shifts in the Literature and Science field happen partly in response to such rifts in how humans come to understand the world through new science.

Sally Shuttleworth notes that a ‘two-way street’ between the domains has become, ‘an accepted orthodoxy in Literature and Science’.[23] The orthodoxy holds ‘that literature and culture do not meekly reflect the new findings of their dominant partner, science, but are actively engaged in a dynamic, reciprocal set of relations with scientific practice and the development of scientific ideals (46). A focus on historical texts (particularly the 19th century) has partly enabled the tracing of two-way traffic, according to Shuttleworth. Doing so, however, may become more difficult in the contemporary period, with ‘the consolidation

[23] Sally Shuttleworth, ‘Life in the Zooniverse: Working with Citizen Science’, in special issue ‘State of the Unions’, ed. by Melissa M. Littlefield and Martin Willis, *Journal of Literature and Science*, 10:1 (2017), 46–51 (46).

of structures of institutional and professional science' (46). As Meyer notes, both earlier monocultural and later pluralistic phases in Literature and Science nevertheless 'define themselves against the dual-culture model' (Meyer, p.8).[24]

Having moved broadly speaking through one-way and two-way traffic between the disciplines and into a more complex and 'less navigable' discourse, some practitioners are now calling for a return to the 'two cultures', albeit through an emphasis on how the differences between literature and science might contribute to the field. In this facet of criticism, as science continues to change and grow, it will be its essential differences from literature that will further transform 'Literature and Science'.

Dillon, for example, argues that theories 'of commonality and affinity, or theories that displace the influence of literature on science, or vice versa, into a study of their mutual influence on "culture" (whatever that might be)' elide '*differences* between science and literature' (314). Differences represent 'the most productive site for thinking about the different strengths and value' of each discipline and the different ways of knowing they offer. For Dillon, Literature and Science studies is in need of a more expansive approach, embracing interdisciplinarity; speaking to scientists; creating institutional structures to foster conversation. She puts forward the 'What Scientists Read' project which examined how scientists' leisure reading may influence scientific thought and practice, as well as the ongoing *AI Narratives* collaboration with the Royal Society, an advocacy project 'aiming to work with scientists and policy makers to raise their awareness of the importance of including literary criticism in addressing the social, ethical, and political consequences of emergent technologies', as promising signs of what is possible (315). Stories are 'not going away' and literary scholars should use their practice to 'educate and inform the public, policy makers,

[24] I go on to examine how, for literature of the Romantic period, a different problem arises: Neither 'science' nor the precursors to modern scientific disciplines yet had their modern valences.

and scientists about how to deal with their power, how to analyse how narrative functions and achieves its effects' (315). Dillon's plea for difference emphasizes the role of literary criticism in science communication and of reading habits and their influence on researchers. This privileging of difference brings attention back 'full circle to the beginning of Literature and Science scholarship' (315).

Emphasizing difference also raises the question of what role scientific models of the world that are not in themselves literary or textual might play in critical work. This is less to question the connections between literature and science as fields than it is to ask about the extent to which 'material artefacts and nonlinguistic inscriptions' can be read by literary critics at all, and whether literary products such as 'science writing for nonspecialist audiences' is sufficiently connected to works written in technical and mathematical languages (Whitworth, p. 6). This question is largely unresolved. At the same time it grows more pressing as the 'material artefacts and nonlinguistic inscriptions' parts of scientific culture increase exponentially.

This thesis aims to apply ideas in CE science to a reading of Wordsworthian texts and it is important to recognize that applying scientific notions more directly to texts relates to the wider Literature and Science context. One response to the problem of the non-literary aspects of science is to apply scientific notions more directly to texts, either in place of or alongside more orthodox methods of tracing connections between scientific and literary culture. Whitworth brackets off the use of what he terms 'quasi-scientific methodology' for literary criticism, 'drawing on contemporary science and particularly on the fields of neurology, evolutionary theory, and evolutionary psychology' (2). He observes that the 'possibility of literary criticism building on a supposedly scientific foundation has a long history', including for example I.A. Richards.[25] Psychoanalytical and structuralist literary critical approaches,

[25] I.A. Richards, *The Philosophy of Rhetoric* (London: Oxford University Press, 1965).

'came from the scientific status of the specialist bodies of theory on which they drew' (2). Whitworth singles out evolutionary critics such as Jonathan Gottschall, Brian Boyd and Joseph Carroll, noting criticisms of 'the reductiveness of the method, its dependence on a selective reading of the science...and...uncritical trust in its authority' (2). He also acknowledges the counter-point that critics tend to 'conflate distinct practices such as evolutionary psychology and cognitive criticism' (2). I assess the theoretical background, strengths and weaknesses of 'Literary Darwinism' that these critics represent in the first chapter of the thesis.[26] Here I indicate how a more direct approach that attempts to use science (to some extent) to read texts, relates to a larger Literature and Science context.

Evolutionary/cognitive approaches to literature do not fit easily within notions of 'traffic' or interchange as articulated in Literature and Science. These approaches in fact generally arose outside such debates. Yet although they should not be conflated as such, they remain subject to similar tensions and challenges involved in bringing together perhaps incommensurable ways of knowing. Nancy Easterlin (2012) observes in *A Biocultural Approach to Literary Theory* that 'while quite distinct approaches have developed' between American, European and Australian theorists, 'there is an overriding similarity: cognitive approaches on the whole have been dominated by the discipline and evolution of theory in linguistics'.[27] Easterlin notes that the term '*cognitive poetics* originally applied to the practice of Reuven Tsur, probably the first to turn cognitive science in the service of literary understanding' (159). Tsur was descended intellectually from Russian Formalism, and

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[26] Works in this area include: *The Literary Animal: Evolution and the Nature of Narrative*, ed. by Jonathan Gottschall and David Sloan Wilson (Evanston, IL: Northwestern University Press, 2005); *Evolution, Literature and Film: A Reader*, ed. by Brian Boyd, Joseph Carroll and Jonathan Gottschall (New York: Columbia University Press, 2010); Joseph Carroll, *Literary Darwinism: Evolution, Human Nature, and Literature* (Abingdon: Routledge, 2012). Scholars critical of 'literary Darwinism' include: Jonathan Kramnick, 'Against Literary Darwinism', *Critical Inquiry,* 37 (Winter 2011), 315-347; Brian Baker, 'Evolution, Literary History, and Science Fiction', in *Literature and Science: Essays and Studies*, ed. by Sharon Rushton (Boydell & Brewer, 2008), pp.131-150.

[27] Nancy Easterlin, *A Biocultural Approach to Literary Theory and Interpretation* (Baltimore: Johns Hopkins University Press, 2012), p.159. See: Reuven Tsur, *Toward a Theory of Cognitive Poetics*, 2nd expanded and updated ed. (Eastbourne: Sussex Academic Press, 2008).

'sought to explain the distinctive features of literary language by extending and further developing the concept of defamiliarization' (160). Peter Stockwell (2002) notes that Tsur coined and disseminated the phrase in *Toward a Theory of Cognitive Poetics* (1992), though he had been doing what was later recognisably cognitive poetics for two decades'.[28] This work precedes 'many of the insights that were to arise from cognitive science - in particular, in cognitive linguistics' and hence, his approach 'is both familiar and divergent' from subsequent uses of the term (8).

Stockwell observes that cognitive poetics emerged in the 1990s, coinciding with the availability of the internet as a 'scholarly tool', although physical books still had to be sourced (9). Hence researchers were able to access material from other geographies more easily but at the same time although all 'working along the same lines', scholars in different regions were not 'instantly aware' of how their respective efforts saw cognitive science intersecting with literary scholarship (9). The use of alternate terms for a general field (e.g. cognitive rhetoric, cognitive stylistics, cognition and literature, cognitive literary studies) is in part due to a 'time-lagged' view of what was going on 'elsewhere in the world' (9). Stockwell notes the influence of Tsur's work in North America, alongside Ellen Spolsky's (1993) *Gaps in Nature: Literary Interpretation and the Modular Mind*. In Europe, Elzbieta Tabakowska's (1993) *Cognitive Linguistics and Poetics in Translation* proved influential. In both American and European contexts Mark Turner's (1991) *Reading Minds: The Study of English in the Age of Cognitive Science* 'rippled out across the world over several years' (9). These works were 'influential both as a polemic for and a demonstration of insights and...responses that could be derived from considering literary interpretation as cognitive work' (9). Influence was felt 'several years after their dates of publication' as awareness

[28] Peter Stockwell, Cognitive *Poetics: An Introduction* (London: Routledge, 2002), p.8; *Stockwell* gives an overview of British and Australian influences including *linguistic stylistics* or *literary linguistics.* As Easterlin notes, Stockwell's use of *cognitive poetics* is interchangeable with *cognitive approaches* in general (p.159).

'filtered and slowly diffused' (9). Lakoff and Johnson's (1980) work in cognitive linguistics, *Metaphors We Live By*, was a focal point of inspiration. A number of thinkers developed the field up to the new millennium (9). At the same time, 'new studies of cognitive science also feature examples of literary works' as Stockwell observes (9).

Cognitive and evolutionary approaches relevant to my argument will be taken up in detail further into this survey and in chapter one as critical contexts for the thesis. However, I note here that cognitive and evolutionary approaches do also promise to bring literature and science into the same field of attention in a way that informs more historically oriented approaches to Literature and Science. Stockwell notes that 'a cognitive approach to literature involves a rigorous professional engagement with the science of texts and usage' (9).

Catherine Charlwood (2018) makes the case for the use of cognitive science in Literature and Science criticism in her piece '[Don't] Leave the Science Out', the title of which is a riposte to a senior scholar who told Charlwood early in her career that her work was good, but it would be best to 'leave the science out'.[29] In Charlwood's case the 'science' was memory research and the 'literature' was memory in Thomas Hardy and Robert Frost. In her piece, Charlwood notes that 'Culture is not something that exists by itself. It is made up (both comprised and created) of individuals, all of whom process their experiences with recourse to their brains' (304). To 'leave the science out' as it were, 'involves pretending that literature is not written and read by human beings' (305). CE criticism will be taken up in detail further into this survey. Nevertheless, separating cognitive or evolutionary approaches from the Literature and Science field, even if narrowly understood as a historicist endeavour, is problematic.

[29] Catherine Charlwood, '"[Don't] Leave the Science Out": An Argument for the Necessary Pairing of Cognition and Culture', *Configurations* 26.3 (2018), 303-310.

The use of evidence drawn from cognition and evolution to read literature increasingly takes place under a biocultural umbrella where a focus on sociality and a focus on sciences that study cognition and its evolution, are inseparable. This in itself entails a revised opinion about how theorists working in other traditions might be brought into dialogue with cognitive approaches. For example. Foucault has been taken to have a marginal impact on Literature and Science, as Whitworth suggested, due to a primary focus on the social sciences as opposed to the natural sciences (5). Yet, an example from Alan Richardson's book *The Neural Sublime* (2010) neatly illustrates the point that focusing on sociality involves cognition and evolution, directly concerning Foucault. Richardson observes that the 'increasing preeminence of the eye and the visual sense in the modern era' in which Foucault 'helped inaugurate an entire subfield of social analysis and of "disciplining the gaze"' should be placed into the larger context of 'the natural history of the senses'.[30] The visual sense became increasingly dominant in Romantic-era Britain's cultural products. At the same time, the 'preeminence of vision in the hierarchy of the senses goes back at least to Aristotle. The cultural story here describes one aspect of the dominance of vision but 'Vision and visual processing take up an inordinate share of the resources devoted to the sensory and cognitive systems' — as much as 70% of sense receptors are dedicated to vision (49). Richardson concludes provocatively that the '"despotism" of the eye begins with its dominance over a large fraction of the brain' (49). A biocultural perspective in this sense sees no clear division between 'science' and 'culture', but rather attempts to read phenomena as the products of many different kinds of processes.

The salience of an approach combining scientific understandings and cultural criticism to historicist readings in Literature in Science is further illustrated by emerging trends in the study of cultural evolution. In a 2020 review of cultural evolutionary literature,

[30] Alan Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010), p.49.

anthropologist Mark Stanford notes the significant volume of work now suggesting that evolution takes place at a cultural level, not only inheritance by reproduction.[31] 'Cultural evolution' may promise the kind of synthesis Charles Darwin himself predicted. Namely, the eroding of 'questionable disciplinary distinctions' such as in the modern academy, anthropology and psychology, that emphasise the difference between 'the study of individuals and broader social sciences' (283). One exemplar of such a synthetic approach is anthropologist and theorist of human evolution, Robert Boyd, who has argued for example in *A Different Kind of Animal* (2018) that evolutionary processes take place at the level of culture and that the cognitive dispositions to hold on to cultural norms are a significant factor in the way that culture is transmitted across time.[32] Again, a biocultural perspective undermines clear-cut divisions between culture and scientifically-derived knowledge, and between 'literature' and 'science' as abstracted notions. Yet at the same time, such work strongly depends on an acknowledgement that the 'two cultures' of science and literary study offer different kinds of insight. The return, as if 'full-circle' to the two cultures for which Dillon advocates, emphasizes their differences in order to practice a more expansive and self-aware kind of criticism (Dillon, p.315).

*III. Chronological focus: Romantic Literature and Science*

Literature and Science as a field focuses on a variety of chronological periods. The Romantic period, however, represents a moment of special importance, with a unique set of dimensions along which to relate literary criticism to science. I will survey the dimensions of this 'sub-field' before giving an overview of the necessary CE science context and the specific

[31] Mark Stanford, 'The Cultural Evolution of Human Nature', *Acta Biotheoretica*, 68 (2020), 275-85 (p.283).
[32] Robert Boyd, *A Different Kind of Animal: How Culture Transformed Our Species* (Princeton: Princeton University Press, 2018.

approach taken in the thesis. Writers of the Romantic period, often read in the past as being 'anti-science', have been re-assessed over the last two decades so that the study of literature and science now constitutes 'an exciting sub-field within the larger discipline of Romantic period literature'.[33] The study of science and knowledge in the Romantic period (broadly 1780-1820) is seen as 'an expanding field of research addressing a constantly widening scope of material' as Ute Berns notes in the *Handbook of British Romanticism* (2017).[34] The sub-field of Romantic literature and science scholarship has been influenced by the wider tendency in Literature and Science since the late 1970s to historicize epistemology and recognize it as subject to cultural construction (a movement influenced by figures such as Thomas Kuhn, Michel Foucault and Bruno Latour) (Berns, p.135).

The sub-field is at the same time uniquely informed by its focus on the specific Romantic moment in 'scientific development' that also corresponds to the development of mechanized technology and an important beginning for the industrialized world.[35] This moment is specific in both intellectual terms (changes to knowledge and the organization and methods of science) and in terms of physical change to nature (industrialisation, global trade and empire-building, and changes to the physical systems of the planet they impacted). The particularity of the Romantic moment, and the ways in which writers saw their own time, has consequently seemed to some critics to offer ways of reading Romantic texts in response to modern challenges, particularly those in environmental and ecological spheres. Finally it is especially relevant that the Romantic period saw a transformation in how the mind and brain were understood in the 'sciences of mind'.

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[33] Sharon Ruston, *Creating Romanticism: Case Studies in the Literature, Science and Medicine of The 1780s* (London: Palgrave Macmillan, 2013), p.2.
[34] Ute Berns, 'Science and Knowledge', in *Handbook of British Romanticism* ed. by Ralf Haeckel (Berlin/Boston: De Gruyter, 2017), pp. 135-163.
[35] See for example: Davies; Ruston.

Critics broadly recognize that the Romantic period witnessed a 'scientific revolution' characterised by an 'explosion of knowledge' and a wider culture of 'conspicuous scientific self-awareness' (Berns, p.135). Sharon Ruston (2013) considers that: 'Within the History of Science, the Romantic era...is awarded particular significance' (2). During this time, a 'second scientific revolution' takes place. Paul Wood (2004), for example, remarks on 'the shift from natural philosophy to "science" in our current sense of the term' during the period.[36] The period saw 'a new era of scientific specialization' and 'the beginnings of the professionalization of science' (2).

However, Berns notes a need to treat claims for the special place of the Romantic period in the history of science with caution. A term such as 'scientific development', for example, implies a kind of 'teleological periodization' and perhaps an inevitability about how modern science has *become* modern science (Berns, p.135).There is however 'nothing natural or inevitable about biology, anthropology, and the other disciplines themselves' even if 'the case can be made for their objects of study'.[37] Instead it has been important for scholars to avoid an overly-determined view of discipline development, showing that 'no modern discipline can dictate the terms for understanding the discipline that preceded it' (Heringman, p.464). At the same time, however, there was an undeniable 'explosion of knowledge' during these years. Fields that were transformed include those research areas that are now subsumed under geology, astronomy and physics, chemistry, biology and medicine, including the sciences of brain and mind.[38]

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[36] Paul Wood, *Science and Dissent in England, 1688-1945* (Aldershot: Ashgate, 2004), p.2.
[37] Noah Heringman, 'Periods and Cultures: Romanticism', *The Routledge Companion to Literature and Science*, ed. by Bruce Clarke and Manuela Rossini (Abingdon: Taylor and Francis, 2010), pp.462-473.
[38] See for example: John Wyatt, *Wordsworth and the Geologists* (Cambridge: Cambridge University Press, 1995); W.K. Thomas and Warren U. Ober, *A Mind Forever Voyaging* (Edmonton Alta: University of Alberta Press, 1989); Ruston; Noah Heringman, *Romantic Science: The Literary Forms of Natural History* (New York: SUNY Press, 2003); Alan Richardson, 'Facial Expression Theory from Romanticism to the Present', in *Introduction to Cognitive Cultural Studies* ed. by., Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.65-82.

Many modern scientific disciplines trace their origins from the Romantic period but this in itself poses a problem of how to discuss these prior avenues of thinking on their own terms, rather than by retro-fitting modern standards. Scholars have sought a vocabulary for what comes prior to, but nevertheless informs, how modern science has developed. Clifford Siskin (1998), for example, describes a movement of 'de-disciplinarity' in the period, progressing from a system of 'older organization, in which every kind was a branch of philosophy, to our present system [of] narrow but deep disciplines'. [39] Noah Heringman (2003) argues, in turn, for the term '*pre*-disciplinary' to better 'see that there were in fact multiple "ways of knowing" and that the shift to modern disciplinarity was neither sudden nor uniform, nor (even now) complete'.[40] The word 'scientist' was not coined until 1833. The term 'science' was current at the time, but it had a variety of connotations including, simply, 'knowledge'. Ruston uses the term 'science' in her work on the chemist Humphrey Davy and Romantic literature, but avoids 'scientist', because that term was only used four years after his death. 'Science' in turn did not, at the time, represent a 'monolithic entity' (Ruston, p. 178). Instead, it held a variety of connotations that were moving, nevertheless, towards the modern sense (178). Heringman observes that another term in use during the Romantic period, 'natural philosophy', in fact 'remained a valid synonym for the physical sciences through 1900' (464). At the same time, those who identified with 'natural philosophy' increasingly 'recognized no affiliation with philosophy, following instead the seventeenth-century empirical tradition of Francis Bacon' and hence coming closer to the meaning we ascribe to modern 'science' (464).

There was, then, a rapid change to human knowledge taking place during the period, to which a chemist such as Davy contributed, and in which the 'self understanding of modern

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[39] Clifford Siskin, *The Work of Writing: literature and social change in Britain* 1700-1830 (Baltimore: Johns Hopkins University Press, 1998). See Heringman.
[40] Noah Heringman, *Romantic Science: The Literary Forms of Natural History* (New York: SUNY Press, 2003), p.464.

science was underway'. At the same time there was a broader 'culture of science' in which many educated people participated (where 'science' was synonymous with 'knowledge') driven by competing literary and philosophical models of nature' (Heringman, p.463). Ruston recognizes in her own work the 'danger of re-inscribing' a 'two cultures' kind of difference, by 'labelling types of knowledge as either "scientific" or "literary"' (3). A truer picture might involve, she suggests, a 'public sphere in which both poets and men of science participated'(3). This is especially true in that the period obviously precedes Snow's 'two culture' lecture, and precedes many of the sociological tensions that in part gave rise to the divide.[41] Ralph O'Connor argues that at this time 'science writing *was* literature' and eschews the notion of a 'relationship' between two kinds of writing. Ruston finds his argument convincing. Yet at the same time, Ruston also suggests that 'many of the "literary" writers' in her study 'seem conscious themselves that they are engaging with material of a different nature' (3).

There is a simultaneous recognition in the use of 'science' in reading Romantic literature of a difference in the *nature* of literary and scientific activity, as well as the reality of a *single sphere or field* in which both poets and men of science participated. In recognizing both difference and a single field, using 'science' in this way recapitulates the wider tension within Literature and Science that Whitworth notes, namely, the extent to which 'material artefacts and nonlinguistic inscriptions' — ultimately the objects that scientific disciplines study — can be part of literary discussion at all (6). If the disciplines (or the process of de-disciplinarity from a more amorphous 'philosophy' according to Siskin, or of continual pre-disciplinarity in which specialisms continue to form, according to Heringman), of science are not inevitable, but rather determined by social and cultural histories as historicist readings

[41] See: Stefan Collini, 'Introduction' in C.P Snow and Stefan Collini, *The Two Cultures* (Cambridge: Cambridge University Press, ) pp. vii-65.

allege, there is nevertheless a remainder, in that the world they ostensibly study continues to exist and transform in ways with which science must come to terms. Again, however, because the Romantic period saw the rise of modern science and the beginnings of industrialization, the period itself also began to impact the physical systems of the planet. In other words, the 'nature' being studied was also changing. [42]

The continuity, or the continued existence and relevance, of 'nature' as the object of scientific study has been confronted strikingly in Romantic ecocriticism, precisely because it seeks to connect Romantic literature to environments and ecosystems. Here as well, the physical impact of the Romantic period on the planet has been registered in relation to critical work; the most promising recent scholarship may connect criticism to the 'world-historical significance' of the period including agro-industrial intensification and colonial expansion (Davies, p.12). Starting in the 1990s critics such as Karl Kroeber, James McKusick, Onno Oerlemans and Jeremy Davies have worked under the rubric of 'green', 'eco-' or 'material' criticism. This work broadly seeks resources in the study of Romantic texts in response to the environmental crises of the modern world that are both enabled by and understood through science.[43] Kroeber's 1994 book, for example, is generally recognized as a seminal work in Romantic ecocriticism. It examines Wordsworth in relation to modern ecology and evidence drawn from neuroscience, arguing that Wordsworth offers a resource for re-imagining how humans relate to their environment. Kroeber reads the 'Darwinian neuroscience' of Gerald M. Edelman to support his reading of Wordsworth (144). Edelman, a neuroscientist who also wrote popular science books, argued that the brain functioned like a species, with cells evolving in analogous ways to the members of an ecosystem (the brain is 'smaller but more

[42] See: Jeremy Davies, *The Birth of the Anthropocene* (Oakland: University of California Press, 2016).
[43] See: Karl Kroeber, *Ecological Literary Criticism: Romantic Imagining and the Biology of Mind* (New York: Columbia University Press, 1994); James McKusick, *Green Writing: Romanticism and Ecology* (New York: St Martin's, 2000); Timothy Morton, *The Ecological Thought* (Cambridge, Mass: Harvard University Press, 2010).

complex than a jungle') (144).[44] Kroeber uses this idea to argue that humans are fitted into the world they inhabit in a unique way, through the evolutionary processes that structure our brains, and that individual works of art, as products of such processes, are part of humanity's adaptiveness (146). He argues that Romantic figures such as Wordsworth were 'proto-ecological' in that they held latent ideas that can only now be codified more stringently, with the advantage of modern neuroscience.

Of particular interest to the thesis is Onno Oerlemans' (2004) work on the *material sublime*. Oerlemans also pays attention to how humans relate to the environment in Romantic texts but focuses on the barriers to understanding the materiality of nature rather than the connectedness emphasized by Kroeber.[45] Oerlemans argues for a register in Romantic writing which privileges the inaccessibility of nature to human thought, for which he adopts the term 'material sublime' (5). Far from being fitted, the conscious awareness is fundamentally other to external nature. Oerlemans' work is not about literature and science in the same way as a historicist account of materiality might be, yet it does concern the limits of human perception and conception of nature, and how texts explore such limits. As such it identifies that both scientific and literary forms of writing come up against and creatively engage a materiality that is fundamentally inexpressible. My own intervention in relation to this material (in chapter six) is to draw Oerlemans' account into dialogue with Richardson's (2010) reading of a *neural* register to the sublime for reading Wordsworth.[46] Both critics, alighting on the importance of largely hidden material processes for sublime experience, examine ways in which conscious awareness is preceded by those processes, outside in nature (Oerlemans) or in the secret workings of the brain (Richardson). My position is that both evolutionary processes over a long duration and cognitive processes informing awareness moment by

[44] For example: Gerald M. Eddleman, *Bright Air, Brilliant Fire: On the Matter of the Mind* (New York: Basic Books, 1992).
[45] Onno Oerlemans, *Romanticism and the Materiality of Nature* (Toronto: Toronto University Press, 2004).
[46] See: Richardson, *The Neural Sublime*.

moment structure the sublime. To this precise extent I suggest that Oerlemans' version of material criticism converges with Richardson's attention on neurological aspects of the sublime. In relation to Wordsworth this allows me to put forward a *cognitive and evolutionary* register of the sublime.

Jonathan Bate put forward the idea that 'ecology has to be an attitude of mind before it can be an effective set of environmental policies'.[47] Critics such as Kroeber seek to find an 'attitude of mind' in Romantic texts that is purported to be of use in relating human lives to what science tells us is happening to the environment and ecologies on which humans depend. Yet, Davies points out that establishing environmental credentials for Romantic writers risks under-emphasizing the multiplicity of such texts, and over-emphasizing their latent ecological messages. Ecological critics may be 'glad to see themselves as the inheritors of Romantic thought'. [48] Yet their overarching argument that Romantic writers somehow 'foreshadowed modern environmentalism' has been widely criticised for obscuring the literary, intellectual, social and environmental contexts of the Romantic period (Davies, p.5). Since the 1990s there has been a continued emphasis by some critics on 'idealist' interpretations of Romantic texts. Davies convincingly argues that this approach has outlived its usefulness. Davies suggests that a 'deeper trust that literary study is worthwhile' entails 'being at ease with the likelihood that there will be few perfect coincidences of opinion between Romantic-period writers and twenty-first century environmentalists'(5). He provides a useful overview of recent criticism that I will not reproduce here, but he makes the point that Romantic ecocriticism should be renewed in the 'shadow of climate change and other converging crises in global ecosystems' (11). Climate science is 'sophisticated to a degree that the critics of the 1990s could hardly have imagined' and suggests that global warming

[47] Jonathan Bate, *The Song of the Earth* (London: Pan MacMillan,1991), p.83.
[48] Jeremy Davies, 'Romantic Ecocriticism: History and Prospects', *Literature Compass*, 15.9 (2018) (p.5) <http://dx.doi.org/10.1111/lic3.12489> [Accessed 26 October 2020].

and associated climate change began during the Romantic period (11). The '"nature" that concerned those sciences was not diminishing but constantly metamorphosing. Romantic writers witnessed and responded to the restructuring of local and global ecosystems' (11). Consequently, Romantic ecocriticism should attend to how 'Romantic writers witnessed and responded to the restructuring of global ecosystems' (11).

In his book *The Birth of the Anthropocene* (2016) Davies deploys the notion of the geologic epoch termed the Anthropocene.[49] This epoch has been developed in stratigraphy (the study of rock layers and rock layering, to determine where divisions of geologic history begin and end). Stratigraphers find geological traces of industrial and colonial events beginning in Wordsworth's own time. In turn, Davies suggests that modern ecocritical approaches should seek to re-interpret how Romantic ideas were part of the beginning of the Anthropocene, and therefore how they are relevant to current ecological challenges (193). David Higgins (2017) further discusses climate change and the Anthropocene in relation to the eruption of Tambora.[50] Romantic ecocriticism, then, relates Romantic literature to ecological and environmental science and to ways in which Romantic writers were entangled in the change to global earth systems and ecosystems which continue in the present. In this work, 'nature' is both 'constantly metamorphosing' both in how it is studied and understood, and more literally and viscerally changing with the changed distribution of matter and energy wrought by human cultures informed by the Romantic period, and a continuous presence in that it belies any attempt to ignore it or write it out of scholarship or to claim that 'there is no nature'.[51]

If Romantic ecocriticism connects literature to environmental contexts, critics have also sought to read Romanticism through the lens of modern science by connecting Romantic

[49] Jeremy Davies, *The Birth of the Anthropocene* (Oakland: University of California Press, 2016).
[50] David Higgins, *British Romanticism, Climate Change, and the Anthropocene: Writing Tambora* (London: Palgrave, 2017).
[51] Alan Liu, *Wordsworth: The Sense of History* (Stanford: Stanford University Press, 1989), p.38.

texts to science about the brain and mind. As with recent ecocritical approaches, both intellectual histories (the history of the sciences of brain and mind) as well as continuity in the objects of their study ('nature' in ecocriticism; 'human universals' and 'species specific cognitive mechanisms' in CE approaches to literature) vie for critical attention and require differing vocabularies and theoretical assumptions. Parsing these concerns is necessary for a cogent treatment of 'science' and 'literature'. An overview of the approach known as 'cognitive historicism' brings these tensions to notice and allows me to differentiate my methodological approach to reading Wordsworth through the lens of CE science.

'Cognitive historicism' represents another powerful way in which critics have sought to read Romanticism through the lens of modern science, and one which must also grapple with the continuity in the 'objects' of science as well as radical cultural change. Cognitive historicism broadly seeks to make some account of the natural history of the mind as well as the human-historical context for literature, and has emerged in Romantic era studies, particularly Romantic literature and science, as well as in other specialisations. Among Romanticists, Alan Richardson explicitly explores Romantic era sciences of mind and relates Romantic era discovery and debate to modern sciences relating to the mind.[52] Richardson formulated the concept in 2002 along with Francis Steen, and it has been further developed since then by Richardson, and by other critics including Ellen Spolsky, and recognized as a useful concept for critical work.[53]

The 'cognitive' in 'cognitive historicism' relates to 'the major interdisciplinary initiative marking the convergence of linguistics, computer science, psychology, neuroscience, philosophy of mind and anthropology'.[54] I will give a full account of cognition

[52] For example see: Alan Richardson, *British Romanticism and the Science of the Mind* (Cambridge: Cambridge University Press, 2005).
[53] Alan Richardson and Francis Steen, 'Literature and the Cognitive Revolution: An Introduction' *Poetics Today*, 23 (2002), 1-8.
[54] Mary Thomas Crane and Alan Richardson, 'Literary Studies and Cognitive Science: Toward a New Interdisciplinarity', *Mosaic* 32.2 (2009).

in relation to the thesis in the next section. Here I want to identify a direct relation to Romantic literature and science. Briefly, what has been termed the 'cognitive revolution' leading to this initiative went through a number of key phases, from an early emphasis on the 'logical processing of coded symbols to more recent efforts to ground cognitive activity in embodied experience'.[55] A useful broad and contemporary framing of 'cognition' for the current purpose is worked out by the philosopher Kathryn Hayles (2017) whose book presents 'cognition' as 'a process that interprets information within contexts that connect it with meaning'.[56] Hayles insists that 'cognitive processes happen within a broad spectrum of possibilities that include nonhuman animals and plants as well as technical systems' (26). Whilst it is unnecessary to include anything other than specifically human cognition in the thesis (bearing in mind of course evidence gathered from other fields such as ethology and evolutionary biology) Hayles' orientation is helpful because it connects cognition to contexts that are not 'human-dominated' (26). If, Hayles suggests, 'the humanities have been [traditionally] concerned with meanings relevant to humans in human-dominated contexts', a view of cognition as 'a process that interprets information within contexts that connect it with meaning' explicitly opens up connections to a 'spectrum of possibilities' including for my purposes, evolutionary history (26).

In Richardson's (2002) book on the sciences of mind in British Romanticism, cognitive historicism works as an expansion of historicist approaches to include the 'sciences of mind' that may have influenced Wordsworth, as well as seeking points of connection or 'resonance' between Romantic science of mind, and contemporary science.[57] Cognitive historicism heard in this context involves two broad practices. The first seeks the detailed historical mapping of the 'sciences of mind' that may have influenced a writer such as

[55] Crane and Richardson, p.124.
[56] Kathryn Hayles, *Unthought: The Power of the Cognitive Nonconscious,* (University of Chicago, 2017), p.29.
[57] See: Alan Richardson, *British Romanticism and the Science of the Mind*.

Wordsworth, and the second relates Romantic era writing (both 'literary' and 'scientific') to ideas drawn from modern sciences concerning 'human universals and species-specific cognitive mechanisms'.[58] For example, Lisa Zunshine (2010), a critic working in the cognitive tradition, characterises one view from cognitive historicism of 'culture as an ongoing interplay—simultaneously a give-and-take and a tug-of-war between human cognitive architecture and specific historical circumstances'.[59] The relationship of literature to 'science' is both to the historical sciences of mind and to modern disciplines such as neuroscience.

Richardson (2001) argues that Wordsworth can be placed 'at least for a few crucial years, in the midst of one of the most daring intellectual ventures of his era — the reinvention, along naturalistic, physiological, and ecological lines, of the study of human nature' (67). He looks to elicit 'a materialist tendency in Wordsworth's thinking' and a 'biological register in his writing' (69). He compares, for example, passages in the 1799 English translation of Herder's *Outline of a Philosophy of the History of Man* (1784) and Wordsworth's famous 'infant babe' lines in the 1799 *Prelude* that begin '— blest the babe | Nursed in his mothers arms' (1799. II. 269-80) and finds them 'closely analogous'. Without suggesting direct influence, Richardson also rejects 'a mere accident of cultural history' (67). Instead, Richardson suggests that both writers 'are engaged in overlapping projects, each drawing eclectically on Lockean sensationalist psychology, Enlightenment anthropology, the vein of French radical thought running back to Diderot, and the new naturalistic and biological approach to mind then prominent in scientific and radical circles' (67). In other words, each is participating in a public sphere and culture of science, one of whose facets

[58] Alan Richardson and Francis Steen, 'Literature and the Cognitive Revolution: An Introduction' *Poetics Today*, 23 (2002), 1-8.
[59] Lisa Zunshine, 'Cognitive Historicism' in *Introduction to Cognitive Cultural Studies* ed. by., Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.61-2 (p.61).

around this time is the 'reinvention' of how human nature should be studied along physical and biological lines (67).

Richardson's tracing of a 'biological register' is informed by prior work such as H.W. Piper's *The Active Universe* (1962).[60] Piper for instance found a convergence between Wordsworth and the physiological psychology of Cabanis, which 'he attributed to a "new materialism"' in the late eighteenth century (Richardson, p.67). Erasmus Darwin theorized in *Zoonomia* (1794) about materialist psychology, based on ideas in Hartley. In *Disquisitions to Matter and Spirit* (1777) which 'Wordsworth probably read,' Priestley argues against dualism of mind and body, and in favour of a '*nervous system'*; here 'mind', 'body and brain' represent the same entity (Richardson, p. 67). Richardson notes Wordsworth's own personal links to people involved with the 'new, biological materialism', including John Thelwell, James Tobin, Humphry Davy and Coleridge himself, who showed an interest in embodied cognition (68). Richardson is cautious to speak only of a 'tendency' in Wordsworth's thought, rather than of direct influence of contemporary thinkers. Finding out exactly what Wordsworth read has proven difficult, and even armed with a list of what he probably read, cogent defences can be made for a variety of influences and viewpoints, many of which are contradictory.[61] This is partly due to the license afforded by 'Wordsworth's reticence', but also 'stems from the flexibility and adventurousness of Wordsworth's thought in the 1790s' (Richardson, p. 69). The adventurousness of Wordsworth's thinking, combined with the real transformations in knowledge and theory relating physiology to the mind, as part of a cultural sphere to which Wordsworth was party, allow Richardson to reconstruct the idea of a physiological Wordsworth.

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[60] H.W. Piper, *The Active Universe: Pantheism and the Concept of Imagination in the English Romantic Poets* (University of London: Athalone Press, 1962).

[61] Duncan Wu's *Wordsworth's Reading, 1770-1799* (Cambridge: Cambridge University Press, 1993) and *Wordsworth's Reading, 1800-1815* (Cambridge: Cambridge University Press, 1995) provides insight into what Wordsworth probably read and draws connections between his reading and writing.

Richardson's study of British Romanticism emphasizes historical context and the relation of critical reading to modern science is conflicted.[62] Richardson states in his study of British Romanticism and the sciences of mind, for example, that he has 'borrowed eclectically', from 'cognitive theory and neuroscience in trying to give new life to old ideas'(xvi). At the same time, he cautions that seeking resonance 'does not in itself speak to the truth value of either past or current findings and models'(xvi). Yet in the special issue of *Poetics Today* in which Richardson and Steen coin the term itself, the authors argue that 'issues of literary history, far from being occluded by approaches that recognize the validity of human universals and species-specific cognitive mechanisms, can be productively reopened in ways that have eluded criticism that relies on purely constructivist notions of the subject' (5). Hence while seeking to avoid truth claims about modern science of mind, Richardson and Richardson and Steen nevertheless set up a relation to 'human universals' and 'species-specific cognitive mechanisms' as a key context for their work (5). Introducing his study of British Romanticism, for example, Richardson notes a potential audience for the book as 'those beginning to bring methods and findings from cognitive science to bear on the study of literature, by demonstrating how the interplay between literary and neuroscientific models and representations has a rich past as well as a robust future'(xv). As Heringman observes, there is nothing at all inevitable about modern scientific disciplines, but at the same time, their objects of study persist nevertheless (463). Richardson convincingly maps Wordsworth's texts and the Romantic era 'sciences of mind' demonstrating how this form of 'cognitive historicism' adds another area for historicist accounts of science and literature to investigate. In his later book *The Neural Sublime* (2010) Richardson examines experiential aspects of cognition more closely, although his approach still precludes discussion of how individual histories and elaborate cultural complexes are structured in important ways by

[62] Richardson, *British Romanticism and the Science of the Mind*.

cognitive biases. This survey looks at his material further below. The precise role played by modern science relating to the mind is hard to isolate in cognitivist historicist accounts of Romantic literature.

In contrast, this thesis seeks connections back from modern science to Wordsworth's texts, between core concerns that the thesis identifies in Wordsworth in relation to mind and nature, and modern studies that show how the human CE context informs the perception and conception of nature. This gives the argument a weighting in relation to cognitive historicism that emphasises modern scientific disciplines.

In the next part of this introduction, I give the essential CE context for the thesis directly relevant to the readings of Wordsworth I make in the thesis, including existing studies. I will proceed first by giving a brief survey of existing work on Wordsworth and cognition, and then by elaborating on the cognitive evolutionary background on which my approach depends. This will enable me to return to cognitive historicism, and re-contextualize my approach in relation to Romantic literature and science.

*IV. The CE Context*

To sound a cautionary note, cognitive criticism and cognitive cultural studies more broadly is a rich and diverse field with its own set of organizations, conferences and scholarly journals. Chapter one will interrogate this work fully, as well as relating the key ideas to the specific texts engaged in the thesis. My role here is to survey the key evidence that supports CE science and the foundational ideas which the thesis takes forward. Markley calls for critics to recognize the 'metabolic rifts' in understanding that shape and condition how we read 'literature' in relation to science (261). The idea that cognition informs experience and that cognition and evolution are intimately linked forms just such a rift to which critical reading

must respond. Cognitive evolutionary criticism and theory initially developed as separate areas, only beginning to merge recently. Developments in anthropology, and especially at the intersection of anthropology, cognitive science, ethology, developmental psychology and evolutionary studies, provide essential context to the use of cognition and evolution in interpreting literature.

In surveying the key supporting evidence regarding evolved cognition I claim that bringing core concerns in Wordsworth's work relating to mind and nature into relation with modern studies about how evolved cognition informs the perception and conception of nature, requires a shift in how we think about change and continuity. A key tension relating both Literature and Science and the application of CE science to reading texts is that found between change and continuity or, more precisely, between various aspects of the world moving at different speeds. To state the obvious, scientific and literary cultures shift and change, whereas, by contrast, the objects of their study (nature) are relatively stable. Cultural information and in particular scientific information changes rapidly and involves multiple scales of focus, but cognitive architecture (ironically itself the focus of rapidly developing CE science) changes far more slowly by comparison, and informs human perception and conception. A key dynamic then in cognition, evolution and culture is that between change and continuity.[63]

Empirical evidence in fact supports the view that culture evolves faster than biology.[64] Charles Perreault (2012), for example, compared genetic evolutionary rates to cultural evolutionary rates.[65] He took 573 cases from the archaeological record consisting in a pair of

[63] Boyd uses this information as part of his argument for cultural evolution, because it seems impossible to explain the different rates of cultural and genetic change through biological evolution. Nevertheless, Boyd does not reject the importance of cognitive architecture. My purpose here is to observe the tension between differing rates of change within the same ongoing processes.
[64] Boyd, *A Different Kind of Animal*, p.42.
[65] Charles Perreault, 'The Pace of Cultural Evolution', *PLosONE*, 7.9 (2012): e45150 <https://doi:10.1371/journal.pone.0045150>.

measurements of an artefact from the same site but from two different times. He compared the rate of change between these two artefacts with data from a famous paper by Philip Gingrich (1983) which measures morphological evolution across time, based on paleontological evidence.[66] Perreault found that cultural rates of change are indeed fifty times greater than genetic rates of change. At the same time, human experience clearly involves relatively stable structures evolved over long durations.

In order to explore and articulate the dynamic between change and continuity I adopt a key heuristic term: *invariance* or *continuity in change*. In chapter one I fully examine the intellectual history of this term and its relevance for my argument. Here, however, I point to the relevance of this idea in mediating continuity and change. Angus Fletcher's (2016) study of continuity and change in the humanities, *The Topological Imagination: Spheres, Edges and Islands* gives an excellent context for the term. Fletcher's development of invariance coupled with this term's use in CE science and cognitive criticism offers a way of making the detailed connection between Wordsworth's texts to CE theory that I seek.[67] Fletcher develops invariance as a heuristic to help bring change and continuity into relation without eliding either side of this tension. He offers the notion as a 'ground of thought' 'especially when the questions are very large ones and always changing their shape, and we keep looking for that ground when thinking on a global scale' (178). The term derives from the mathematical field of topology, which examines the underlying stability of changing forms (178). For example, a ring-donut transforming into a coffee cup can do so without its surface being broken or cut in what amounts to a topological transformation that is 'continuous and stable' (14). This quality of invariance stems from Leonhard Euler's 1750 work on polyhedron theory which 'showed how objects of a certain kind are endowed with a lasting and stable form, owing to

[66] P.D. Gingrich, 'Rates of evolution: Effects of Time and Temporal Scaling', *Science,* 222.4620 (1983), 159-161.
[67] Angus Fletcher, *The Topological Imagination: Spheres, Edges and Islands* (New Haven: Harvard University Press, 2016).

an invariant relationship which establishes basic continuities, no matter how variable or different particular such objects may appear to the naked eye' (14). Cognitive architecture is precisely invariant in the sense that it constrains cognition and, in the way that cognitive architecture enables and constrains cultural change, the relationship between cognition and culture is also invariant. There are 'basic continuities' even though differing cultures may appear variable or different. For example, the evolutionary archaeologist Steven Mithen (2006) notes that whereas many animals exhibit 'hard-wired' behaviours in relation to their environments, 'natural selection [provided for humans] learning and decision rules to enable behavioural flexibility'.[68] Jonathan Haidt (2010) writing on human morality, uses the term 'intuitive primacy' to describe how people make value judgements, but cautions that there is no 'dictatorship', so that thinking is shaped but not completely determined by intuitive responses that occur prior to conscious awareness.[69] In other words, stable rules underlie and constrain various behaviours but do not fix them into one instantiation: change takes place against the background of a larger continuity.

Richardson also observes 'stable and invariant aspects of human cognition and behavior' in his study of facial expression in literature.[70] Richardson uses invariance as a foil for cultural change, arguing for a cognitive historicism that 'recruits and selectively adapts theories, methods, and findings from the sciences of mind and brain' in order first to find 'analogies with past models' but also 'in the hope that cultural and historical differences will emerge *more* clearly and cleanly when set against what appear to be stable and invariant aspects of human cognition and behaviour' (67). Here Richardson seeks to prove the value of attending to invariant features of cognition and behavior for the historicist project. The idea

[68] Steven Mithen, 'Ethnobiology and the evolution of the human mind', in *Ethnobiology and the Science of Humankind,* ed. by Roy Ellen (London: Blackwell/RAI, 2006), pp. 55-75 (p.60).
[69] Jonathan Haidt and S. Kesibir, 'Morality', in *Handbook of Social Psychology, 4th Edition* ed.by., S. Fiske, D. Gilbert, and G. Lindszey (Hoboken, NJ: Wiley, 2010), pp.797-832.
[70] Richardson, 'Facial Expression Theory from Romanticism to the Present', p.26.

that cognitive architecture is invariant, or relatively stable, over generations and across cultures, allows both for the formative impact it has on experience and culture and also for the behavioural flexibility characteristic of human life to be registered. Invariance enables cognition and evolution to be brought into relation with one another and for both to be brought into relation with the literary text, because it offers a description of continuity in change that explicitly relates all the relevant moving parts: evolution, cognition, culture.

Cognition and evolution are studied together by a variety of modern disciplines and approaches in relation to culture. Taken together, CE sciences broadly seek to understand cognition and culture in relation to evolutionary history. In her work on cognition and criticism, the cognitive critic Lisa Zunshine concatenates 'cognitive' and 'evolutionary' into 'cognitiveevolutionary', because these terms work in tandem.[71] Hayles' working definition of cognition is also useful in approaching the concatenation of 'cognition' and 'evolution'. Her working definition is , '*a process that interprets information within contexts that connect it with meaning*'.[72] Parsing this notion, cognition is first a 'process', implying that it is not an 'attribute' as 'intelligence' is sometimes taken to be, but rather 'a dynamic unfolding within an environment in which its activity makes a difference' (25). That is to say, cognition is a process that is doing something in a particular instance in relation to the environment. The next part of her working idea is that cognition '*interprets information*' — interpretation implies choice —and so 'there must be more than one option for interpretation to operate' (25). Choice occurs both in basic logic-gate or yes/no decisions as well as among highly-nuanced and complex options. In unicellular organisms, for example, a lipid membrane '"decides" which chemicals to admit and which to resist' (26). The 'interpretive possibilities' in more complex organisms 'grow progressively more multileveled and open-ended' with

[71] Lisa Zunshine, 'Introduction', p. 8.
[72] Kathryn Hayles, *Unthought: The Power of the Cognitive Nonconscious* (University of Chicago, 2017), p.22. Emphasis original.

their complexity (26). The final part of this working idea is that cognition takes place in '*contexts that connect it with meaning*'. Hayles argues 'that meaning is not an absolute but evolves in relation to specific contexts in which interpretations performed by the cognitive processes lead to outcomes relevant to the situation at the moment' (26). As I will examine below, evolution provides a key 'situation' in which cognitive processes take place.

Hayles includes both biological and technical systems as 'cognitive' even though such systems 'have completely different instantiations' (26). This is because 'both technical and biological systems engage in meaning-making within their relevant instantiated/embodied/embedded contexts' (26). For the cognitive processes that make up human thinking, 'the relevant contexts may be very broad and highly abstract, from deciding whether a mathematical proof is valid to questioning if life is worth living' (26). Conversely, in 'lower-level cognitive processes', information may consist in 'the sun's angle for trees and plants, the location of a predator as a school of minnows darts to evade it, or the modulation of a radio beam by a radio-frequency identification (RFID) chip that encodes it with information and bounces it back' (26). Focussing on cognition and Wordsworth as I do in the body of the thesis, we might expect a concern primarily with cognition at the 'broad and highly abstract' end of the spectrum (26). However, noting the wider context where non-human instances of cognition take place emphasizes that while cognition informs the moment of conscious awareness, it also enacts processes that are beneath and alien to that awareness. Moreover, the evolutionary context of cognition recapitulates this dynamic; evolution shapes cognition and in turn shapes how cultures evolve.

Specific contexts for human beings include their ancestral environment — i.e. the environment, often said to correspond broadly with the Pleistocene, in which most of human

evolution is said to have occurred.[73] This concept is not without controversy, but the terms on which evolution structures cognitive architecture in particular ways, which in turn informs human thinking and behaviour, are nevertheless broadly accepted.[74] Jerome Barkow and Leda Cosmides note in their seminal work on evolutionary psychology and culture (1992) that an organism's 'functional organization' is made up of 'the enduring properties of the environment in which it evolved...and to solve the recurring problems posed by that environment'.[75] Like a 'key in a lock, adaptations and particular features of the world fit together tightly, to promote functional ends' (69). Donald E. Brown in his study of 'human universals' (1991; 2017) observes that 'in the course of its evolution the human species did not encounter general problems, it encountered specific problems, such as recognizing faces and detecting cheaters in social exchanges'.[76] Evidence supports the idea that neural 'wiring' may relate directly to specific evolutionary problems. Brain lesions at specific locations powerfully show that the brain is wired in detailed and specific ways.[77] For example, E.K. Warrington and R McCarthy asked a patient 'with a trauma to a small region of the left temporal lobe' to 'describe a species' in a 1983 study. The patient 'could only associate it with a life-form. When the patient was asked to define the word "pig" or "rhinoceros," he replied "Animal"', for example. However, 'lighthouse' elicited the reply 'Round the coast, built up, tall building, lights revolve to warn ships' (Atran, p.52). The researchers noted at the

[73] Also known in evolutionary theory as the environment of evolutionary adaptedness (EEA). First examined for human psychology by John Bowlby as part of attachment theory.
[74] For example, Peter Richerson argues that we are 'still in' the EEA, in part because modern civilization is probably leading to the ongoing selection of genes. He also observes that we know little definite information about this period. See for example: 'What was the EEA Really Like? *Gruter Institute Squaw Valley Conference 2010: Law, Institutions & Human Behavior* (2015). In *A Different Kind of Animal* Boyd argues for the importance of cultural evolution over genetic evolution for modern humans. However, his approach still involves evolved cognitive mechanisms interacting with cultural change.
[75] Jerome Barkow, Leda Cosmides and John Tooby, *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (Oxford: Oxford University Press, 1996), p.69.
[76] Donald E. Brown, *Human Universals* (New York: McGraw Hill, 1991; 2017). Kindle ebook.
[77] E.K. Warrington and R McCarthy 'Category Specific Access Dysphasia' *Brain*, 106.4 (1983), 859-78 (106); Cited in Scott Atran, *The Cognitive Foundations of Natural History: Towards an Anthropology of Science* (Cambridge: Cambridge University Press, 1993; repr. 1996). Kindle edition.

time that these findings 'call into question the widely accepted view that the brain has a single all-purpose meaning store' (52). Brown makes the more general observation that: 'At the level or brain cells, those in the visual cortex specialize in the angle of edges, the speed of motion, and the direction of motion registered in their field of vision...At a higher level of organization, brain regions may be so specialized that their neurons respond, for example, only to the human face when viewed from a particular angle' (ch.3). The idea that cognition has evolved in response to specific problems is broadly known as *domain specificit*y.[78]

Some examples of specific domains would be a physics domain by which we intuitively understand how objects behave in space, and a folkbiology or intuitive biology domain that helps us respond intuitively to living things.[79] It is widely agreed that specialist intelligences have evolved in relation to the specific problems faced by early humans. Scott Atran and Douglas Medin note that to survive, 'people need to be able to understand and predict the general properties and behaviours of physical objects and substances (physics), the more specific properties of plants and animals (biology), and the particular properties of their fellow humans (psychology)'.[80] The extent to which information processing patterns are general and few in nature, or specific and numerous, is a matter of debate in evolutionary psychology.[81] Likewise, the explanations for specialized intelligences are also disputed. Robin Dunbar argues that increasing brain size and cognitive ability in evolution was driven in a narrow way by the informational needs of human sociality.[82] Other explanations include

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[78] See for example Lawrence A. Hirschfeld and Susan A. Gelman, 'Toward a Topography of Mind: An Introduction to Domain Specificity', in *Mapping the Mind: Domain Specificity in Cognition and Culture*, ed. by Lawrence A. Hirschfeld and Susan A. Gelman (Cambridge: Cambridge University Press, 1994), pp.3-6.
[79] Scott Atran and D. L. Medin, *The Native Mind and the Cultural Construction of Nature* (Cambridge, Mass: MIT Press, 2008).
[80] Scott Atran, Douglas L. Medin, and Norbert Ross, 'Evolution and Devolution of Knowledge: A Tale of Two Biologies', *British Academy Conference on* '*Conceptual Knowledge'* (London, June 2002), p.3.; Scott Atran and Douglas. L. Medin, *The Native Mind and the Cultural Construction of Nature*.
[81] Steven Mithen, 'Ethnobiology and the evolution of the human mind', in *Ethnobiology and the Science of Humankind,* ed. by Roy Ellen (London: Blackwell | RAI, 2006), pp. 55-75 (p.60).
[82] For example: R.I.M. Dunbar, 'Neocortex Size as a Constraint in Group Size in Primates', *Journal of Human Evolution*, 22.6 (1992), 469-493

the hostility of the natural environment, driving the need for cognitive power. Yet it is considered likely that 'some degree of modularity arose during the course of human cognitive evolution' (Mithen, p.60). A move away from a *tabula rasa* view of the brain (on which there is thought to be only "general wiring") has taken place.

Those researching folkbiology propose a mechanism including 'learning and decision rules tailored by natural selection to interact with the natural world' (Mithen, p.60). Mithen argues in favour of a relatively general purpose intelligence, or rather a complex of multiple intelligences, 'each relating to a…domain of behaviour', including intuitive responses to the living world (62).[83] Atran, Medin, Mithen and others support an intuitive biology underlying culture, consisting in, 'stores of information about the natural world, methods of acquiring further information, and methods of processing information…embedded within the hominin genome' (Mithen, p.60). They draw evidence from studies of hunter-gatherers, folk classification and developmental psychology. Atran and Medin theorize that folkbiology is a 'constrained domain of development and that its core aspects are either innate or universally acquired under some minimal, adequate input conditions' (Atran and Medin, p. 19). Such traits are latent and probably genetic, ready to be triggered by environmental stimuli during individual development.[84] In developmental psychology, Margaret Evans reports change in children's biases about the origins of species, implying that biases about the living world exist as part of child development and shape how we learn about nature.[85] The idea of domain-specific, intuitive responses to nature identifies an area of cognition that interacts with the natural world. Human conception and perception of nature is subject to biological

[83] See also: R.I.M. Dunbar; Scott Atran and D. L. Medin, *The Native Mind and the Cultural Construction of Nature* (Cambridge, Mass: MIT Press, 2008).
[84] I note moves to align critical reading of nature / ecological writing, with cognition and evolutionary thought. For example: Simon C. Estok, 'Material Ecocriticism, Genes, and the Phobia/Philia Spectrum', *Neohelicon*, 44 (2017), 297-313.
[85] See for example: E. Margaret Evans, 'The Emergence of Beliefs About the Origins of Species in School-Age Children', *Merrill-Palmer Quarterly*, 46.2 (2000), 221-254.

constraints and, at the same time, intuitive responses to nature take place beneath the level of conscious awareness.

Human brains have adapted to specific challenges in their evolutionary environments and one massive feature of such environments, determining our survival, is obviously other human beings. Lisa Zunshine for example has argued that the environment encountered by humans over evolutionary time, and which they continue to encounter, is characterised by 'most and foremost *other minds*'.[86] Consequently, as Richardson observes: 'Human beings are adaptively designed, as highly (and when need be, deviously) social animals, to search for identify signs of intentionality, emotions, and belief states in others'. [87] One way in which this capacity is theorized is in the Theory of Mind (ToM). ToM is a meta-theory about *how people theorize* about the mental states of others at a pre-conscious level; a specialist capability aimed at estimating what people are thinking and therefore what they are likely to do. Joseph Caroll notes that ToM consists in 'the capacity for envisioning the inner mental state of other humans, their beliefs, desires, feelings, thoughts, and perceptions'.[88] ToM is now being applied in an array of fields including literary criticism. For example, in CE anthropology ToM has been used to shed light on the transmission of beliefs across time.[89] ToM has also been deployed in a variety of literary studies. For example, Alan Richardson and Ellen Spolsky map out the emerging field of cognitive approaches to literature, and Richardson devotes a chapter of his work on the neural sublime to ToM.[90] Lisa Zunshine reads *Mrs Dalloway* as an example of how literature can experiment with ToM to literary

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[86] Lisa Zunshine, 'Introduction: What is Cognitive Cultural Studies?' in *Introduction to Cognitive Cultural Studies,* ed.by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010) pp.1-31 (p.10). Emphasis original.
[87] Alan Richardson, *The Neural Sublime*, p.82.
[88] Joseph Carroll, *Reading Human Nature* (New York: SUNY Press, 2011), p.16.
[89] For example: Robert N. McCauley, Pascal Boyer, *Mind and Religion: Psychological and Cognitive Foundations of Religion* (Oxford: Altamira Press, 2005); Harvey Whitehouse, *The Debated Mind: Evolutionary Psychology versus Ethnography* (Abingdon: Routledge, 2020).
[90] Alan Richardson, 'Studies in Literature and Cognition: A Field Map', in *The Work of Fiction: Cognition, Culture, and Complexity* (Abingdon, Routledge, 2004),pp.1-29; and Richardson (2010).

effect, dedicating a monograph to ToM and reading.[91] Four critics apply ToM to reading in Zunshine's edited volume on cognition and literature.[92] This kind of reasoning 'is especially intense because it engages something we care about most — the extremely complicated dynamics of social interaction' (Vermeule, p.124). The 'hungry' capacity of ToM looks to understand the internal states of other people, when others' minds are in fact inaccessible to us. This 'inaccessibility problem' means that 'social agents must make do instead with forming reasonable interpretations based on indirect evidence' (Richardson, 2010, p.86). ToM offers a way of appreciating and critically describing the inaccessibility problem in human interactions, as well as in texts. Zunshine (2012) makes a strong claim that a key or perhaps even the most important reason, in her view, that readers read and writers write, is to engage ToM in a way that is satisfying.[93] In my argument and method, ToM is important because it allows a close critical focus on ongoing processes that inform conscious awareness, affording intervention in reading specific texts in Wordsworth. In *Home at Grasmere* (chapter three) for example, ToM, along with work on human empathy, allows me to interrogate the narrator's interaction with people and landscape. Wordsworth describes the landscape, for instance, as a 'Unity Entire' (170) and critics have held it up as a symbol of wholeness and completion. Yet the poem also presents the landscape as possessing hidden mental states ('I loved to look in them, to stand and read | Theory looks forbidding' 919-21) that precede conscious awareness. ToM affords a new reading of the landscape and hence a new way of thinking about Grasmere Vale as a symbol of unity and security.

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[91] Lisa Zunshine, 'Theory of Mind and Experimental Representations of Fictional Consciousnesses' in *Introduction to Cognitive Cultural Studies* ed. by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010); —, *Why We Read Fiction: Theory of Mind and the Novel* (Columbus: Ohio State University Press, 2012).
[92] Among her contributors, Blakey Vermeule suggests, for example, that 'moments that we consider especially literary and that therefore have attracted intense critical scrutiny tend to reflect a special and especially intense kind of reasoning' See: Blakey Vermeule, 'Machiavellian Narratives' in *Introduction to Cognitive Cultural Studies,* ed.by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.214-387.
[93] Lisa Zunshine, *Why We Read Fiction: Theory of Mind and the Novel* (Columbus: Ohio State University Press, 2012).

Specialist intelligences may have *actual* and *proper* domains in terms of the facet of the environment at which they successfully target. For example, facial recognition capability works both for recognizing other people (proper domain) but it turns out that we also detect faces where there are none, such as in clouds or old tree trunks (actual domain).[94] Similarly, a domain dealing with potential agents in the environment both targets genuine agents and a range of other targets. Cognition is sensitized to attribute agency and then to interpret that agency. Cross-cultural studies support but also challenge how this notion should be articulated.[95] An evolutionary explanation for such promiscuity is that detecting potential agents in an environment is vital to survival, because they may be threats such as predators or opportunities such as prey. Domain specificity, and the promiscuity of cognitive specialisms such as facial recognition and agency detection, mean that faces and agency (for example) may be "found" where they are perceived and not necessarily where they may be objectively present.[96] The critic David Miall, working on CE readings of Wordsworth, comments that 'cognition is now regarded as embodied, evolved to reflect feeling beings active in their environment and sensitive to agency wherever it is to be found'.[97]

A hungry cognitive mechanism biased towards detecting agents has potentially profound impacts on how we interpret texts. For example, M.H. Abrams famously argues that 'the valid animation of natural objects' in Romantic writing (prosopopoeia, or personification) 'came to be a major index to the sovereign faculty of imagination, and almost in itself a sufficient criterion of the highest poetry'.[98] Abrams notes that the 'habitual reading of passion, life, and physiognomy into the landscape is one of the few salient

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[94] See for example: Dan Sperber and L.A. Herschfeld, 'The Cognitive Foundations of Cultural Stability and Diversity', *Trends in Cognitive Sciences*, 8.1 (2004), 40-46.
[95] For example: Bethany L. Ojalehto, Douglas L. Medin, Salino G. García, 'Grounding Principles for Inferring Agency: Two Cultural Perspectives', *Cognitive Psychology*, 95 (2017) 50-78.
[96] Stewart Guthrie, *Faces in the Clouds,* (Oxford: Oxford University Press, 1995).
[97] David S. Miall, 'Wordsworth's "First-born Affinities": Intimations of Embodied Cognition', *Poetics Today* 32. 4 (2011) 693-715, (p.694).
[98] M.H. Abrams, *Natural Supernaturalism: Tradition and Revolution in Romantic Literature* (New York: Norton and Company, 1971), p.56.

attributes common to most of the romantic poets' (67). Wordsworth of course calls 'upon the hills and streams to mourn, And senseless rocks' (*Prelude,* 1805.III.76). Yet it is very likely the case that it is *easier* to perceive agents in the landscape than not to perceive them because human cognition is biased to attribute agency to its surroundings. Hence, a feature of Romantic writing which as Abrams notes became an 'index to the sovereign faculty of imagination' may be grounded in an almost automatic mental process shared across many individuals and constantly at work (Abrams, p.56).

We should, of course, be wary of any clear one-to-one correspondence between some part of cognitive architecture, and some problem in a text. However, the evidence for intuitive biological intelligence and intuitive social intelligence is strong enough ground in which to root readings, as cognitive critics have indeed already done, particularly around social intelligence.[99] Moreover, the promiscuity of specialised intelligences in fact presents an opportunity to re-interpret key categories such as 'personification' and 'agency' and their use in critical reading.

Chapter one interrogates the theory and practice of using CE thought in reading, with specific engagement with Wordsworth. Here, though, I will be content to survey key claims as to intuitive biological and social intelligence and, below, to introduce the problem of *introspection* and connect perceptual input from the 'real' world with the activity of reading and imagining. The inaccessibility of cognition brings the value of introspection into question. If cognition structures experience in profound ways, it nevertheless remains below the level of conscious awareness. In cognitive research literature it is common to note the unreliability of introspection, because most of what the brain does appears to be inaccessible to awareness. Mark J. Bruhn, writing on Romanticism, cognition and the imagination,

[99] For example: Lisa Zunshine, *Why We Read Fiction: Theory of Mind and the Novel* (Columbus: Ohio State University Press, 2012).

observes that in practice introspection remains 'the most fruitful line of experimental research' even in cognitive science, because empirical techniques are still in their early stages.[100] Hayles notes that certain meditative practices and traditions have been shown to afford special access to, and control over, normally autonomic processes (60). Separately, scholars have examined Romantic writers and Wordsworth in particular in relation to meditative religious practices, such as those forms of meditation found in Zen Buddhism, and in some cases related such practices to cognitive science.[101] Yet instances of special insight are rare and hard to substantiate without experiment and, after all, may be idiosyncratic. Bruhn theorizes that Romantic thinking on the imagination may provide a 'storehouse' of issues to do with introspection that an experimenter might work upon (548). Carroll, working under the umbrella of 'literary Darwinism', argues that historical authors often obtain unusual insight into human nature, but that with the advantage of modern evolutionary theory, such insight can be systematized and placed on a theoretical footing. Consciousness depends on cognitive processes to which it has little or no access: 'consciousness *requires* nonconscious processing of information and could not function effectively without it' (Hayles, p.56). Yet inaccessibility to the inner workings of the brain throws into question the extent to which a writer's insight into their own mind should be believed, and we should be sceptical of un-critical claims to the contrary.

If the extent to which introspection is accurate in any particular case requires additional experimentation to affirm, the basic notion that introspection is limited itself represents an experience that is more direct and robust. There are certain moments when the limitations of our inward gaze become personally apparent. Richardson famously argues that

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[100] Mark J. Bruhn, 'Romanticism and the Cognitive Science of Imagination', *Studies in Romanticism* 48.4. (Winter 2009),pp, 543-564. (p. 546-47); See also: 'Mind Out of Time: Wordsworth and Neurophenomenology', *European Romantic Review* 24.4 (2013), 421-36.

[101] For example: John G. Rudy, *Wordsworth and the Zen Mind: The Poetry of Self-Emptying* (Albany: SUNY, 1996); See also: Guy Sircello, 'How Is a Theory of the Sublime Possible?', *Journal of Aesthetics and Art Criticism*, 51.4 (Autumn 1993), 541-550. Richardson offers a discussion in *The Neural Sublime*.

the moment when we are aware of 'the ordinarily secret workings of the brain' might be termed the 'neural sublime' (Richardson, 2010, p.18). In the experience of optical illusions, for example, one becomes suddenly aware that 'the brain is at least partly creating the world that the mind perceives' (18). We experience the illusion, but we do not experience the process that affords the illusion in the first place. This awareness of a depth underlying our experience, constitutes the 'sublime' aspect of the moment. One glimpses, very briefly, 'the ordinarily secret workings of the brain' (25). One is left 'stunned by its 'capacity and complexity'. The moment of awareness described by Richardson as the 'neural sublime' shows something fundamental about cognition, an inaccessibility to the awareness, but this is different from insight about the actual cognitive processes underlying awareness.

The experience of introspective limitation is potentially available to anyone. Richardson observes that the idea that 'the brain is at least partly creating the world that the mind perceives', 'will not seem so strange to readers of Wordsworth' (18). He gives an instance from the ice-skating episode from the 1799 *Prelude*, where the motion of the boy continues on after he has come to an abrupt halt on the ice. Wordsworth's dizziness shows the world as spinning on and on around his solitary figure. Richardson's account takes place at an experiential level, so that many people will share the experience he describes which, in turn, allows us to appreciate Wordsworth's description as something genuine or grounded in common sense. In turn, by contextualising this experience in neuroscientific terms, we become aware that the experience described is informed by cognition. If the workings of the brain were not 'ordinarily secret', then it would not afford a 'neural sublime' experience. Confirming that a vivid episode from a 1799 text represents not *only* the idiosyncratic experience (real or imagined) or special insight of one poet, but an experience meaningful in relation to fundamental ways in which humans experience the world, means that the relevance of that experience must shift when we read it.

However much it may be possible to gain insight into the hidden workings of the brain through introspective effort, apart from a common experience of introspective limitation, our cognitive architecture nevertheless continually shapes experience in ways that have impacted individual survival in evolutionary time and, moreover, the ways in which elaborate cultural formations have evolved. We do not need to claim that literature provides special insight into the inner workings of the brain. Instead, we should combine modern CE science with critical practice in an instantiation of the 'two-way traffic' between science and literature.[102] This traffic depends on the difference between science and literature, as Dillon advocates.[103]

CE science suggests that there are 'universal' aspects of human cognition and experience. Universals do not have to be CE universals, of course, but modern biology and psychology nonetheless points to the importance of cognition. The anthropologist Maurice Bloch, for example, theorizes that certain universals in human culture developed because of shared experience in relation to nature. An example is the structure of funerary practices.[104] However, Brown notes a 'growing awareness that human affairs have to be understood as an interaction between human nature and human culture' in the context of the brain and mind (ch.3). Earlier figures attempted to find universals in the mental realm, yet lacked evidence. Claude Levi-Strauss, for example, attempts to ground elements of kinship in relation to 'mental structures' but 'no specialized knowledge about the brain is required to follow his argument' (ch.3).[105] Although scholars were 'aware' of the interaction between nature and culture, they arguably lacked modern developments in biology and psychology. The 'new and rapidly progressing understanding of the human mind and its evolution now offer real insight

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[102] e.g., Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction,* 2nd edn (Cambridge: Cambridge University Press, 2000), p.102.
[103] Dillon, p.65.
[104] e.g., Maurice Bloch, 'The Past and the Present in the Present', *Man (N.S)*, 12.2 (August 1977), 278-292.
[105] Brown. For example: Claude Levi-Strauss, *The Elementary Structures of Kinship* (Boston: Beacon Press, 1949); *The Savage Mind* (London: Weidenfeld and Nicholson, 1962).

into human nature' that was simply unavailable until recent years.[106] Perhaps the most 'potent factor', then, in a 'revived interest in universals results from recent thinking in various branches of the biological sciences, notably evolutionary theory and the study of the brain'.[107] The most important development has been the move away from a 'tabula rasa' view of the brain and subsequent research showing how culture, evolution and individual experience all relate to evolved cognitive architecture. The traffic between science and literature depends on specialized knowledge about how human cognition and culture relates to evolutionary time.

A final point must be raised in a survey of the CE context prior to engaging with critical work, concerning the relationship between reading about an experience and a direct experience itself. The findings of cognitive science suggest that a cross-over or even identity exists between perceptual input from the 'real' world and the mechanisms of imagined perception reading *about* doing something, even though *reading about doing* is evidently different from *doing* something directly. Experience tells us that texts afford us imaginative experiences that approximate real perception in their felt quality and evidence supports this commonly held idea. Miall observes that 'the brain regions responsible for interpreting perceptual input are also those that represent an imagined perception (e.g. something that we are reading about)'. [108] In her study of cognition and imagination, Elaine Scarry (1999) also identifies 'global features' of texts that engage with cognition to afford vivid imagining in the reader's mind. [109] She asks how imagining unaided, that is 'ordinarily enfeebled and

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[106] Brown provides an overview of the history of human universals as an idea in anthropology.
[107] Examples include kin selection, reciprocal altruism and sexual selection. Brown notes how E.O. Wilson's *Sociobiology* (1975) and *On Human Nature* (1978) provided a wide audience to these developments, as well as touchstones of controversy. Wilson's work concentrates on selection at a group level, and other work has focused on evolutionary processes at the individual and genetic level.
[108] David S. Miall, 'Wordsworth's "First-Born Affinities: Intimations of Embodied Cognition"' *Poetics Today* 32.4 (2011), pp.693–715 (p.711).
[109] Primarily in: Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999); Alan Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010). For a useful contextualization of Scarry's work see: Mary Thomas Crane and Alan Richardson, 'Literary Studies and Cognitive Science: Toward a New Interdisciplinarity', *Mosaic: A Journal for the Interdisciplinary Study of Literature* 32.2 (1999), 123-40 (p.137).

impoverished', can 'closely approximate to actual perception' when under what she terms 'authorial instruction'. [110] Scarry offers cognitive mechanisms to support the role of reading in rendering vivid imagining and bases her work on cognitive experiments.[111] Cognition informs moment-by-moment perception of a person in a way that partially constructs the world perceived, directing attention and creating biases in behaviour towards how the world behaves, how living things are, and what people are thinking and doing. Cognitive critics (who I will engage one-by-one in the first chapter) often work by isolating various cognitive mechanisms and examining their relevance to the experience of reading. [112] Zunshine, for example, dedicates a monograph to the Theory of Mind.[113] What emerges from current thinking in CE is that both 'real' and imagined experience is already to some extent pre-constituted before conscious awareness even takes place. In moving through a real or imagined landscape, many cognitive biases are working so that the brain is reacting to the environment at a level beneath conscious awareness.[114] In watching an action take place, the brain is simultaneously modelling that which it perceives in a way that physically mirrors the brain of the actor themselves.[115] In imagining pictures, cognition impacts the detail and vivacity of images brought to mind along variables such as scale, distance, and kind of object imagined.[116]

A number of scholars engage Wordsworth through the lens of CE science. Yet none offers a focused study of mind and nature in Wordsworth through cognition and evolution, or

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[110] Scarry, p.4.
[111] Lisa Zunshine, 'Introduction: What is Cognitive Cultural Studies?' in *Introduction to Cognitive Cultural Studies* ed.by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.1-43 (p. 19).
[112] See for example:
[113] Lisa Zunshine, *Why We Read Fiction: Theory of Mind and the Novel* (Columbus: Ohio State University Press, 2012).
[114] Peter Kahn Jr, *The Human Relationship with Nature: Development and Culture* (Cambridge, Mass: MIT Press, 1999).
[115] Marco Iacoboni, 'Imitation, Empathy, and Mirror Neurons', *Annual Review of Psychology*, 60 (2009), pp.653-670. (p.659); Simon Baron Cohen, *The Essential Difference: Men, Women and the Extreme Male Brain* (London: Allen Lane, 2003), p.171.
[116] Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999).

elaborates on how CE readings relate directly to Wordsworth's own poetics as I do here. Alan Richardson references modern science in his account of Wordsworth in *British Romanticism and the Science of the Mind* (2005) but privileges Romantic era science, as I have noted. In his later book *The Neural Sublime* (2010), Richardson engages with cognitive science more closely but still emphasizes a diachronic approach focused on history. In addition, Richardson's focus on the singular moment of the 'neural sublime' experience precludes discussion of how individual histories and elaborate cultural complexes are structured in important ways by cognitive biases.[117] Bruhn also considers Wordsworth in relation to neurophenomenology, asking: 'If literary art evokes extraordinary forms of cognition in principled ways, then theories and distinctive practices of poetics should prove illuminating for cognitive science (546-47)'. Bruhn also examines the problem of introspection in cognitive science, and offers up Romantic treatment of the imagination as a potential resource for experimental testing.[118] David S. Miall investigates embodied cognition in Wordsworth's 'First-born Affinities'.[119] Miall makes the key point that 'the brain regions responsible for interpreting perceptual input are also those that represent an imagined perception (e.g. something that we are reading about)' (711). Examining how the brain represents images to consciousness, Miall observes that 'the size or distance of an image is also represented' in the size of brain activity involved. As something grows bigger to the sight, a corresponding growth of activity happens in the brain (711). Miall reads the 'boat stealing' episode from Wordsworth's *Prelude,* suggesting that as the cliff in that episode looms larger in the mind's eye, it also looms larger in a literal sense. The brain area processing this mental image will increase as the cliff grows in the mind. I engage Miall's brief treatment of the passage in my

[117] Richardson, *British Romanticism*; *The Neural Sublime*.
[118] Mark J. Bruhn, 'Romanticism and the Cognitive Science of Imagination', *Studies in Romanticism* 48.4. (Winter 2009),pp, 543-564. (p. 546-47).
[119] David S. Miall, 'Wordsworth's "First-Born Affinities: Intimations of Embodied Cognition"' *Poetics Today* 32.4 (2011), pp.693–715.

own lengthier reading and seek to pursue the impact of evolved cognition across the passage and wider poem.

A number of critics understandably focus on childhood and adolescence in Wordsworth. Some scholars counter Freudian approaches to the poet by pointing out the lack of scientific evidence cited in Freudian critical work and emphasizing the value of developmental psychology instead. Scott Harshbarger examines childhood in the 1799 *Prelude* through developmental psychology, arguing against Freudian readings because evolutionary psychology 'now tends to view childhood as a distinct a positive part of human nature, making possible the development of the large, complex brain that allows human life'.[120] Nancy Easterlin argues that Wordsworth's treatment of infant experience is similar to that in modern developmental psychology. Easterlin argues that mother-infant interaction is fundamental to the *Prelude* through a reading of the 'infant babe' passage.[121] Beth Lau relates Wordsworth to current research on memory and suggests this as another high-potential area for further work.[122]

Critics have also focused attention on purely synchronic cognitive readings of Wordsworth. Wenjuan Yuan, for example, examines kinaesthesia in Wordsworth through the lens of cognitive poetics, but focuses solely on kinaesthetic aspects of reading and forgoes discussion of Wordsworth as such, or of evolutionary context.[123] Scarry provides in-depth readings of key passages in Wordsworth in her *Dreaming by the Book* (1999) that I go on to interrogate and develop more fully in this thesis.[124] Scarry engages with reader experience

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[120] Scott Harshbarger, 'Intimations of Neoteny: Play and God in Wordsworth's *1799* Prelude, *Philosophy and Literature*, 34.1 (2010), 112-30 (p.113).
[121] Nancy Easterlin, 'Psychoanalysis and the "Discipline of Love", *Philosophy and Literature*, 24.2 (2000), 261-279 (p. 262) (repr. in *Evolution, Literature and Film: A Reader*, ed. by Brian Boyd, Joseph Carroll and Jonathan Gottschall (New York: Columbia University Press, 2010) pp.348-359).
[122] Beth Lau, 'Wordsworth and Current Memory Research', *Studies in English Literature 1500-1900*, 42.4 (2002), 675-92.
[123] Wenjuan Yuan, 'A Cognitive Poetic of Kinaesthesia in Wordsworth' (unpublished doctoral thesis, University of Nottingham, 2013).
[124] Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999).

(her own, for example) as well as research in cognitive psychology by neuroscientist Stephen Kosslyn, in order to develop an account for how Wordsworth's poetic imagery is powerful and vivid (53). Her approach is more widely applicable to any imaginative text. It identifies 'practices' writers use that lead to particularly vivid imagining in the reader, but stops short of assessing how that imagery informs larger structures of meaning within texts. Indeed, this is not Scarry's focus. I seek to build on Scarry's readings of the 'boat stealing' and 'ice skating' episodes and her treatment of flower imagery and mental representation, which I introduce at the end of this introduction.

A number of studies deal with issues raised by cognition and evolution, but in an indirect way or engage Wordsworth and cognition and evolution as part of arguments that provide useful angles of approach or helpful terminology. Aaron Ottinger engages Wordsworth's 'science of feelings' in the context of geometry in Wordsworth but does not engage recent thinking in cognition and evolution.[125] James Heffernan writes about limitation and 'limitlessness' in Romanticism and in Wordsworth specifically, in a way that helps articulate the limits of introspection in Romantic era terms.[126] Both these critics provide building blocks for my reading of the 'boat stealing' passage. Jeffrey Steele studies American Romanticism where he includes insights into finding a 'terminology' for discussing hidden aspects of mind. He analyses why it is difficult to critically engage Emerson's notion of mind, offering insight as well into Wordsworth's language, even though his approach is Jungian.[127] Karl Kroeber engages neuroscience in his treatment of Wordsworth and ecocriticism, but he is arguably idealist in the way that Davies criticizes and his use of

[125] Aaron J. Ottinger, 'The Role of Geometry in Wordsworth's "Science of Feelings"' (unpublished doctoral thesis, University of Washington, 2016).
[126] James A. W. Heffernan, 'Wordsworth, Coleridge, and Turner: The Geometry of the Infinite', *The Bucknell Review*, 29.1 (1984), 49-72.
[127] Jeffrey Steele, *Unfolding the Mind: The Unconscious in American Romanticism and Literary Theory* (New York: Routledge, 2017), p.117.

neuroscience ignores lived experience and the problem of introspection.[128] In this context, Simon C. Estok makes a call for engagement between ecocriticism and psychological approaches to nature more generally, particularly E.O. Wilson's notion of 'biophilia' and others have also made similar calls.[129] Yet this engagement is still lacking when it comes to studies of individual Romantic writers. My study relates mind and nature in Wordsworth through evolved cognition and in that narrow sense responds to this call.

My approach uses modern specialized knowledge about evolved cognition to probe the extent to which processes in the brain, operating prior to conscious awareness, should be brought into our critical reading of Wordsworth. The approach is also reflexive. I certainly think about how processes in a hypostasized *mind of the writer* might be brought together with cognitive processes in the reader of a text. Yet an important question I also take up in chapter two is the extent to which texts should be regarded as transparent windows into cognition or psychology or, conversely, the extent to which textuality and poetic design impact interpretation for cognitive reading. Ultimately my position takes the object of research as a set of texts to be read critically and within important contexts such as Wordsworth's own poetics, including his statements about permanence and survival in relation to poetry.

Reading through evolved cognition differs from historicist accounts of Romantic era science, even those like Richardson's cognitive historicism that compares historical 'scientific' ideas with those of modern CE science. Yet unlike the largely synchronic readings by Scarry, Miall and Bruhn, for example, this approach asks how CE informs meaning in key long passages (such as 'boat stealing' and 'ice skating') and long poems (such as *The Ruined Cottage, Home at Grasmere,* and *The Tuft of Primroses*). It recontextualizes Wordsworth in

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[128] Simon C. Estok, 'Material Ecocriticism, Genes, and the Phobia | Philia Spectrum', *Neohelicon*, 44. 2 (2017), 297-313.
[129] See for example: E.O. Wilson and Stephen R. Kellert, *The Biophilia Hypothesis* (Washington .D.C.: Long Island Press, 993).

relation to CE histories. Thus, I offer what might be called a kind of cognitive historicism but one that places clear emphasis on the natural history of brain and mind, so as to work backwards from modern science to the text. The thesis keeps a close focus on the 'object of attention' (the brain, and its relation to nature) linking a modern reader to Wordsworth's experiences and his poetry. To do so it must use the available specialist knowledge. The difference between an historicist and a CE emphasis is that it approaches the same object, the text, from opposite temporalities by explicitly grounding its reading in what Marcus Nordlund (2002) terms a 'theory of reality', but which is best described as an emerging paradigm in cognitive and evolutionary science. Such a paradigm was certainly unavailable to Wordsworth in its modern instantiation and to the generations of readers before the 'cognitive revolution'.[130] Yet this does not preclude us from using CE, because doing so helps us bring the 'ordinarily secret workings of the brain' into critical discourse.[131]

By the same token, approaching a phenomenon through evolved cognition is different from but does not preclude historicist readings either. We can approach the same object — say flower imagery in Wordsworth — from two points of view. For example, Fred Blick traces how 'Elizabeth Linnaeus phenomenon', in which yellow flowers viewed in the half-light appear to emit flashes, influenced Erasmus Darwin, and then Wordsworth and Coleridge's use of flower imagery.[132] From the CE point of view, Scarry studies the vivacity of flower imagery through the cognitive psychology experiments of Stephen Kosslyn, focussing on mental picture making. These two accounts approach flower imagery from different but complementary angles.[133]

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[130] Marcus Nordlund, 'Consilient Literary Interpretation', *Philosophy and Literature*, 26 (2002) 312-333.
[131] Richardson, *The Neural Sublime*. p.25.
[132] Fred Blick, 'Flashing Flowers in Wordsworth's "Daffodils"', *The Wordsworth Circle* 48.(2017) 110-115.
[133] For Example: Stephen M. Kosslyn, *Image and Brain: The Resolution of the Imagery Debate* (Cambridge: MIT Press, 1996).

Blick recounts the 'youthful observations' of Elisabeth Christina von Linné, the eldest daughter of Carl von Linné (Linnaeus) that nasturtiums and primroses 'emitted flashes in the half-light of evening'. Elisabeth shared her findings with her father and other philosophers, and although only nineteen years old, published under the name 'Elisabeth Christina Linnaea' in the *Acts* of the Royal Swedish Academy of Sciences in autumn 1762. In 1783, Lars Christian Haggren, a lecturer in Natural History, confirmed the phenomenon of the flashing flowers. His findings were published in Swedish and German in 1788 and by a French journal. British journals published Haggren's article through indirect reports and in close translation. Erasmus Darwin 'made or obtained' a translation from the French and published his version in 1799 in *The Botanic Garden, part II. Containing The Loves of Plants* as a supplement, as well as another note that stated the opinion that the 'scintillations' were 'electric' (110). Blick notes that Darwin 'then drew attention to the defensive electrical shocks emitted by fish and suggested, by analogy, that the electrical activity of flowers could be a defence against insects' (110). Light, electricity and electrochemical processes were popular topics in the late 1790s, in part resulting from the 'experiments of Galvani, Volta and Humphry Davy' (111). Many modern scholars have investigated the impact of notions of vitalism and electricity in the period on literature.[134] During the period itself, for example, Erasmus Darwin questioned in *Zoonomia* whether plants had a form of life, in light, susceptible to pleasure and pain (Blick, p.112). Blick suggests that the 'golden, flashing, dancing flowers' in 'Daffodils', 'derived their "flash" from Elizabeth Linnaeus's description of "yellow...brilliant" nasturtiums as "blickande" (glancing or twinkling), via Erasmus Darwin's writings' and from Coleridge's notes on them.

[134] Of course, a variety of criticism in Romantic literature examines issues of electricity and vitalism. For example: Sharon Ruston, *Shelley and Vitality* (Basingstoke: Palgrave MacMillan, 2005); Robert Mitchell, *Experimental Life: Vitalism in Romantic Science and Literature* (Baltimore: Johns Hopkins University Press, 2012); Catherine Packham, *Eighteenth-century Vitalism, Bodies, Culture, Politics* (Basingstoke: Palgrave MacMillan, 2012).

The influence of the 'Elizabeth Linnaeus phenomenon' takes place through disagreements and changing evidence. Elizabeth herself wondered if the flashes 'might derive from the positioning of the eyes' (Blick, p.112). And in 1810 Goethe questioned whether the flashing was 'actually in the flower or in the eye' (112). In the end both Wordsworth and Coleridge concluded that the flashing was 'in the eye', but they were originally inspired by the idea that it was electric in nature. Later in 1914 a scientist showed the phenomenon to indeed consist in red light moving over more and less sensitive parts of the retina. In 1937 it was classified as an 'After Image' (113). Hence in a single cultural sphere of knowledge and debate during the Romantic period, amateur observation, science and literature mingles just in the way that critics such as Ruston suggest. Wordsworth was inspired both by the idea of electricity in the flowers and by the idea that the phenomenon was in the eye (Blick, p.112). In turn, a modern reader aware of these facts can read into Wordsworth's flower image an index for this train of thought and observation around the 'Elizabeth Linnaeus phenomenon'.

Scarry, by contrast, engages with cognitive psychological experiments carried out by Stephen Kosslyn to show that in mental picture-making there is a 'ration of extension to intensity' that makes flowers particularly vivid to the imagination. Imagining objects of a small size allows a closer focus on their details, whereas imagining very large areas involves placing them further away in the mental vision (46). As Scarry has it, 'The labour of construction has a certain radius: in imagining, as in painting, the localization of intensely filled-in surfaces becomes possible with a smaller surface' (46). Flowers 'appear [in this sense] to be the perfect size for imagining' (46). As I will examine fully in the thesis, Wordsworth's *The Tuft of Primroses* presents the image of the primrose flower 'the little primrose of the rock' (235) as a symbolic replacement for Grasmere Vale, whose symbolic

wholeness had been undermined by environmental destruction.[135] Wordsworth claims, for example, that 'the little Primrose of the rock | Remains, in sacred beauty, without taint | Of injury or decay' (235-37). A question faced by generations of critics has centred on how the apparent fragility and small size of the primrose could stand in symbolically for the whole of Grasmere Vale in Wordsworth's poem, a place that he has previously described in *Home at Grasmere* as a 'termination and a last retreat' (166).[136] Using Scarry's terminology, the shape and size of flowers are part of what renders them easy and extraordinary to imagine; because they relate the attributes of flowers directly to human perception.

The key practice in this thesis is to work back from CE science to the text; contextualizing mind and nature as they are represented in Wordsworth against CE history — from the brain to the flower. Flowers still index the cultural sphere in which 'Literature and Science' partake in a single field in which thinkers participate during the Romantic period, as the travel of Elizabeth Linnaeus' keen eyed observation from Hammarby to the nodding heads of daffodils in the English Lakeland testifies. Yet flower imagery also participates in the CE context. Focusing on invariant features of cognition provides another context for reading flowers in Wordsworth, but this CE context is by no means inconsequential or simply an 'added layer' of interpretation to be filed away with other historical information. On the contrary, deploying CE to read allows a *full engagement* between literature and science that leverages the *differences* between CE science and literature (as Dillon suggests), to bring invariant features of human experience into focus.[137] Fletcher writes that 'Because things perpetually change, there must be permanence in change, and our quest for knowledge turns on the idea that time is passing, even as we try to fix the forms or shapes of the events...of

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[135] William Wordsworth, *The Tuft of Primroses*, *with Other Late Poems for The Recluse* by William Wordsworth, ed. by Joseph F. Kishel (Ithaca and London: Cornell University Press, 1986).
[136] See for example: James A. Butler, 'Wordsworth's "Tuft of Primroses": "An Unrelenting Doom'" *Studies in Romanticism*, 14.3 (1975),237–248 (p.240); Kenneth R. Johnston, 'Wordsworth's Last Beginning: The Recluse of 1808' *ELH*, 43.3.(1976), 316-41 (p.316).
[137] Dillon, p.65.

existence'.[138] Romantic ecocritical work, for example, shows how the invariance of nature cannot be relegated to an inconsequential background, but rather explodes into critical reading because it makes itself felt — the metabolic rifts (to use Markley's term) in knowledge about climate change are arguably forced upon human beings. Human activity is now found in the geologic record as a planetary force, due in part to knowledge and systems stemming from the Romantic era.[139] Invariance provides an essential background to literary interpretation, because human experience shares invariant features across time and space.

CE science provides a way of bringing aspects of invariant experience into critical focus, because evolution has structured cognitive architecture so that the brain is always partially constructing the world in which we experience. My thesis makes a general claim that reading Wordsworth *should* be re-contextualised in relation to CE science, and specific claims about how each of the texts it engages interacts with the 'natural' history of the mind and, in turn, how that interaction demands new approaches to old critical problems. Engaging the deep history of evolved cognition impacts how Wordsworth should be read in ways that are highly specific to his poetic project, as well as in ways that are more generally applicable.

### *V. Chapter Summaries*

This thesis consists of six chapters and this 'Introduction'. The structure of the thesis presents key theory and practice in the first chapter, relates the specific cognitive approach I take to Wordsworth's own poetics in the second chapter and, in each subsequent chapter, reads a specific Wordsworth text through the lense of cognition and evolution. I will not go over

[138] Fletcher.
[139] Or as Brown has it: 'Technical or arcane as it may be to explain universals, their intrusion into human affairs is too pervasive for the true humanist to ignore'. Brown; Markley, p.261.

ground here only to cover it again in greater detail. However, I will introduce key terms and strategies and give a broad overview of each chapter to follow.

Chapter one, 'Evolved Cognition: Theory and practice', lays the theoretical groundwork on which the remainder of the thesis builds in specific readings of Wordsworth. It presents this groundwork over four sections. In section one, the chapter gives a conceptual history of a key term for the thesis, *invariance*, through mathematics, geometry and modern psychology. This term, meaning *constancy under transformation*, provides a heuristic for engaging with existing cognitive approaches. To be clear, as I discuss, there are an array of existing cognitive approaches and diverse perspectives on what cognitive reading can and should accomplish. For example, cognitive historical approaches emphasize parallels between historical ideas and modern ideas in cognition and evolution. Invariance differentiates my approach here, broadly, by emphasizing ongoing cognitive processes and evolutionary histories. Diverse approaches also, of course, directly invoke evolved traits in critical reading. In turn, I seek dialogue with these positions. Section two considers cognitive reading in relation to paradigm shifts. Fundamental questions about the relationship of science to literary discourse are worth asking. Yet in Bruhn's words, 'all the fundamental questions [even now] remain open and contested' in cognitive reading.[140] Nevertheless, we can still pose specific questions about how evolved cognition relates to Romantic notions and problems in Wordsworth. Section three engages such a concrete problem by asking how we should relate Wordsworth's sense of automaticity in encounter and associated Romantic notions of sympathy to specific cognitive processes indexed by modern science. How *should* the evolution of cognition impact a reading of Wordsworth? The final section presents a reading of Wordsworth's 'Resolution and Independence' focused on the transformation at the

[140] Mark J. Bruhn, 'Exchange Values: Poetics and Cognitive Science', *Poetics Today* 32.3 (2011) 404-460 (p.407).

centre of this poem. I show how the changing of a stone, into a sea-beast and into an old man (l.50-70) engages the cognitive disposition to attribute agency to surrounding forms, whether or not (objectively speaking) any agents are present.

Chapter two, 'Survival and the Future', advances a mode of cognitive reading in relation to how Wordsworth imagines change and permanence in the first section. The first section contextualises cognitive reading against Wordsworth's poetics relating to survival and the future. Since, I suggest, Wordsworth expresses a desire that his writings '*might live*' and survive, his imaginings of scientific change give a futural context to how survival is expressed in his work.[141] The chapter acknowledges that Wordsworth can be and has been read through evolved cognition without relation to an idea of future time. Yet Wordsworth's poetics relate directly to a complex of past and future and the notion of survival and so future time is a critical context against which cognitive readings relating to change, permanence and survival should be placed. The second section presents a cognitive reading of key episodes in the 1799 *Prelude*, focusing in on the 'spots of time' and the boat sealing episode. Here the chapter observes that the 'spots of time' like Wordsworth's famous architectural figure of the gothic cathedral, open both backwards into an unrememberable past and forward into an unknown future. In turn, the chapter argues for a scale of attention based around invariance and cognition. Rather than give weight to a relationship to ideal Euclidean or Platonic forms or to an ultimately inaccessible past, readers should attend to how episodes engage ongoing cognitive processes. Cognitive reading, I argue, re-grafts Wordsworth's focus on the past and on hidden origins onto the present unfolding of cognition.

Chapter three 'Agency and Texture in *Home at Grasmere',* offers a cognitive reading of this poem. The chapter examines the place of the poem within Wordsworth's canon and re-orients the importance of location in the poem away from a specific locale and towards

[141] Preface to *The Excursion*', pp.170-1.

invariance. The chapter reads the poem through Theory of Mind and studies in empathy in relation to the narrator's interaction with people and landscape. Wordsworth describes the landscape as wholly enclosed, a 'Perfect Contentment, Unity Entire' (MS.B.170). Yet the portrayal of agency in relation to the landscape in the poem demonstrates an oblique depth that belies the sense of 'termination' (166) in an individual locale that Wordsworth describes. Here *agency* is again a technical term referring to the *attribution* of agency by the brain, in the surroundings, whether or not a real agent can be said to exist. Where Karl Kroeber argues that the poem is structured vertically due to the depth of its moving images, I argue that CE insight shows how the poem engages biases that intuitively attribute agency, track movement and develop empathic responses to living things. My reading adds ToM and empathy to account for how the poem works, and consequently re-orients critical response to the poem away from a focus on the localised importance of Grasmere Vale and into relation with universal aspects of experience that transcend an individual time or place. This chapter intervenes in readings privileging the specific locale of Grasmere Vale in Wordsworth's poem, to emphasize instead invariance and shared experience. The interpretive benefit of this chapter is clear: because the poem engages ToM and empathy so powerfully, the poem gestures to meaning beyond its immediate locality, or the particular time in which it was written. *Home at Grasmere* shows Wordsworth attending to an intensely local scene with particular personal importance. Yet the poem participates in CE histories that transcend that attention, even as they also inform the power of Wordsworth's imagery. This latent invariance in *Home at Grasmere* is made clearer in the next chapter, which examines *The Tuft of Primroses*, composed following a period of absence from Grasmere. I focus in directly on the symbolic load placed first on the Vale in *Home at Grasmere* and the start of *The Tuft of Primroses*, and then on the primrose flower itself. The interpretive benefit is a direct intervention in criticism about the status of *The Tuft of Primroses* in relation both to *Home at*

*Grasmere* and to Wordsworth's projected *Recluse*, as well as a re-imagining of both the Vale and the primrose as symbols.

Chapter four then, 'Invariance in *The Tuft of Primroses*' examines the pairing of this poem with *Home at Grasmere* and the relation of both poems to Wordsworth's projected *The Recluse*. The chapter focuses on the image of the primrose flower in the poem as a substitute for Grasmere Vale, following the ecological damage to the landscape that occurs during Wordsworth's absence. Specifically, the chapter examines how the flower is able to bear the symbolic load placed upon it in by poem. It extends an argument made by Scarry regarding 'floral supposition', that flowers are particularly easy to imagine[142]. The chapter examines how this notion interacts with the dynamics of the poem and with the wider symbolism of flowers. It argues against critics who have seen the poem as a failed response to the environmental degradation of a specific location, Grasmere Vale, claiming instead that the image of the primrose flower summons aspects of nature that are invariant to a single radiant point, one that persists beyond the valley that Wordsworth had originally claimed as a 'termination and a last retreat' (166). Wordsworth is alive to a nature beneath and prior to the symbolic wholeness that has been frequently emphasized in the apparent unity of Grasmere Vale. Wordsworth's emphasis in *Home at Grasmere* on the 'Unity entire' (MS.B.170) of the Vale is countered in 'The Tuft of Primroses' by his despondency at the destruction that takes place there while he is away at Coleorton, designing a garden.[143] This provides an opportunity for me to investigate the implications of invariant features in human perception and conception of nature even amidst the expression of radical and destructive change.

Chapter five, 'Meaning-making and Cognition in *The Ruined Cottage*', examines *fittedness* in *The Ruined Cottage* in relation to evolutionary history. Building towards chapter

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[142] Elaine Scarry, particularly in *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999).
[143] Jessica Fay, 'Prospects of Contemplation: Wordsworth's Winter Garden at Coleorton, 1806-1811', *European Romantic Review* 24.3 (2013), 307-15 (p.7).

six's conception of a CE-Wordsworthian sublime, the chapter argues that conscious awareness in the poem must negotiate the limits inherent to perception and cognition, and that this negotiation is an important part of how the poem works. The poem privileges nonverbal communication and the attempt to read the emotions and intentions of others as well as repeatedly demonstrating that the awareness is not well-fitted to these tasks in all circumstances, with consequences for reading. The central symbol of the ruined cottage, and the tension between consciousness and the 'oblivious tendencies' of nature, are transformed through CE reading. The chapter also introduces notions from the study of cultural evolution to examine the wider socio-historical context of the poem.

Chapter six, 'A Cognitive and Evolutionary Sublime', extends the reading of *The Ruined Cottage* and puts forward a register of the sublime in Wordsworth which I speculate should be read as a *cognitive and evolutionary* sublime. The first of two sections introduce the key concept of the sublime particularly focused on the broadly contrasting versions put forward by Edmund Burke (1757) in *A Philosophical Enquiry into the Origin of Our Ideas into the Sublime and the Beautiful* and Emmanuel Kant (1790) in *Critique of Judgement* as well as thinkers such as Joseph Priestley and Humphrey Davy who relate notions of the sublime to natural philosophy, geometry and mathematics.[144] I point towards the importance of boundary conditions to the concept of the sublime, considering its etymology in English. The chapter then brings two modern registers of the sublime into dialogue, Onno Oerlemans' *material* sublime (2004) and Alan Richardson's *neural* sublime (2010).[145] I argue that the sublime in Wordsworth's rendering is irreducible to either register but instead forms an opportunity for the ongoing making of meaning. In the second section of the chapter, I put

[144] Edmund Burke and Adam Phillip's, *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful.* (Oxford: Oxford University Press, 1990); Immanuel Kant and James Creed Meredith, *The Critique of Judgement* (Oxford: Clarendon Press, 1952).
[145] Onno Oerlemans, *Romanticism and the Materiality of Nature* (Toronto: Toronto University Press, 2004; Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010).

forward a case for a cognitive and evolutionary sublime in Wordsworth and, specifically, in *The Ruined Cottage*. I emphasize here how the action in the poem takes place in relation to specific historical events and against a socioeconomic and political context. Ultimately, in tracing the movement of the protagonists in response to such distant forces as the Revolutionary Wars, I argue that evolutionary history affords a reading akin to Priestley's 'sublime of science' which can present 'an idea of *vastness* to the mind' (157, emphasis original)[146].

While it is not my purpose to offer a chronological reading of the evolution of Wordsworth's poetry, nonetheless the thesis does proceed chronologically from the 1790s and early 1800s (the two-book *Prelude* of 1799, and the 1800 and 1802 versions of the 'Preface' to *Lyrical Ballads*) in chapter two, to *Home at Grasmere* (1806) in chapter three and *The Tuft of Primroses* (1808) in chapter four and *The Ruined Cottage* (1797 and 1814: *The Ruined Cottage* is at once the poem of Wordsworth's admired by Coleridge in 1797 at the beginning of their collaborations, after Coleridge had 'bounded down a pathless field' to greet William and Dorothy at Racedown and a work that belongs to the first book of *The Excursion* published in 1814) the textual focus of chapters five and six.[147] In addition to these major works, I present the central episode of 'Resolution and Independence' (drafted in 1802) as part of my discussion of theory in chapter one. Beyond the chronological order, the poems relate historically and thematically to Wordsworth's overarching and unfinished project, *The Recluse*. Wordsworth puts forward the *Prelude* as a precursor to the poem. He presents *Home at Grasmere* as one of its books. *The Tuft of Primroses* was begun with the idea of continuing the great poem. As the first book of *The Excursion*, *The Ruined Cottage* was supposed to be

[146] Joseph Priestley, *A Course of Lectures on Oratory and Criticism. By Joseph Priestley, LL. D. F. R. S.* Printed for J. Johnson, No. 72, St. Paul's Church-Yard, MDCCLXXVII. [1777]. *Eighteenth Century Collections Online*, <link.gale.com/apps/doc/CW0121887625/ECCO?u=unilanc&sid=bookmark-ECCO&xid=4de31cc5&pg=174>. [Accessed 20 Nov. 2021].
[147] Stephen Gill, *Wordsworth: A Life*, (Oxford: Oxford University Press, 1989) p. 120.

part of the great envisaged poem, but as *The Excursion* moved towards being a work in its own right, it was part of the grander project 'in name only' as Kenneth Johnson observes (316). This arrangement serves my argument at strategic points because it helps me to demonstrate how CE reading allows critical interventions in how these texts relate to one another and to Wordsworth's poetics.

CE reading allows intervention in how these poems are read in relation to *The Recluse* by emphasizing continuities behind Wordsworth's works. Specifically, chapters three, four and six engage *Home at Grasmere, The Tuft of Primroses* and *The Ruined Cottage* respectively. In chapter three I argue that *Home at Grasmere* should be read beyond its local focus to include aspects of cognition and evolution that transcend time and place. Karl Kroeber, for example, argues that *Home at Grasmere* in fact constitutes *The Recluse* itself because its 'vertical' depth of imagery compensates for its shortness in length.[148] Kroeber finds parallels between Wordsworth's writing about the Vale and modern ecological thinking that emphasize wholeness and balance of ecological systems. Instead, I argue that the portrayal of agency in the landscape extends the poem beyond its topographical boundaries in ways that come prior to and inform the symbolism of the Vale. In chapter four I read *The Tuft of Primroses* in relation to *Home at Grasmere* arguing that it is through CE invariance that Wordsworth can place the whole symbolic load of Grasmere Vale onto the apparently insignificant image of the primrose flower. Critics identify *The Tuft of Primroses* as a failure of Wordsworth's valorisation of Grasmere Vale as an ideal 'termination' and 'retreat' and blame this failure for the poem's fragmentary status. Far from being a failure, however, I present the poem as an extraordinary engagement with cognitive biases that transcends the time and place it represents. Consequently, I speculate that the relation of both poems to *The Recluse* should be re-examined. Finally, in concluding the thesis, I return to an idea of

[148] Karl Kroeber, '"Home at Grasmere": Ecological Holiness', *PMLA*, vol. 89. 1 (1974).

invariance in history to speculate about an underlying unity across these texts grounded in ongoing cognitive and evolutionary processes.

# Chapter 1. Evolved Cognition: Theory and practice

This chapter provides the theoretical groundwork on which the remainder of the thesis builds into specific readings of Wordsworth. I begin by locating my approach theoretically in sections one and two before demonstrating in sections three and four the benefits of reading Wordsworth through evolved cognition. I show that in its heritage first from mathematics and then through perceptual psychology and cognitive and evolutionary studies, the idea of invariance has come to refer to constancy under transformation. In a grand sense, such invariance persists across history. I focus on specific cognitive predispositions that, being universal, persist over time and space in ways that are invariant. Focussing on invariance differentiates my approach from cognitive historicism that emphasizes parallels between historical and modern ideas in cognition and evolution.[1] The chapter also enters into dialogue with cognitive critics, including in approaches that invoke evolved traits more directly in relation to literary reading.[2] In doing so, the chapter assesses the challenges levelled by critics, most famously by Jonathan Kramnick, against cognitive and evolutionary approaches to literature in themselves, as well as concrete and specific challenges in using evolved cognition to read Romantic texts and Wordsworth in particular.[3] In doing so the chapter

[1] For an early statement see: Alan Richardson and Francis Steen, 'Literature and the Cognitive Revolution: An Introduction' *Poetics Today*, 23 (2002), 1-8; For an extended treatment see: Alan Richardson, *British Romanticism and the Science of the Mind* (Cambridge: Cambridge University Press, 2005), Kindle edition.
[2] For example: Joseph Carroll, *Literary Darwinism: Evolution, Human Nature, and Literature* (Abingdon: Routledge, 2012); *The Literary Animal: Evolution and the Nature of Narrative*, ed. by Jonathan Gottschall and David Sloan Wilson (Evanston, IL: Northwestern University Press, 2005); *Evolution, Literature and Film: A Reader*, ed. by Brian Boyd, Joseph Carroll and Jonathan Gottschall (New York: Columbia University Press, 2010); Nancy Easterlin, *A Biocultural Approach to Literary Theory and Interpretation* (Baltimore: Johns Hopkins University Press, 2012); Mary Thomas Crane and Alan Richardson, 'Literary Studies and Cognitive Science: Toward a New Interdisciplinarity', *Mosaic: A Journal for the Interdisciplinary Study of Literature* 32.2 (1999), 123-40; Lisa Zunshine, 'Introduction: What is Cognitive Cultural Studies?' in *Introduction to Cognitive Cultural Studies* ed.by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.1-43.
[3] Jonathan Kramnick, 'Against Literary Darwinism', *Critical Inquiry,* 37 (Winter 2011), 315-47.

differentiates my readings from ones based on or around the categories of Romantic era science.

One of my major aims in the chapter is to differentiate a reading using evolved cognition from one based on Romantic era models of understanding such as those of David Hume and John Locke.[4] Romantic thinking about sympathy does acknowledge substantial *automaticity* in how humans relate to one another, which in itself presents a parallel with modern science that reveals cognition as layered and mostly beyond conscious awareness.[5] As George Rousseau observes, Romantic sympathy is also heir to a materialist scientific paradigm stemming from the seventeenth century and locating the soul in the brain.[6] However, Romantic models nevertheless differ in consequential ways from modern thinking about evolved cognition, as I will go on to demonstrate. In the background of the chapter is the broader question of how to relate scientific evidence to critical inquiry, including what the role of scientific paradigms and reductive argument should be in critical reading. Focusing on evolved cognition, invariant within human history in the precise sense of constancy under transformation, generates new varieties of interpretation, allowing specific critical interventions in Wordsworth. This chapter locates my overall claim in relation to cognitive critical approaches and in relation to select Romantic era notions. Subsequent chapters read Wordsworth texts in relation to cognitive and evolutionary invariance to make specific interventions.

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[4] Nancy Yousef, *Romantic Intimacy* (Stanford: Stanford University Press, 2013); David Owen, 'Hume and the Mechanics of Mind: Impressions, Ideas, and Association' in *The Cambridge Companion to Hume* (Cambridge: Cambridge University Press, 2009), pp. 70-104; David Hume, *A Treatise of Human Nature: Being an Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects 1740* (The Floating Press, 2009), p.490.
[5] Yousef, p. 8; Hayles.
[6] George Rousseau, 'Nerves, Spirits, and Fibres: Towards Defining the Origins of Sensibility' *Studies in the Eighteenth Century III* (Toronto: University of Toronto Press, 2016), pp.137-158

*I. Invariance*

The study of cognition and evolution involves diverse fields and modes of explanation, and, at the same time, a mode of inquiry founded in relation to the theory of evolution and the principle that scientific explanations should not be mutually exclusive. Within the context of both diversity and an evolutionary paradigm, 'invariance' offers what Angus Fletcher (2016) terms a 'ground for thought' or, more precisely, a heuristic for relating differences of speed and scale.[7] The mathematical meaning of invariance is important for its use in psychology and in the evolution of cognition and, likewise, as a heuristic in literary criticism. In this section, therefore, I present a short conceptual history of the term, before moving on to elaborate on just how this term relates to a cognitive and evolutionary approach, grounded in an evolutionary 'paradigm'. Invariance offers a way of reading change and continuity in biology and culture because it precisely indexes a quality of 'constancy under transformation' that is evidenced in the study of cognition and evolution.

The origins of the term are found in the study of topology. Topology or the 'geometry of position' shows that 'some aspects of an object or event can be invariant even while others change'. This quality of 'invariance' stems from the mathematician Leonhard Euler's (1750) work *Polyhedron Theory* and relates to his solution in 1735 to a problem known as 'The Seven Bridges of Königsberg' that more fully developed the 'geometry of position' (*geometria situs*), an idea originally suggested by Leibniz. [8] Euler 'showed how objects of a certain kind are endowed with a lasting and stable form, owing to an invariant relationship which establishes basic continuities, no matter how variable or different particular such objects may appear to the naked eye' (Fletcher, p.14). The riddle Euler solved mathematically

[7] Angus Fletcher, *The Topological Imagination: Spheres, Edges and Islands*, (New Haven: Harvard University Press, 2016), p.178.
[8] As noted by Fletcher.

was to devise a way of crossing the seven bridges of the town without crossing any bridge twice. He found that the problem could not be solved with geometry, algebra or arithmetic. Instead, he graphed the problem into 'something like a wiring diagram, a closed circuit of permitted possibilities' (16). The length of the bridges, for example, is not important. Instead, the problem must be imagined as a network. Consequently, he devised a 'branch of geometry' that 'deals with relations dependent on position alone and investigates the properties of position' (16). In 1847 this new geometry was given its modern moniker, 'topology' by Johan Benedict Listing.[9] Fletcher observes that 'To reject the immediate goal of measuring and quantifying indeed amounted to a revolution in thought' (18). Because now, rather than measuring the length, size or shape of things, the relations between points could be examined. The complex math notwithstanding, the core underlying idea is 'the fact that, despite appearances, although a place may display a changing shape...it still maintains a topologically invariant stability of form' (13-14). In terms of a form, for example, a torus can transform from a coffee cup into a ring doughnut without its surface being broken or cut in what amounts to a topological transformation that is 'continuous and stable' (14). Invariance therefore tracks a property, formalized in 'topology', that is unchanged whilst acknowledging that the context does change. [10] Hence 'invariance' in mathematics is precisely continuity defined *in relation to* transformation and not simply 'permanence'. Continuity in relation to transformation, in other words, is the defining feature of invariance.

From its formal beginnings in mathematics, invariance was translated into psychology where it retains the same fundamental meaning as a kind of macro-structure for cognitive organisation. As the theorist of visual perception, James E. Cutting (1986) observes in relation to human cognition, if Heraclitus thought the world was ever changing, and

[9] Fletcher, *The Topological Imagination* p.18; Johan Benedict Listing, 'Vorstudien zur Topologie' (Göttingen: Vandenhoeck und Ruprecht, 1847).
[10] James E. Cutting, *Perception with an Eye for Motion* (Cambridge: MIT Press, 1986), p.61.

Parmenides thought it ever constant, 'In truth it is some of both' (61). In cognitive and evolutionary thinking, as in mathematics, invariance describes the 'property of being unchanged by a transformation'.[11] Cognitive and evolutionary systems are firstly invariant in retaining aspects that are unchanged even as human cultures undergo transformations over thousands of years. We know, for example from a study by Charles Perreault (2012), that human culture evolves at approximately 50 times the speed of genetic change, and that genetics are deeply implicated in large parts of our perceptual and cognitive systems.[12] Consequently invariance describes the continuities in our cognition that persist *within* other forms of cultural, historical or environmental change that may be rapid and radical. Invariance secondly describes the way in which evolved cognitive mechanisms do identify aspects of our environment relevant to survival. In broad strokes then, 'the evolutionary systems that have moulded our perceptual systems and how the brain handles the information presented by these systems' persist through human history (Gärdenfors, p.1).

In perceptual psychology, 'invariance' retains its mathematical meaning of constancy under transformation, particularly in its modern usage. Cutting notes that the term has a long history although its modern connotation dates from the 1950s and specifically the work of psychologist James J. Gibson and his 'ecological' approach to visual perception.[13] Prior to Gibson, Hermann von Helmholtz (1878) for example 'promoted the idea of an active organism exploring the invariants of an object undergoing transformation caused by exploration' (Cutting, p.62). The term was used, as well, in Gestalt psychology. However here it tended to connote 'constancies without mathematical implication', i.e., without the

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[11] N. Pam M.S., "INVARIANCE," in *PsychologyDictionary.org*, May 11, 2013 <https://psychologydictionary.org/invariance/> [accessed June 10, 2021].
[12] See: Charles Perreault, 'The Pace of Cultural Evolution', *PLosONE*, 7.9 (2012): e45150 <https://doi:10.1371/journal.pone.0045150> [accessed June 2021]; Peter Gärdenfors, 'Primary Cognitive Categories are Determined by Their Invariances', *Frontiers in Psychology*, 11 (December 2020) <https://doi.org/10.3389/fpsyg.2020.584017> [Accessed June 2021].
[13] For example: James J. Gibson, *The Senses Considered as Perceptual Systems* (Oxford: Houghton Mifflin, 1966); — *The Ecological Approach to Visual Perception* (Hillsdale, NJ: Lawrence Erlbaum, 1979).

implication of constancy *in change* (62). Invariance connoting its present sense of constancy under transformation, was put forward by Gibson in *The Perception of the Visual World* (1950) and derives originally from his influential 'ecological' approach to visual perception. Gibson put forward invariance as 'a "non-change" that persists during a change' (Cutting, p.62). In turn, S. S. Stevens (1951) argued that the term is fundamental to 'all scientific endeavour'. Invariance was elaborated further in visual perception by Edwin G. Boring (1952) and by Gibson who continued to develop and use the term in his later work.[14] Cutting, writing in the 1980s, describes invariance in visual perception in fundamental terms: 'information about a rigid object's shape or about rigid relations among objects that does not change with the point of view, lighting, or other transformations' (12). That is, despite change in sensory information, perception identifies invariances. A concrete example helps solidify this idea.

In the recognition of objects and actions as distinct categories Gunnar Johansson (1964) describes a rigidity principle.[15] Johansson describes an early experiment with an analogue computer monitor.[16] He shows that when presented with 'geometrically changing projections of objects which move and/or change their shape' but 'carry no specific information about form and three-dimensional motion' the 'visual apparatus' nevertheless produces 'specific percepts' about three dimensionality and movement through space.

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[14] Cutting notes five assumptions behind the use of 'invariance' in the psychological literature up to 1986 (see his chapter 5); Cutting's study cites several figures in the progress of 'invariance' from mathematics into psychology: Edwin G. Boring, 'Visual Perception as Invariance' *Psychological Review* 59.2.(1952), 141-148; S.S Stevens, 'Mathematics, Measurement, and Psychophysics', in *Handbook of Experimental Psychology*, ed. by. S. Stevens (New York: Wiley, 1951), pp.1-49; — 'Measurement and Man' *Science* 127.3295 (Feb.1958) 383-389; Hermann. von Helmholtz, 'The facts of Perception', in *Selected writings of Hermann von Helmholtz*, ed. by R. Kahl (Middletown, Con.: Wesleyan University Press, 1971), pp.366-407; — 'The Origin and Meaning of Geometric Axioms II', in *Selected writings of Hermann von Helmholtz*, ed. by R. Kahl (Middletown, Con.: Wesleyan University Press, 1971), pp.360-365.

[15] Cited by Gärdenfors. See: Gunnar Johannsson, 'Perception of Motion and Changing Form: A Study of Visual Perception from Continuous Transformations of a Solid Angle of Light at the Eye' *Scandinavian Journal of Psychology*, 5.3 (1964), 181-208; — 'Visual Perception of Biological Motion and a Model for its Analysis' *Perceptual Psychophysics* 14. (1973), 201-211.

[16] Gunnar Johansson 'Visual Perception of Biological Motion and a Model for its Analysis'.

Johansson concludes that 'it is a principle of perceptual three-dimensionality which gives specificity to the percepts'.[17] The philosopher Peter Gärdenfors, in a review of the evidence around invariance, notes that: 'Whenever equal motions in a series of simultaneous proximal elements are detected, the result is a perception of rigidity' (4). In a 'classical' perception study that examined the perception of actions, Johansson attached lightbulbs to the joints of actors 'who were dressed in black and moved in a black room' (5). Subjects saw the moving light bulbs but nothing else. Subsequently they were able to correctly identify actions 'within a few hundred milliseconds' (5). In other words, the brain pays attention to the invariant relationship between the isolated points to infer three dimensionality and motion. It reduces the complexity of the scene to relate the sensory input to an inferred body moving through space, which is what we perceive.

The problem addressed by invariance in the psychology of perception, then, is just how cognitive systems go about constructing the perceptual world that we experience. Cognitive and evolutionary systems shape perception and information processing so that Kant's distinction between *das Ding as sich* and *das Ding für uns* holds true in cognitive science.[18] As Gärdenfors, a philosopher of cognition, observes, according to modern cognitive science 'we cannot know external reality but only how our minds construct the world' (1). Psychology of perception distinguishes between sensations and perceptions in 'trying to understand what happens to the sensory information in our brains' (1). Sensations refer to the subjective world of colours, patterns, tastes, smells and so on.[19] Such sensations have self-evident evolutionary value in that they let us know what 'is happening right now to our bodies' (1). We also receive signals about what is going on around us in the world: perceptions. The brain reduces the complexity of the sensory world to produce perception in

[17] Gunnar Johansson 'Visual Perception of Biological Motion and a Model for its Analysis'.
[18] As noted by Gärdenfors in his account. See: Immanuel Kant, *Prolegomena to Any Future Metaphysics* (Indiana: Bobbs-Merrill, 1950). 'The thing as such' and 'the thing for us' and 'the thing as we know it'.
[19] Often termed *qualia* in philosophy.

large part by identifying 'invariances that are evolutionarily relevant to the activities of the organism' in sensory signals (1). Invariance is an index, then, for aspects of the world that have been relevant in the evolution of an organism, and which consequently structure human perception. Rather than the brain attempting to make sense of a vast input of information — all the potentially available sensory information — instead it hones into those aspects of sensory data that 'persist during a change' (2). In other words, 'evolution has selected the invariances that are most salient for the activities of the organism' (2).

From its use in psychology and in cognitive evolution, invariance has been picked up by CE criticism. However, the dual emphasis on change and continuity that, from its mathematical roots and uses in psychology, is the defining feature of invariance, has not been fully examined in relation to critical practice. Alan Richardson in his cognitive historical approach speaks of invariance in his work on Romantic and modern sciences of mind. He highlights that human cognition persists so that, as an object of attention, it is relevant in both Romantic and modern time periods.[20] Yet as Richardson writes about 'stable and invariant aspects of human cognition and behavior' in the uses of facial expressions in literature, for example, he largely emphasizes the use of invariance as a foil for highlighting cultural *change*.[21] In the form of cognitive historicism he pursues in *The Neural Sublime,* Richardson argues that 'cultural and historical differences' emerge '*more* clearly and cleanly when set against what appear to be stable and invariant aspects of human cognition and behaviour'.[22] From a very different perspective on cognition and literature, literary Darwinist Joseph Carroll privileges the evolutionary idea of adaptation.[23] The underlying idea in Carroll's work on adaptation, which I go on to engage more closely later in this chapter, is that despite cultural change, relevant parts of human cognition remain the same as when they first

[20] Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010).
[21] Richardson, 'Facial Expression Theory from Romanticism to the Present', p.26. Emphasis mine.
[22] Richardson, *The Neural Sublime*, p.67. Ital original.
[23] Joseph Carroll, *Literary Darwinism.*

evolved during the Pleistocene. Where Richardson emphasizes the uses of invariance to highlight cultural change (i.e. against an 'invariant' or more slowly moving backdrop constituted by evolved cognition, more rapidly moving cultural structures should be placed into relief ) Carroll, particularly in earlier work, emphasises that the 'foundation' of culture is in the mind and that the focus of criticism should be on a 'biologically constrained set of cognitive and motivational characteristics' (viii). More strongly again, Carroll claims that 'adaptationist' critics such as himself, 'contend that human nature is both the source and subject matter of literature' (i). Despite coming at the problem of cognition and evolution in criticism from starkly different directions, then, both Richardson and Carroll de-emphasise, here at least, the continuity *under* transformation that from its mathematical roots and uses in psychology, is the most salient property of invariance.

The term is used by other critics who invoke evolved traits, both in cognitive approaches and those writing against cognitive criticism.[24] For example in his critique of 'literary Darwinism' Kramnick takes aim at a claim made by Carroll and Brian Boyd that there might be something like an 'innate' literary disposition, or an innate tendency to be interested in stories. Kramnick claims that if a literary disposition was 'innate' it would surely be 'invariant', or 'just as invariant' as literary Darwinists claim.[25] Boyd's (2012) response asks why 'because something is innate would it have to be invariant in its expression?' (404). He observes that genetic involvement does not mean genes will be expressed in uniform ways and refutes the criticism that literary Darwinism is overly simplified (404). Yet to both interlocutors *invariant* seems synonymous with *constant* or *unchanging.* Kramnick's (2012) rejoinder objects that he did not accuse literary Darwinism

[24] Here in particular in the correspondence between: Jonathan Kramnick, 'Against Literary Darwinism', *Critical Inquiry,* 37 (Winter 2011), 315-347; Brian Boyd, 'For Evocriticism: Minds Shape to be Reshaped', *Critical Inquiry,* 38.2 (Winter 2012), 394-404; and Kramnick again, 'Literary Studies and Science: A Reply to My Critics', 38.2. (Winter 2012), 431-460).
[25] Kramnick (2011).

of claiming 'that literature is invariant across the species' (442). Instead he refers to the invariance of the 'disposition' (not its cultural expression) and 'the relation between uniform mental structures and varied cultural expressions' (442). He is interested in whether it is possible to find 'universal rules beneath the diverse forms that literature and art take' (442). As I go on to contextualize below, diverse scholarship does invoke innate predispositions and evolved traits in relation to literature. In connoting continuity *under* transformation, however, invariance offers a helpful way of thinking about the interchange between cognition and literature.

As I will examine closely in relation to Wordsworth in particular, bringing continuity under transformation to critical reading allows precise interventions in existing critical problems. It allows me to differentiate an approach from existing cognitive readings of Wordsworth, as I will explain in the next section. However, I will first spend a moment here making the relationship between invariance and evolution more explicit. My aim here is twofold: to show that 'continuity under transformation' is also the focus of the most promising and recent modern approaches to evolution, cognition and culture; and to indicate a more precise relationship between my CE approach and the paradigm of evolutionary theory. It is not misleading to speak of a 'cognitive and evolutionary' approach to human cognition and behaviour that is grounded in an evolutionary paradigm. Nevertheless, it is significant for how criticism should be framed that CE science is in a nascent state.

It is not my place here to argue for or against evolutionary theory. Instead, I will put forward the precise way in which I understand how evolution should be considered paradigmatic in relation to CE criticism and the variety of the field. Although evolutionary theory is accepted by the scientific community as the best explanation yet for 'biological complexity and organisation', the realization of evolutionary theory in the study of human

cognition and behaviour is a relatively new development.[26] Consequently, a variety of fields and modes of enquiry make up the study of cognition and evolution and this diversity, in turn, translates into cognitive approaches to criticism. I will spend some time here on foundational concepts before examining how these ideas translate into various critical views.

If as Christopher Peterson and Harold C Barrett (2015) observe in their review of research into the evolution of cognition: 'Evolutionary theory is widely agreed to be the best explanation for biological complexity and organization yet conceived [...] the power of this theoretical approach has only in the last few decades been fully realized in explanations of human and nonhuman behavior' (1). The application of evolutionary thinking to seek explanations in 'cognitive abilities and human behavior' is still in an early stage of development with implications for the use of CE theory and evidence in criticism (1). Behind the debates around evolutionary accounts, there is nevertheless 'little doubt that the cognitive abilities of all species are products of the evolutionary process' (4). Cognitive abilities have evolved 'through descent with modification, shaped by the success or failure of their information-processing properties over evolutionary time' (4). Yet live questions concern 'how the mechanisms giving rise to a species' cognitive abilities have been shaped by the evolutionary process, how those mechanisms develop, and how they interact with the species' environment to produce the behaviors we observe' (4). The study of cognitive evolution is 'still in its infancy' with contemporary psychology under a century old, 'and evolutionary theory only slightly older than that'. Therefore, it is unsurprising that no 'standard toolkit of methods for studying the evolution of cognitive mechanisms' yet exists. Instead, 'a diverse assortment of approaches' is drawn 'from the many branches of the biological and behavioral sciences' (4).

[26] Christopher Peterson and Harold C Barrett, 'Evolution of Cognition' in *International Encyclopaedia of the Social and Behavioral Sciences* (Elsevier: Amsterdam, 2015).

Evolutionary accounts of cognitive abilities and human behaviour require 'explanations at several complementary (i.e., non mutually exclusive) causal levels'.[27] Two levels of explanation include the immediate cognitive mechanisms that inform human behaviour (proximate mechanisms) and the long evolutionary history that caused those mechanisms (ultimate or evolutionary explanations). Proximal modes of explanation include a focus on neurobiological, cellular and developmental histories for example. Ultimate modes concentrate on evolutionary history. They may be phylogenetic, concentrating on how 'descent with modification...has led a given organism to possess some traits and not others' or concentrate on the adaptiveness or function of a trait for a particular organism, analysed in terms of how a trait promotes 'survival and reproduction' (Peterson and Barrett, p.1). Research has moved from a close focus on one level of analysis at a time, to an approach incorporating 'multiple levels of causation' in its accounts of cognition and behaviour (1). In the latter mode, 'underlying proximate mechanisms' are seen to be 'shaped by evolution'(1). In turn, the interaction between evolutionary time and cognitive mechanisms 'might or might not produce adaptive behavior depending on the conditions under which [proximate mechanisms] develop and operate' (1). Increasing the complexity at which levels of explanation work, recent research recognises evolution at the level of culture in addition to inheritance by reproduction, presenting a picture of 'multiple levels of causation' (1). Anthropologist Mark Stanford, for example, in a recent review of cultural evolution, notes that early attempts 'based on the idea that evolutionary explanation applies only to inheritance by reproduction' are giving way to a significant amount of recent work suggesting that evolution also occurs at a cultural level. [28]

[27] Peterson and Barrett. See also: N. Tinbergen, *Curious Naturalists* (New York: Basic Books, 1958).
[28] For a recent overview: Mark Stanford, 'The Cultural Evolution of Human Nature', *Acta Biotheoretica*, 68 (2020), 275-85; For a clear example: Dan Sperber and L.A. Herschfeld, 'The Cognitive Foundations of Cultural Stability and Diversity', *Trends in Cognitive Sciences*, 8.1 (2004), 40-46.

Within the comparatively short intellectual history of evolutionary studies, and the even shorter history of the evolutionary study of cognition and behaviour, literary criticism that investigates cognition and evolution (broadly speaking 'cognitive criticism') has emerged as characterised by the same eclecticism of CE theory and evidence. In this context Alan Richardson observes that the field of cognitive criticism is characterised by 'tinkering'.[29] Similarly Lisa Zunshine observes that 'cognitive cultural studies' consists in 'various subfields' that 'remain fluid as a function of the opportunistic nature' of the endeavour, with 'its tendency to grow and change by complementing and enhancing various aspects of other disciplines'. [30] Alan Palmer, working on cognition and fiction, suggests that 'if these real-mind disciplines assist our study...then that is fine; if they do not, then there is no reason to use them'. [31] Being opportunistic leads to what Zunshine suggests is a type of *bricolage*, with critics often drawing on a variety of models and perspectives (4). Yet such an eclecticism also reflects the 'diverse assortment of approaches' that the study of cognition and evolution itself involves up to the present moment in the twenty-first century. The *bricolage* in cognitive criticism, then, should be seen as complicated by its relationship to the evolutionary paradigm; and guided in the end by the requirement of non-contradiction. The anthropologist Claude Levi-Strauss gives his famous account of *bricolage* in *The Savage Mind* (1962). Levi-Strauss differentiates the 'engineer' from the 'bricoleur'. [32] The 'engineer' subordinates tasks 'to the availability of raw materials and tools conceived and procured for the purpose of the project' (17). In contrast the 'bricoleur' makes do with 'whatever is at hand', with 'a set of tools and materials which is always finite and is also heterogeneous because what it contains bears no relation to the current project' (17). My point is that, in

[29] Alan Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010), p.xii.
[30] Lisa Zunshine, 'Introduction: What is Cognitive Cultural Studies?', in *Introduction to Cognitive Cultural Studies* ed.by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.1-34 (p.4).
[31] Alan Palmer, 'Storyworlds and Groups', in *Introduction to Cognitive Cultural* Studies, ed. by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.176-92 (p.176).
[32] Claude Levi-Strauss, *The Savage Mind* (Chicago: University of Chicago Press, 1966), p.17.

practice, cognitive criticism deploys elements from both the engineer and the bricoleur. Using what is 'at hand' from a diversity of evidence is a form of *bricolage* but being grounded in the evolutionary paradigm means that CE criticism does have a 'current project' against which explanations should indeed be engineered.

Topological invariance in mathematics translates into the psychology of perception, into the study of cognitive evolution and into cognitive criticism. In the context of a fragmentary CE field nevertheless grounded in a unifying theory of evolution, due to its precise indexing of 'continuity under transformation', invariance offers a powerful heuristic for cognitive literary criticism. Fletcher devotes his last book to what he terms the 'topological imagination', using invariance heuristically to re-imagine continuity in change in the humanities.[33] What strengthens the case for its heuristic value further is the state of the CE field. Rather than privileging either change (e.g., the ultimate value of culture and history) or permanence (e.g., the ultimate value of unchanging 'human nature') the critical focus should be on continuity *in* transformation. This focus draws on the most recent scholarship on the evolution of cognition in relation to culture and provides what Fletcher terms in his own discussion of change and continuity, a 'ground for thought' (178). The key practice of this thesis is to work back from CE science to the text; to contextualize mind and nature as they are represented in Wordsworth against CE theory. My approach therefore leverages differences between CE science (as I discuss in the 'Introduction') and literature to bring invariant features of human experience into focus yet, at the same time, it must acknowledge the eclecticism in scientific and critical work on cognition and evolution. In the following sections I differentiate my approach from extant cognitive approaches to Wordsworth and readings based on Romantic era science. The chapter examines how invariance as a heuristic allows critical intervention in Romantic criticism and in criticism of Wordsworth and

[33] Fletcher, *The Topological Imagination*.

demonstrates how invariance operates across scales and disciplines as a 'ground for thought'(178).

*II. Invariance and Paradigm Shifts*

In a re-edition of his article on the paradigmatic debt of Romantic sympathy to seventeenth century studies of the brain, George Rousseau observes that 'the body [...] told the truth about sensibility through its neurophysiological mechanism'.[34] Rousseau's argument traces a material history of Romantic sympathy to a paradigm shift in the seventeenth century limiting the soul to the brain.[35] Going forward in time to Darwin's *Origin of Species* (1859) and the subsequent development of a modern evolutionary theory over the last 160 years, cognitive and evolutionary thinking and its application by critics is similarly heir to changes of paradigm. Nancy Yousef (2013) in her study of Romantic sympathy, notes that the question of how Romantic era and modern terms relate is 'vexed'.[36] Yet the question of how Romantic terms such as *sympathy* and modern terms such as *empathy* relate belies how important evolved traits or invariances are that impact scientific and creative investigation across time. In concluding his famed study of scientific revolution, Thomas S. Kuhn (1962) raises an unsolved problem 'as old as science itself': 'What must the world be like in order that man may know it?'[37] The way in which science develops is possible in part because it must mesh with how the world is subject to scientific enquiry (192). Alongside Kuhn's account of science, the world must 'also possess quite special characteristics' for science to succeed and

[34] I am indebted to Gaston for drawing attention to this quote: Sean Gaston, 'The Impossibility of Sympathy', *The Eighteenth Century*, 51.1 (Spring/Summer 2010), 129-152.
[35] George Rousseau, 'Nerves, Spirits, and Fibres: Towards Defining the Origins of Sensibility' *Studies in the Eighteenth Century III* (Toronto: University of Toronto Press, 2016), pp.137-158.
[36] Nancy Yousef, *Romantic Intimacy* (Sanford: Stanford University Press, 2013), p. 8.
[37] Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962), p. 192.

to form a kind of consensus 'unattainable in other fields' (192). This observation is suggestive for cognitive criticism because here, too, nature is brought into new proximity with narrative. In this sense nature and not only narratives *about* nature are supposed to alter the terms on which we understand literary ideas and histories. In the Literature and Science field the problem takes the form of how the objects of scientific research that are themselves non-literary may be brought into critical discourse at all, 'beyond the horizon of historical representation' even as their real-world impact creates what Markley (2018) terms 'metabolic rifts' that shape discourse.[38] In CE criticism, scientific paradigms shift not only because of how science works, but also because the world is a certain way. In turn new perspectives on nature impact or deflect critical narrative.

Rousseau traces a paradigm shift stemming from seventeenth century works on the brain to eighteenth century Romantic sympathy. He highlights Thomas Willis' *Pathology of The Brain* (translated into English in 1683) and Locke's famous *Essay Concerning Human Understanding* (1689). Rousseau frames these works as paradigmatic in the Kuhnian sense, arguing that as books they enabled and informed eighteenth century notions of sensibility. [39] Kuhn 'reserved the term "paradigm" for unprecedented works demonstrating open-ended theories and deflection in the highest possible degree' (Rousseau, p.138). Locke's *Essay* 'deflected' 'all sorts of men' and 'established itself as a scientific textbook' leading towards a 'new science' of man (Rousseau, p.138). Willis' impact is more specific in Rousseau's account. Willis published in the 1660s and 1670s and was 'the first scientist clearly and loudly to posit that the seat of the soul is strictly limited to the brain, nowhere else' (Rousseau, p.144). Locating the soul in the brain deflected future studies to attend to physiological questions. The brain 'alone depends upon the nerves for all its functions' (145).

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[38] Robert Markley, 'As If: The Alternative Histories of Literature and Science', *Configurations* 26 (Summer 2018) 260-61 (263).
[39] George Rousseau, 'Nerves, Spirits, and Fibres: Towards Defining the Origins of Sensibility' *Studies in the Eighteenth Century III* (Toronto: University of Toronto Press, 2016), pp.137-158. pp.141-2.

Consequently the 'nerves, and their subsidiaries, fibres and animal spirits, could not be accounted the basis of knowledge, and consequently of human behaviour, until the seat of the soul was limited (not barely moved) to the brain' (145). Limiting the soul to the brain meant that 'scientists could debate precisely how the nerves carry out its voluntary and involuntary intentions, and [...] the relation between nerves and other systems' (145). Rousseau invokes Harold Bloom's (1961) definition of Romanticism as the moment when 'the quest' is internalised (157).[40] Combined with the paradigmatic debt of sensibility to seventeenth century brain science, we 'see why the intricate process of internalisation itself required a specific neurological legacy' (157). Rousseau finally suggests that 'whether in the novel or elsewhere in imaginative literature [...] no novel of sensibility could appear until a revolution in knowledge concerning the brain, and consequently its slaves, the nerves, had occurred' (153).

Romantic sympathy is heir to a specific neurological legacy in the seventeenth century, as Rousseau demonstrates, but cognitive and evolutionary thinking is heir to a paradigm of its own that was unavailable in the eighteenth century. Cognitive criticism does not in itself offer a paradigm but many of its important strands do connect back to evolution, which certainly is paradigmatic. Modern science in broad terms understands that the 'mind is what the brain does' and that through 'differential survival of replicating entities', the brain is central to the evolution of cognition, even if evolution may take place at multiple levels, including culture.[41] Clearly a century and a half of enormously complex evolutionary theory has been generated since Darwin. Critics such as Joseph Carroll, Brian Boyd, Jonathan Gottschall and biologists/sociobiologists E.O Wilson, and David Sloan Wilson argue that evolutionary science transforms the study of literature because it offers a paradigm through

[40] See for example: Harold Bloom, *The Visionary Company: A Reading of English Romantic Poetry* (London: Faber and Faber, 1962).
[41] Richard Dawkins, *The Selfish* Gene (Oxford: Oxford University Press, 1989); Quoted in a paper by Paul Hernandi, 'Literature and Evolution' [].

which to understand human nature.[42] A large number of critics now work within this expanding space but although many or perhaps all share a commitment to science, there are many positions on how cognition, evolution and literature should be brought into relation. The minimum requirement really for CE criticism is that claims do not contradict the robust science encoded in the evolutionary paradigm. That paradigm now extends from biology into the science of cognition and behaviour and increasingly offers explanations within cultural studies.

One work seminal to the use of evolved cognition in the study of culture is Jerome Barkow, Leda Cosmides, and John Tooby's *The Adapted Mind* (1996).[43] Barkow et al., argue that the social sciences and, by extension, the humanities have been subject to the 'Standard Social Science Model' (SSM). The authors identify this model although it is more helpfully a *mode* of explanation implicit in most social science, built on the assumption that the mind enables culture, but does not shape it. The SSM elides a role for cognition in how cultures develop, or how they might be interpreted, insisting that the 'sociocultural level is a distinct, autonomous, and self-caused realm' with the mind reduced to enabling culture, but not shaping it (28). The authors' observation is not accusatory as such, in that scholars working in this mode have proceeded *as if* the mind was largely inconsequential (*as if* it is a *tabula rasa*) and have not necessarily put forward this position actively. By contrast Barkow et al., argue that 'culture is generated in rich and intricate ways by information-processing mechanisms situated in human minds. These mechanisms are, in turn, the elaborately sculpted product of evolutionary process' (3). Consequently, 'to understand the relationship

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[42] Jerome Barkow, Leda Cosmides and John Tooby, *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (Oxford: Oxford University Press, 1996); E.O. Wilson, *Consilience: The Unity of Knowledge* (New York: Vintage, 1998). See: *The Literary Animal: Evolution and the Nature of Narrative*, ed. by Jonathan Gottschall and David Sloan Wilson (Evanston, IL: Northwestern University Press, 2005); Jonathan Gottschall, *The Rape of Troy: Evolution, Violence, and the World of Honour* (Cambridge: Cambridge University Press, 2008).

[43] Jerome Barkow, Leda Cosmides, and John Tooby.

between biology and culture one must first understand the architecture of our evolved psychology' (3). Two claims are that the mind is a product of evolution and that its processes enable and constrain expression in ways that are significant for how that expression is interpreted.

Charles Darwin's prediction that disparate biological sciences would unify under one explanatory framework when applied to humankind has, up until recently, remained 'outside the broader umbrella of the biological sciences'.[44] Yet that has not stopped evolutionary theory from deflecting many strands of enquiry already. The evolutionary study of cognition and behaviour may be in its 'pre-history' in a Kuhnian sense, but it still relates to a firm evolutionary paradigm, namely that 'information-processing mechanisms' are 'situated in human minds' and are 'the elaborate products of evolutionary processes' (Barkow, Cosmides, and Tooby, p.3). This early statement represents a broadly accepted position that has deflected a diverse range of scholarship in the humanities and social science. For example, cognitive and evolutionary anthropology and the anthropology of mind look to identify the cognitive foundations for culture and the role of cognition in cultural change.[45] A good example is in the search for cognitive accounts of religious explananda. For example, the anthropologist Harvey Whitehouse uses ethnographic techniques and large-scale projects to show how aspects of religion such as ritual and belief, interact with cognition to shape how beliefs and behaviours are structured and transmitted across time.[46] In practice, agreeing that 'the architecture of our evolved psychology' interacts with 'the relationship between biology

[44] Mark Stanford, 'The Cultural Evolution of Human Nature', *Acta Biotheoretica*, 68 (2020), 275-85 (p.283).
[45] Such as the Institute of Cognitive and Evolutionary Anthropology (ICEA) at Oxford University, or the interdisciplinary Centre for the Anthropology and Mind within ICEA.
[46] See for example: Harvey Whitehouse, *Modes of Religiosity: A Cognitive Theory of Religious Transmission* (Oxford: Altamira Press, 2004); Harvey Whitehouse, Robert N. McCauley and Pascal Boyer, *Mind and Religion: Psychological and Cognitive Foundations of Religion* (Oxford: Altamira Press, 2005); Harvey Whitehouse, *The Debated Mind: Evolutionary Psychology versus Ethnography* (Abingdon: Routledge, 2020).

and culture', leaves room for a range of approaches. However, cognitivist approaches must nevertheless meet the problem of relating evolved cognition to literary criticism.

Relating evolved cognition to literature must go beyond drawing analogies between biological and cultural processes to inform how culture works. The theory of evolution deflects thinking about the interlinking of biology, cognition and culture not because it provides a useful analogy *for culture*, but because it explains (or offers to explain) phenomena *in culture* through a shared set of ideas. For instance, Brian Baker (2008) criticises Carroll's literary Darwinism for drawing on biology as a source of analogies for the study of literature. Baker refers to Carroll's critique of a mode of thinking in the humanities that ignores or is hostile to evolutionary theory, equivalent to the SSM. Carroll puts forward a *realist* approach according to Baker, taking evolution and cognition to have real-world impacts on reading literature. Baker's point is that this might make sense in relation to biology, but not in relation to other scientific disciplines such as physics. For example, quantum mechanics is often said to reveal that a stable and predictable world is illusory. Baker thus presents the use of biology in criticism, as opposed to another branch of science, as a choice of convenience. However, apart from the fact that biological science itself suggests that the *real* world is illusory in some respects, such as the stability of species (see for example: Kroeber, 1994; Timothy Morton, 2010), what is at issue in CE reading is the impact of current paradigmatic explanations on interpretation, not the stability or reality of science or the world it describes.[47]

Still, even if the value of relating literature to a scientific paradigm is accepted, important questions remain unanswered about *how* scientific explanations should form part of

[47] David Sloan Wilson, *Darwin's Cathedral: Evolution, Religion and the Nature of Society* (Chicago: Chicago University Press 2002). The same is at issue in social science. For example, in the study of cultural evolution, beliefs and practices inherent to religion may function to promote group fitness. Yet this does not imply that religion is somehow *about* evolution, only that an evolutionary paradigm helps understand specific aspects of religion. 2002).

criticism. Some theorists, including literary Darwinist Carroll, advocate at times for a highly structured relation between criticism and evolution, on which literary discourse would eventually be replaced by the sufficient explanations of science. They argue for E.O. Wilson's (1998) vertical integration; the chaining of analytical levels into a coherent picture brought together through a shared explanatory framework.[48] In Kramnick's original (2011) article 'against' literary Darwinism he criticizes such approaches, regarding them as overly neat or invested in a too-narrowly conceived set of evidence. He suggests a 'less tidy' account for the role of cognition in literary criticism.[49] His follow-up (2012) to the responses from literary Darwinist critics that his work engendered, offers helpful clarification about the relations of cognition, evolution and literary study. At the 'tidy' end, to borrow Kramnick's term, are critics including Carroll, Boyd and Gottschall. Gottschall, for example, argues that literary criticism should increasingly adopt scientific methods of investigation and validation (Kramnick, 2011, p.364). On this view cognitive criticism is itself in a stage of prehistory as a science that is yet to find its feet. In turn, Carroll's observation that critics such as himself, 'contend that human nature is both the source and subject matter of literature' stops short of calling for criticism to be a work of science but does relate literature to adaptation in ways that are difficult to justify based on their assumptions.[50]

Carroll argues that evolution offers '...for the first time, a situation in which the intuitive understanding of literary writers can converge effectively with the findings of empirical psychology' (124). He states boldly that: 'In all the millennia preceding [the adaptationist approach] the best psychological insight available to educated people was the intuitive understanding of poets, novelists, and playwrights'.[51] The aim of such criticism

[48] Wilson, E.O., *Consilience: The Unity of Knowledge* (New York: Vintage, 1998).
[49] Respectively: Brian Baker, 'Evolution, Literary History, and Science Fiction', *Literature and Science: Essays and Studies* (D.S Brewer, 2008); Jonathan Kramnick, 'Against Literary Darwinism', *Critical Inquiry,* 37 (Winter 2011), 315-347.
[50] Carroll, *Literary Darwinism,* p.i.
[51] Carroll, *Literary Darwinism,* p.124.

would be to align the 'psychological insight' of historical writers with modern science. Yet there is little reason to think that writers should have special access to correct intuitions about evolutionary or cognitive processes.[52] The idea of evolution seems to be strongly counterintuitive to a large extent and much of what the brain does is hidden from conscious awareness. Both Gillian Beer (2000) and George Levine (1992) argue that scientific thinking, and particularly evolution, overturns rather than reinforces common assumptions, as Baker notes in his own criticism of Carroll.[53] Evidence in developmental psychology also suggests that people intuitively understand nature in a way that makes evolution hard to learn.[54] Even if literature is about evolution some or all of the time, it is hard to see how being about evolution relates to its literary character *as literature*. For example, the ambiguous forms in 'Resolution and Independence' likely engage cognitive mechanisms that anthropomorphize, predict behaviour and theorize about mentality, as I will examine, but those traits *in themselves* tell us little about how the poem conveys the poet's attitude to layered geological and political history, or of sympathetic understanding between men, both essential to understanding this poem. Kramnick also picks up an observation made by Paul Bloom (2012) that the scientific language of cognitive psychology is mis-matched to the coarse grained and open-ended work of interpreting texts.[55] Rather this encounter is more precisely para-cognitive' to borrow a term from Yousef; always more than reductive explanations (17). How then should we relate evolved cognition to criticism?

Using evidence either from evolution or cognition does not require commitment to consilience or even to a fixed idea of how research disciplines should relate. It may well be,

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[52] Kramnick, p.346; Baker, p.137.
[53] Baker, p.137; See: Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction,* 2nd edn (Cambridge: Cambridge University Press, 2000); George Levine, *Darwin and the Novelists: Patterns of Science in Victorian Fiction* (Chicago, University of Chicago Press, 1992).
[54] For example: E. Margaret Evans, 'The Emergence of Beliefs About the Origins of Species in School-Age Children', *Merrill-Palmer Quarterly*, 46.2 (2000), 221-254.
[55] Kramnick (2012), p.450; Paul Bloom, 'Who Cares about the Evolution of Stories?', *Critical Inquiry*, 38.2 (Winter 2012), 388-393.

and perhaps few would disagree, that the world itself is 'an unbroken chain of material causation' as Carroll paraphrases Wilson's view, but this does not mean that human knowledge must be similarly structured.[56] To say that it must is, as Kramnick points out, to conflate epistemology with ontology, 'our system of understanding the world with the composition of the world itself' (459). In one sense, the 'interdisciplinary links between one field of study and another go on precisely because of the failure of consilience, because there is no unity of knowledge across the diversity of the world' (460). It is self-evident that knowledge is diverse and structured in diverse ways, reflecting the limits of scientific technique, for example. Furthermore, even if relationships must be drawn between disciplines, they need not be vertical, but could for example be horizontal depending 'on the nature of the question asked' or develop in some combination (450). A non-exclusive option is to focus on the disciplinary coherence or makeup of literary criticism itself in relation to the evolutionary field. Nancy Easterlin's (2012) study, for example, includes reference to 'complementary subdisciplines that have too often seemed like competing domains' including narratology, ecocriticism, cognitivism and feminist theory, suggesting the 'biocultural' field helps highlight complementarities within literary criticism.[57] In practice studies are often highly ambiguous about how science and literature should relate, even as they go about drawing them into a critical narrative. Richardson, for example, elaborates on the concept of cognitive historicism he originates with Francis Steen.[58] At times the critic is circumspect about the ultimate validity of scientific evidence for literary studies and at others clear that science offers unique authority. The relationship between the values of scientific

[56] Joseph Carroll, *Reading Human Nature* (New York: SUNY Press, 2011), p.5.
[57] Robert Storey, 'Review: Nancy Easterlin. *A Biocultural Approach to Literary Theory and Interpretation*, Baltimore: The John Hopkins UP, 2012', *Style* 47.3.(2013), 405-407; Nancy Easterlin, *A Biocultural Approach to Literary Theory and Interpretation* (Baltimore: Johns Hopkins, 2012).
[58] Alan Richardson and Francis Steen, 'Literature and the Cognitive Revolution: An Introduction' *Poetics Today*, 23 (2002), 1-8.

and literary evidence when used together in his work remains unresolved, although he certainly draws many links between them.

Mark J. Bruhn's (2011) review of cognitive poetics notes that Richardson himself now distinguishes between 'interdisciplinarity' and 'interdiscursivity'.[59] Interdiscursivity is a form of 'tinkering' (and a kind of *bricolage*) that involves 'reading across disciplinary boundaries' and 'incorporating elements of another disciplines vocabulary, without placing one's home disciplinary perspective into sustained [...] dialogue with the rival perspective of colleagues' in different areas, and with differing approaches (406). On the other hand interdisciplinarity is a much harder level of dialogue (more akin to Levi-Strauss' *engineering*) with 'all this and more' (in Bruhn's words) including collaboration by actual researchers across disciplines (406). As Bruhn observes, 'such dialogue is not unprecedented [...] just comparatively rare (406). Steven Meyer (2018) and J.A Labinger's (2017) observations for Literature and Science are just as salient for CE: collaboration between literary scholars and scientists is rare and in part this because it is simply hard to do.[60] It is difficult to work across disciplines and it is difficult to organize and fund interdisciplinary research. Bruhn traces several alternatives 'for the theory and practice' of an envisaged 'interdiscipline' between cognitive science and poetics, ultimately remaining cautious that 'all the fundamental questions [even now] remain open and contested' (407). These questions are interesting and salient to any project relating cognition to culture. However, their resolution is also not necessary for us to work with evidence drawn from cognitive and evolutionary science. We should instead ask specific questions about how evolved cognition relates to Romantic

[59] Mark J. Bruhn, 'Exchange Values: Poetics and Cognitive Science', *Poetics Today* 32.3 (2011) 404-460 (p. 406).
[60] Steven Meyer, 'Introduction', in *The Cambridge Companion to Literature and Science* (Cambridge, Cambridge University Press, 2018), p. 8; Jay A. Labinger, 'Where are the Scientists in Literature and Science?', *Journal of Literature and Science*, 10.1. (2017), 65-69 (65).

notions and to the ways Wordsworth acknowledges and exploits his own sense of automaticity.

*III. Romantic Sympathy*

When we come to a Romantic poet recognised for intense imaginative encounters both with himself and with strangers, the question of how evolved cognitive mechanisms should be related to literary reading take on concrete formulations. Wordsworth calls upon the 'senseless rocks' in *The Prelude* (1805.III.76) and they are said to speak under 'the strong creative power | Of human passion' (78-79). In encounters with strangers and strange forms, he repeatedly comes across ambiguous or indeterminate agency. Hills 'grow larger in the darkness', (*The Pedlar.*MS.E.124-25). In the boat stealing episode from the 1799 *Prelude* the young poet is pursued by a 'huge cliff' that 'With measured motion, like a living thing/ Strode after me' (1799.I.112-4). He says of the Pedlar in *The Ruined Cottage* (in part a proxy for his own experiences) that he 'gave a moral life' even 'to the loose stones that cover the highway' (MS.B.81-82). Repeatedly the 'mute insensate things' of nature nevertheless feel and speak. [61] We would in part expect there to be automaticity in the poet's encounters, relating him to the Romantic notions of sympathy current at this time.[62] Yet a sense of automaticity must also imply for us some specific cognitive processes indexed by modern science and which Romantic notions and models do not yet index. We know such processes should be invariant, relatively constant across human minds, across time, space and cultural difference.

[61] William Wordsworth, 'Three Years She Grew in Sun and Shower', in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* (London: Norton, 2014), pp.205-207 (l.18).
[62] 'Three Years She Grew in Sun and Shower'.

Wordsworth himself of course points to universal features of human minds and the relations between mind and world; the way in which the poet uses and subverts the scientific thinking of his time is inherent to his art as many critics observe.[63] In the next chapter I will expand on how Wordsworth imagines mind and nature. For example, in the 'Preface' to *Lyrical Ballads,* he imagines 'certain inherent indestructible qualities' (p.73) in the mind, where the mind in turn is subject to 'certain powers in the great and permanent objects that act upon it, which are equally inherent and indestructible' (p.73). Wordsworth is of course also a poet alive to the power of hidden aspects of mind in relation to nature and to the science of his time. Yet pointing to evolved cognitive processes as part of how a poem unfolds is not in itself to identify something unique in Wordsworth, even if parallels may indeed be drawn between his view of the mind and the models revealed by modern science. After all, these processes are supposedly invariant across many different minds and many different encounters, not specific to any individual. They are not in themselves a marker of uniqueness. Similarly, we cannot take Wordsworth to be a reliable guide to his own mind. In *The Prelude* he famously asks how to 'trace the history, where seek | The origin' of what he has felt (1805.II.365-66). He attempts to trace the origins of his creative imagination to the 'blind cavern' as the 'very place of birth' (1805.XIII, 173-4). Caverns, rivers and streams repeatedly and famously gesture towards a search for origins in his work. He traces origins both in individual instances where hidden forces inform a moment; across his lifetime, focusing on childhood, adolescence and memory; and across larger segments of time to include, in some moments, all of an imagined history. He says for example, that he will use 'best conjectures' (1805.II.238) to trace, 'The progress of our being' (1805.II.239) even though thoughts 'Hath no beginning' (1805.II.236). He seeks 'Not only general habits and

[63] The search for origins is of course a key Romantic idea. Paul Fry for example notes that Romantic criticism 'has singled out the search for origins as an important, even determining, aspect of Romanticism': — 'The Absent Dead: Wordsworth, Byron, and the Epitaph', *Studies in Romanticism*, 17.4 (1978), 413–433. (pp. 415-18).

desires, | But each most obvious and particular thought' (1805.II.263-64). In the 'Preface' to *Lyrical Ballads* he locates the poet as 'the rock and defence of human nature' binding together 'by passion and knowledge the vast empire of human society, as it is spread over the whole earth, and over all time' (p.80). Wordsworth's tracing of antecedence does at times parallel modern thinking. For example, the 'infant babe' passage traces the development of a child in a strikingly modern way.[64] Wordsworth's treatment of childhood has of course been read through developmental psychology as well as through psychoanalytic eyes.[65] Yet when it comes to 'each most obvious and particular thought' (1805.I.236) we know, or strongly suspect, that introspection is at best an unreliable and at worst a wholly misleading way to the cognitive process that constrain perception.[66]

So how *should* the evolution of cognition impact a reading of Wordsworth? In responding to those critics of his original article 'against' Darwinist positions, Kramnick suggests that 'Rather than attending to what might be hidden [...] we might stick closer to the surface features' of poetry 'and simply ask how minds encounter or create such artfully put together things' (456). This position is, as Kramnick observes, already manifested in the work of cognitive critics, such as Brian Boyd. However, questions about how to relate readings to Romantic notions and to the particular ways Wordsworth acknowledges and exploits his own sense of automaticity in his work remain active. I point to evolved cognition in relation to Wordsworth's poetry and demonstrate how acknowledging the specific constraints that invariance places on perception, allows intervention in existing critical debates. In this section I locate my approach, then, in relation to Romantic notions of sympathy.

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[64] Nancy Easterlin, 'Psychoanalysis and the "Discipline of Love"', *Philosophy and Literature*, 24.2 (2000), 261-279 (p.274); Scott Harshbarger, 'Intimations of Neoteny: Play and God in Wordsworth's *1799* Prelude, *Philosophy and Literature*, 34.1 (2010), 112-30 (p.113).

[65] For a clear example see: Alan Richardson, 'Wordsworth at the Crossroads: "Spots of Time" in the "Two-Part Prelude"', *The Wordsworth Circle*, 19.1 (Winter 1988), 15-20 (p.16).

[66] See for example: Mark J. Bruhn, 'Romanticism and the Cognitive Science of Imagination', *Studies in Romanticism* 48.4. (Winter 2009), pp, 543-564. (p. 546-47); See also: 'Mind Out of Time: Wordsworth and Neurophenomenology', *European Romantic Review* 24.4 (2013), 421-36.

Sean Gaston (2010) observes in his helpful analysis of sympathy in the eighteenth century: 'Whether celebrated or charted by its political, economic, and social failings, since at least the 1940s it has been taken for granted in eighteenth-century studies that "sympathy," the ability to be affected by or to enter into the feelings of others, is the concept *par excellence* of the eighteenth century'. [67] Gaston observes that Walter Jackson Bate (1946) terms the period the 'age of feeling' and Northrop Frye (1956) the 'age of sensibility'. More recently G. J Barker-Benfield (1992) suggests 'the culture of sensibility' (129).[68] Despite this attention, 'a meta-discourse of sympathy still eludes us' (146). Nancy Yousef (2013) notes that: 'Among the most important terms in eighteenth-century British ethics, "sympathy" is at once ubiquitous and conceptually unstable'.[69] She observes that 'sympathy' is unstable both over periods of time and the individual works of writers (4). Gaston suggests that 'From Hutcheson in the 1720s to Wordsworth in the 1790s, there is an incessant call for sympathy to be at the heart of morality and an unending confession of the insufficiency of sympathy' (145). He notes that a 'continual need to imagine, idealize, and describe what is lacking suggests that we need to re-examine the eighteenth century as a century in *search* of sympathy' (145-6, emphasis original).

There are clear parallels between the partially 'instantaneous' mechanism of 'sympathy' in Hume, for example, and automatic and non-conscious cognition in cognitive science. In *A Treatise on Human Nature* (1740) Hume writes: 'No quality of human nature is more remarkable, both in itself and its consequences, than that propensity we have to sympathize with others, and to receive by communication their inclinations and sentiments,

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[67] Sean Gaston, 'The Impossibility of Sympathy', *The Eighteenth Century*, 51.1 (Spring/Summer 2010), 129-152 (p.129). Gaston notes the prevalent view that the Romantic period was an 'age of feeling' in Walter Jackson Bate's (1946) words. Northrop Frye 'introduced his influential notion of the "age of sensibility"' in the 1950s, while G.J. Barker-Benfield has talked of 'the culture of sensibility' as Gaston notes.

[68] See: Walter Jackson Bate, *From Classic to Romantic: Premises of Taste in Eighteenth Century England* (New York: Harvard, 1946); 129-59; Northrop Frye, 'Towards Defining an Age of Sensitivity', ELH 23. (1956), 144-152; G. J. Barker-Benfield, *The Culture of Sensibility: Sex and Society in Eighteenth-Century Britain* (Chicago: University of Chicago Press, 1992).

[69] Nancy Yousef, *Romantic Intimacy* (Stanford: Stanford University Press, 2013), p.4.

however different from, or even contrary to our own'.[70] Hayles observes in her theorizing on cognition, a 'growing awareness that consciousness is not the whole of cognition, and that nonconscious cognition is especially important in environments rich in complex information stimuli' (52). Our conscious awareness in the act of encounter depends on cognitive processes to which it has little or no access: 'consciousness *requires* nonconscious processing of information and could not function effectively without it' (56, emphasis original). Empathy offers a good example of such automaticity. Simon Baron Cohen (2003) for example describes a condition of 'hyperempathy' where people may automatically 'empathize so strongly with others that they experience the same physical feelings'.[71] Hyperempaths may possess an extreme or unmodulated mechanism present much more widely in the population (Baron Cohen, p.171). The psychology of empathy recognises that a significant aspect is automatic or affective.[72] Hume writes that the minds of men are 'mirrors to one another' in the automatic 'propensity' to sympathise with others. Neurological experiments on 'mirror neurons' suggest that the brain fires special neurons in a completely non-conscious and automatic way when we observe the actions of another. We *mirror* those around us to such an extent that the same cells fire in a person observing movement as the person moving. Marco Iacoboni's (2009) neuroscientific work on mirror neurons describes cells 'with motor properties in premotor and posterior parietal cortex that fire not only during action execution, but also while observing somebody else performing the same or a similar

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[70] David Hume, *A Treatise of Human Nature: Being an Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects 1740* (The Floating Press, 2009), p.490.
[71] Simon Baron Cohen, *The Essential Difference: Men, Women and the Extreme Male Brain* (London: Allen Lane, 2003), p.171.
[72] Simone G. Shamay-Tsoory, 'Empathic Processing: It's Cognitive and Affective Dimensions and Neuroanatomical Basis' in *The Social Neuroscience of Empathy* ed.by J. Decety and W. Ickes (Cambridge, Mass: MIT Press, 2009), pp.216-32; Tim Bayne, 'Empathy', in *The Oxford Companion to Consciousness*, ed. by Tim Bayne, Axel Cleeremans, and Patrick Wilken (Oxford: Oxford University Press, 2010), Oxford Reference, <https://www-oxfordreference com.ezproxy.lancs.ac.uk/view/10.1093/acref/9780198569510.001.0001/acref-9780198569510-e-125> [Accessed November 2020].

action'.[73] Evidence supports the notion that cognition proceeds automatically. For example, a recent (2021) piece of research shows that *face pareidolia* or the perception of illusory faces in objects, shares neural mechanisms with the processing of human faces. Not only do neural mechanisms automatically attend to faces and give more attention to emoting faces, but the same automaticity is at work when perceiving faces that are illusory.[74]

Hume talks of 'something like a physiology of affect' as Yousef observes (Yousef, p.12). When Hume speaks of how 'the blood flows with a new tide; the heart is elevated' in the act of sympathising there is a clear parallel between such a Romantic tendency to value an embodied experience and to express sympathy in terms of physical and automatic processes and modern CE thinking (Yousef, p.12). However, there are a variety of ways in which a parallel could be drawn. A cognitive historical (following Richardson) approach takes a further step, drawing a connection between Romantic idea, modern terminology and the practice in an individual Romantic text. For example, Richardson draws attention to the 'beating mind' (*Prelude*.1799. I.13-16: 'When all the ground was dark, and the huge clouds | Were edged with twinkling stars, to bed we went | With weary joints and with a beating mind') in Wordsworth and Romantic brain science. The drawing of connections between Romantic science and a text goes back at least to H.W. Piper's *The Active Universe* (1962).[75] Richardson engages a large range of Romantic era thinkers on brain science starting with Piper's own account, connecting streams of physiological thought to 'tendencies' in Wordsworth's poetry.[76] For example, he observes that Piper's study found convergences between Wordsworth and the 'physiological psychology of Cabanis' that Wordsworth drew

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[73] Marco Iacoboni, 'Imitation, empathy, and mirror neurons', *Annual Review of Psychology* 60 (2009), 653-670. (p.659).
[74] David Alias, Yiben Xu, Susan G. Wardle and Jessica Taubert, 'A Shared Mechanism for Facial Expression in Human Facial Expression and Face Pareidolia', *Proc. R. Soc. B*, 288 (July 2021), 20210966. https://doi.org/10.1098/rspb.2021.0966
[75] H.W. Piper, *The Active Universe: Pantheism and the Concept of Imagination in the English Romantic Poets* (University of London: Athalone Press, 1962).
[76] Alan Richardson, *British Romanticism and the Science of the Mind* (Cambridge: Cambridge University Press, 2005).

inspiration from Erasmus Darwin's *Zoonomia* with roots in Hartleyan physiological psychology, particularly for *Lyrical Ballads*; that the poet drew on the 'physiological effects of emotion' in Priestley's *Disquisition Relating to Matter and Spirit* (1777), a book 'Wordsworth probably read' (67). Having drawn such connections, Richardson argues for a consequent 'biological register' in Wordsworth (69). This register indexes both historical antecedents but also modern science. For example, the poet's interest in childhood development and the 'cognitive unfolding that confounds distinctions between reason and emotion and that places the infant in a world of passionate social interaction from the moment of birth [...] looks as much forward to recent cognitive neuroscience as backward to analytic philosophy' (67). Richardson notes that a 'genuine poetic sensibility for Wordsworth is one that continues to register the permeation of thought with feeling and remains in touch with the sensational, bodily and emotive origins of mind' (71). The 'biological register' Richardson traces then is drawn from connections to Romantic science and modern science. In particular, he focuses on how language engages cognition in the field of cognitive semantics, moving through an impressive range of thinkers including Mark Johnson, Mark Turner and George Lakoff. [77] Richardson's approach relates Romantic science, Wordsworth and cognitive science as parallels. Yet doing so begs the question as to how they *are* in fact related, other than being somehow proximate. Richardson cites Wordsworth's own poetics to argue that a comparison with cognitive science 'can add...a better guess at how "basic" features of the environment and "elements of language" might have been linked in Wordsworth's thought, a link that seems to demand some notion of a universal cognitive apparatus, organized according to the "primary laws of our nature" and constituting the

[77] See for example: George Lakoff, *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind* (Chicago: University of Chicago Press, 1987); Mark Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason* (Chicago, University of Chicago Press, 1987); Mark Turner, *The Literary Mind* (New York: Oxford University Press, 1996); — *Reading Minds: The Study of English in the Age of Cognitive Science* (Princeton: Princeton University Press, 1991).

"universal intellectual property of man"' (90). Yet at the same he rejects any sense in which Wordsworth *anticipated* modern thinking, consequently limiting his insight to 'sharing some analogous presuppositions, aims, and attitudes' (90). Wordsworth's thinking is of course 'anything but systematic' (90). Hence although 'the parallels' with contemporary thinkers suggest 'that it is not anachronistic to reconstruct Wordsworth's poetic and linguistic thought along neurophysiological lines' it is nevertheless true that 'a cognitive Wordsworth still depends on making tentative links among a number of detached passages scattered throughout the poetry and prose' (90). Limited 'points of contact' according to Richardson do 'deserve emphasis, both for the greater consistency they allow one to see in Wordsworth's views of language and poetry, and in helping to elucidate neglected aspects of writing that place him among the "more than materialists" of his day' (91).

Outside of cognitive historicism, of which the above is an example, other critics are more direct in applying an evolved trait to aspects of Romantic sympathy. David Miall (2011) for example draws on the observation that Wordsworth's writing c.1797-99 'often expressed a sense of animism: a sentience to be found not only in living things but also in the air and in stones'.[78] Miall then draws parallels between the 'new understanding of embodied cognition' in modern science and the 'animistic aspects of Wordsworth's writings' in particular 'his account of infancy, bodily sensation, the role of feeling, the shaping powers of the mind, and empathy' (693). Miall writes in regards to mirror neurons that 'the size or distance of an image is also represented' in the site of brain activity involved, so that as an object becomes closer to the sight, a corresponding growth happens in the brain. Miall brings the idea of mirror neurons to bear directly on the 1799 'boat stealing' episode, imagining that as the famed cliff looms over the rowing boy, a corresponding image physically accrues in

[78] David S. Miall, 'Wordsworth's "First-Born Affinities: Intimations of Embodied Cognition"' *Poetics Today* 32.4 (2011), pp.693–715 (p.693).

the mind of the reader through the firing of mirror neurons (711). Miall's is an example of work that reads texts directly through the lens of an evolved trait. Other critics who engage closely with evolved traits include for example Robert Storey, Brian Boyd, Nancy Easterlin, Lisa Zunshine, Alan Palmer and Blakey Vermeule.[79] I will have more to say about the specific relations of these critics to my argument in subsequent chapters.

Both cognitive historical approaches (such as Richardson's) to sympathy or approaches directly relating an evolved trait to a literary instantiation of sympathy (such as Miall's, on animism) encounter difficulties stemming from the instability of sympathy itself as a Romantic concept. Sympathy in the Romantic era is an unstable concept both for individual writers and across the period. Even while recognised as the concept '*par excellence*' of the eighteenth century, as Gaston observes, 'a meta-discourse of sympathy still eludes us' (129). This is so both within the work of individual thinkers (and Yousef gives the example of Hume), across different thinkers (for example, Hume and Locke) and in the ways writers creatively instantiate the mix of ideas that make up Romantic sympathy. Wordsworth, for example, does not simply apply any one idea of sympathy in his writing, but evidently interprets, responds to, and subverts discourses of sympathy. Yousef correctly identifies that Wordsworth resists 'a clarifying theoretical or scientific framework' (16). His texts, alongside Romantic texts more broadly, include 'feelings or moods' that 'implicate or correlate with self-knowledge and knowledge of others' in ways that are 'at issue in their textual elaboration' and in that sense resist a 'cognitive' reading (16-17). In a precise way, Wordsworth's intimacy can rightly be described as 'para-cognitive' in that it always exceeds reductive interpretations (17). Intimacy in Wordsworth happens adjacent to, and in excess of,

[79] See: Robert Storey; Brian Boyd; Nancy Easterlin; Lisa Zunshine; Alan Palmer; Blakey Vermeule.

automaticity in human relations. This reflects an existing problematic in Romantic thinking about sympathy in its famous thinkers, Locke and Hume and one that Wordsworth exploits.[80]

Romantic accounts of sympathy both assume and then challenge the sufficiency with which we can relate to one another through automatic processes. Yousef observes that 'antecedent to the sympathetic demand for identification is the seemingly necessary supposition that two subjectivities come upon one another, finding or failing to find what they have in common' (146). Gaston similarly suggests that 'writers throughout the eighteenth century never stop marking the limits, the excesses and absences of sympathy' (146). Yousef's study highlights 'the persistent tension between a confidence in the possibility of knowing and being known by others and an implicit commitment to existential privacy that is characteristic of these two discourses' (14). In Wordsworth's poems of encounter, he is shown to offer 'neither celebration nor certitude of the propensity to sympathize'(81). On the one hand the poet censures 'sympathetic pretensions' and on the other seems 'reluctant to renounce sympathetic inclinations and conjectures altogether'. In this way 'the poems trace the uneasy affective vicissitudes of giving and withholding, recognizing and responding' (81). Yousef draws attention to 'the many forms of engagement and responsiveness between persons that are neither reciprocal nor reciprocated but not, thereby, failures of recognition' (82).

If the meaning of sympathy is conceptually unstable and if Wordsworth, for example, exploits that instability in his own examination of human relations, under this change there is nevertheless constancy in how cognitive processes constrain perception. Sympathy in Wordsworth is, as Yousef correctly argues, more than any reductive formulation. Yet sympathy is also constrained by evolved cognition. Frederick Turner and Ernst Pöppel (1983) show that the imposing of a constraint on its own does not lead to a reduction in explanatory

[80] See, for example, Gaston.

power or interpretive outcomes. In a precise way reductive explanation does not in principle reduce interpretive potential. In their essay on neuroscience and metred poetry the authors show that putting forward a limit generates interpretive potential. [81] Imposing rules creates new scenarios. For instance, given four possible behaviours 'A, B, C and D, only four alternatives exist. If we now impose a rule, which is that these behaviours can only be performed two at a time, suddenly and strangely there are now not four but six alternatives: AB, BC, CD, AC, BD, AD' (Turner and Pöppel, 290-291). The new constraint 'has created the *group* of behaviours as a significant entity, as a behaviour in itself, and therefore expanded the repertoire from four to six' (290-291, emphasis original). These 'six permitted combinations now stand in relation to ten non-permitted ones, and their correctness marks them out as valuable and special, as opposed to the "incorrect" permutations' (291). In other words, by the simple imposition of a constraint, we have 'introduced a) a greater repertoire of behaviors than was previously possible and b) a marker of significance and value' (290-291). The evolution of cognition adds to the acknowledged importance of an automaticity in sympathetic understanding by suggesting constraints. In turn, we can build from these constraints towards new readings.

CE reading begins to fill in *how* automaticity enables and constrains encounter and, in turn, how constraint generates varieties of interpretation. For instance, Hume already speaks of how sympathy, as an 'instantaneous' process, invests thoughts with *vivacity*; feeling adds life and urgency to otherwise dry insights into another. David Owen (2009) observes that Hume's account of sympathy 'has to explain both the source of our idea of another's feeling and how this idea comes to have the extra force and vivacity that transforms it from an idea

[81] F. Turner., and E. Pöppel, 'The Neural Lyre: Poetic Meter, the Brain, and Time', *Poetry*, 142.5 (1983), 277-307. See also: Nigel Fabb, 'There is No Psychological Limit on the Duration of Metrical Lines in Performance: Against Turner and Pöppel, *International Journal of Literary Linguistics*, 2.1 (2013), 1-129. However, Turner and Pöppel's analysis of reduction remains valid even if their specific neurological insights do not.

of a feeling into the very feeling it represents'. [82] Hume's account is in two stages: 'first [sympathy is] known by its effects, and by those external signs in the countenance' and it is then 'converted into an impression, and acquires such a degree of force and vivacity, as to become the very passion itself, and produce an equal emotion, as any original affection' (Hume, p.491). This 'instantaneous' change converts an idea into a powerful impression (491). Hume follows associationist principles that were common at the time on which, for instance, the 'greater the resemblances or contiguity to us of the person feeling the original sentiment, the more likely our idea of that feeling is to be converted into the feeling itself' (Owen, p.90). An 'instantaneous' process occurs in which 'Sympathy can enliven an idea so that it becomes an actual passion' and that it can similarly 'enliven beliefs so that they too are transferred from individual to individual' (92). Yet what is gained from CE reading, more than this emphasis on a rapid, automatic process that adds vivacity, is a way of tracing *how* an episode generates a felt quality.

Peter Stockwell (2012) for example observes that poetic imagery interacts with cognition to produce a felt quality or 'texture' inviting comparison, as Wenjuan Yuan (2013) notes, 'of a literary discourse to a piece of fabric'.[83] Scarry's (1999) study of mimesis examines how cognition interacts with textual features to produce 'vivacity' of imagining. If texts themselves have less sensory content than other forms of art, such as paintings or music, 'the mimesis is [...] less in them than in our seeing of them'. [84] On Scarry's account, which I will more closely examine later, what is imagined is not incidental to how the imagination

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[82] David Owen, 'Hume and the Mechanics of Mind: Impressions, Ideas, and Association' in *The Cambridge Companion to Hume* (Cambridge: Cambridge University Press, 2009), pp. 70-104 (p.99).
[83] Peter Stockwell, *Texture: A Cognitive Aesthetics of Reading* (Edinburgh: Edinburgh University Press, 2012); Wenjuan Yuan, 'A Cognitive Poetic of Kinaesthesia in Wordsworth' (unpublished doctoral thesis, University of Nottingham 2013), p.161.
[84] Scarry, p.6. More precisely, Scarry contrasts verbal art to forms such as painting and music, which through their media are filled with sensory content. She also notes that though '[b]oth prose and poem take place in the realm of the non-actual' 'the poem is a few inches to the left of the narrative sense since it has its feet in the metrical world', pp.6-7. The Wordsworth circle were in the habit of reading (and composing) aloud — the form of words when voiced is clearly part of a poem's sensory content, but this does not invalidate the 'non-actual' or 'mimetic' ways in which 'imaginary vivacity' comes about.

processes imagery. CE science shows at least that Kant was correct about there being a world that we perceive.[85] Reading through evolved cognition generates insight into how perception is constrained and hence into new varieties of significance.

Yousef, Gaston and others show that Romantic sympathy itself is unstable in its own time and Wordsworth is always *in excess* of neat reductions of this term. Yousef is correct in suggesting that exposing sympathy as a 'specific instantiation' of a modern scientific notion of 'affect' or 'emotion' will 'leave those larger categories unmodified' (13). Sympathy is both shown as necessary and at the same time insufficient for human understanding. It follows from both the generative potential of reductive argument and from the conceptual instability of the terms involved, that the pertinent question is not if we should *reduce* sympathy in Wordsworth to cognition (what exactly would we be 'reducing' from?) but *how* scientific explanations of cognition and behaviour constrain the ways in which Wordsworthian encounters exceed reductive formulae. In other words, how does evolved cognition impact the reading of a Wordsworth poem? In the reading below I examine precisely how identifying a cognitive constraint on perception adds to reading. I show that differences in the cognition of social and physical aspects of the environment both enable the central episode of transformation in 'Resolution and Independence' and generate a felt quality, through the constraints of invariant, evolved cognition, structuring how we can read that episode historically and in specific relation to Wordsworth.

*IV. Invariance in 'Resolution and Independence'*

[85] Immanuel Kant, *Prolegomena to Any Future Metaphysics* (Indiana: Bobbs-Merrill, 1950). As Gärdenfors observes, p.1.

The transforming image at the centre of 'Resolution and Independence', of a stone into a sea-beast, into an old man (50-70) interacts with the evolved cognitive disposition to attribute agency to surrounding forms. [86] Prior to being a figure representing the various geological, anthropological and personal histories the poem indexes, the central transformation should be described in terms of a more literal distortion or change of form. This changing form engages the cognitive tendency to animate (or over-attribute agency to) aspects of the environment. Invariant features of cognition — in this case the detection of agency — interact within the poem to give the transforming figure its power and otherworldliness, enabling the image to represent historical layers and, in the process, adding a new layer to critical narratives of the poem. John Wyatt's *Wordsworth and the Geologists* (1995) notes that multiple forms of antecedence coexist in Wordsworth including geological histories.[87] Alan Bewell's *Wordsworth and the Enlightenment* (1989) presents a brilliant reading of the transformation in Wordsworth's poem, giving attention to such 'hypothetical' geological and anthropological histories and how Wordsworth both uses and subverts these imaginings of the past.[88] In the poem's central transformation Romantic histories interact with eighteenth century notions of history, purpose and change as a form appears to move towards greater complexity. Evolved cognition should, I suggest, be brought into reading as an additional layer of history — another stratum of antecedence in the poem. However, this stratum represents the long duration over which humans have moved through ambiguous and often dangerous environments; in which an unfolding form represents both promise and threat.

The changing form of the leech gatherer in 'Resolution and Independence' is prototypical of an environment fraught with ambiguity and risk that cognition has evolved to

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[86] William Wordsworth, 'Resolution and Independence' in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* (London: Norton, 2014), pp.572-577. Subsequent references refer to this edition.
[87] John Wyatt, *Wordsworth and the Geologists* (Cambridge: Cambridge University Press, 1995).
[88] Alan Bewell, *Wordsworth and the Enlightenment: Nature, Men, and Society in the Experimental Poetry* (Yale University Press: Newhaven, 1989).

process. Humans are primed to anthropomorphize their environment and attribute agency to their surroundings. Here *agency* is again a technical term referring to the attribution of agency by the brain, to the surroundings, whether or not a real agent can be said to exist. In this reading I focus on a topological change in the poem invoking the mathematical origins of invariance as constancy under transformation. In turn a differential between *physical* and *social* cognition, backed by neurological mechanisms, informs how this transformation happens and how we should relate it to existing criticism. In short, potential agents in an environment are perceived as self-directed, meaning that physical information is not enough to predict what they will do. A set of cognitive processes have likely evolved to interpret these perceived social aspects of our environment.

According to behavioural biologists Esmeralda G. Urquiza-Haas and Kurt Kotrschal (2015) 'it may be considered a human universal to anthropomorphize the relevant subjects and objects in one's environment'.[89] Urquiza-Haas observes that 'the attribution of a specific state (wants, beliefs, emotions) to another being can be substantially supported through automatic processes' (170). In other words, prior to conscious and elaborate reflection of the kind which Wordsworth demonstrates in his poems of encounter, evolved cognition is already engaging with the agents that inhabit his landscapes. Anthropomorphizing aspects of the environment engages a mode of cognition associated with sociality, consequential for the ascribed 'moral status' of subjects as well as their capacity for pleasure and pain (168). If the mathematical idea of invariance, constancy under transformation, applies to the perception of physical environments such as the deduction of movement, another form of invariance comes into play when the brain processes information to do with other minds. Urquiza-Haas observes that the 'long-standing belief about how the brain deals with different aspects of the

[89] Esmeralda G. Urquiza-Haas and Kurt Kotrschal, 'The Mind Behind Anthropomorphic Thinking: Attribution of Mental States to other Species', *Animal Behaviour,*109 (November 2015), 167-176 (p.167).

world' is now supported by neural imaging studies (169). There is 'a neural distinction in the processing of the physical and social aspects of the world, commonly labelled as 'physical' or 'social' cognition' (169).

When it comes to agency, physical cognition appears to be insufficient. For example, the information processes in physical cognition cannot by itself predict 'the direction and speed of movement of a herd of running antelopes in the presence of a pride of lions, or the gaze of an eagle towards its potential prey' (171). Information that usually 'rules the movement of objects' is insufficient, then, 'to predict the movement or behaviour of agents' (171). Evidence suggests that: 'Once agency is detected, a set of domain-specific and domain-general cognitive processes come into play to process the content of the mind of the subject in focus' (171). These processes are likely multi-layered, including both 'automatic and reflective processes' as well as 'evolved schemata' and 'inductive and causal reasoning' (171). There are several hypotheses accounting for the apparently universal tendency to anthropomorphize aspects of the environment (167). Nevertheless, there is strong evidence from imaging studies that physical and social cognition are supported by different mechanisms.

Stewart Guthrie (1995) explains in his cognitive theory of animism, that: 'We see apparent people everywhere because it is vital to see actual people wherever they may be'.[90] Guthrie's theory proposes that several mechanisms evolved to 'interpret any ambiguous stimulus in the environment as human-like or human-related' (5). As Guthrie argues, identifying unknowns as agents is a good tactic for survival in potentially hostile environments: 'We animate and anthropomorphize because, when we see something as alive or humanlike, we can take precautions' (5). The risks of not doing so are great but the risks of anthropomorphizing or over-attributing agency are small. A person can flee or stalk

[90] Stewart Guthrie, *Faces in the Clouds* (Oxford: Oxford University Press, 1995), p.5.

something alive or 'establish a social relationship' (5). Humans are hyper-sensitive to attributing agency to things perceived in the environment. This idea is grounded in the notion of domain specificity on which humans are theorized to have evolved specialist ways of processing information targeting specific aspects of the world.[91] Specialist capacities may target both their proper domain, and a wide range of other targets, their actual domain. Facial recognition for example has been shown to work both for recognizing other people (proper domain) but also to detect faces where there are none, such as in clouds or old tree trunks (actual domain).[92] The capacity to empathize appears to work similarly in that others we perceive who are not human beings, may nevertheless engage systems evolved in facilitating sociality among humans.[93] Cognition has evolved enabling the experience of moral emotions in relation to other people and ends up targeting a wider array of subjects and objects in the environment. The brain has been described as 'hardwired for social connection'.[94] Of course *hardwired* recalls the hardware of computers and suggests the inevitability and accuracy of a purely computational mechanism. Yet to state the obvious, social connection involves more than this, including communication and miscommunication. Moreover, the promiscuity of specialist capacities such as agency detection and facial recognition frequently engender a mismatch between what *seems* to the subjective awareness to be true and what, on the other hand *is* (more objectively) true.

*Seeming* takes on additional valences in specific relation to texts. Samuel E. Schulman (1981) observes that: 'The emphasis is on the seeming' in 'Resolution and Independence'.[95]

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[91] See for example Lawrence A. Hirschfeld and Susan A. Gelman, 'Toward a Topography of Mind: An Introduction to Domain Specificity', in *Mapping the Mind: Domain Specificity in Cognition and Culture*, ed. by Lawrence A. Hirschfeld and Susan A. Gelman (Cambridge: Cambridge University Press, 1994), pp.3-6.
[92] See for example: Dan Sperber and L.A. Herschfeld, 'The Cognitive Foundations of Cultural Stability and Diversity', *Trends in Cognitive Sciences*, 8.1.40-46.
[93] See, for example: Shaun Nichols, *Sentimental Rules: On the Natural Foundations of Moral Judgement* (Oxford: Oxford University Press, 2007).
[94] Frans de Waal, 'Putting the Altruism Back into Altruism: The Evolution of Empathy', *The Annual Review of Psychology*, 59 (2008), 279-300 (p. 292).
[95] Samuel E. Schulman, 'The Spenserian Enchantments of Wordsworth's "Resolution and Independence" *Modern Philology*, 79.1 (1981), 24-44; James H. Runsdorf, 'A "Modification" of Spenser in "Resolution and

Critics point to how ambiguity in the poem references literary antecedents including Spenser whom as Richard Peterson (2012) notes, Wordsworth was reading intensively.[96] Hartman (1964) interprets the 'basic situation' of the poem as 'Spenser modified'.[97] For Shulman, what Wordsworth celebrates in the encounter with the Leech-gatherer is the power of the poet, 'to make of the old man an emblem, to endow him with meaning, even if some suppression of detail is necessary' (43). In order to accomplish this Wordsworth 'lays down a thick impasto of Spenserianisms' (43).

For pragmatic reasons, I do not provide a history of the poem here or dwell overly on the influence of Spenser, but I do want to briefly note some resonances between my reading and those that consider how the poem relates to Spenser as an antecedent. In the reading below I point to a form of ambiguity in the poem centred around the transformation of a stone into a 'sea-beast' (l.62). Yet Schulman notes that the 'Leech-gatherer himself is literary rather than literal' in the poem, speaking in a strange, elaborate manner, even though Wordsworth always claimed that the figure spoke in 'the language of men' (40). Observing a certain automaticity in the perception of the changing form at the poem's centre shows how the text inheres evolved cognition but, secondarily, it nuances certain claims regarding the inheritance of this image.

The plot of the poem is that the 'poet walks out into the country on a beautiful day; he is depressed (in Wordsworth's case depression has given way to joy only to turn back into depression) and comes upon a mysterious sight which restores him' (Hartman, ch.8). This plot is 'the very scheme of Spenser's *Prothalamion*' (ch.8). The *Prothalamion* includes a 'dream-vision converted...calmly yet daringly into a waking vision' so 'dream blends with

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Independence"', *ANQ: A Quarterly Journal of Short Articles, Notes and Reviews* (August 2021) <doi https://doi.org/10.1080/0895769X.2021.1966610>, p.40.

[96] Richard S. Peterson, 'The Influence of Anxiety: Spenser and Wordsworth', *Studies in Romanticism*, 51.1 (Spring 2012) 77-88.

[97] Geoffrey H. Hartman, *Wordsworth's Poetry 1787-1814* (New Haven and London: Yale University Press, 1964).

reality and an autonomous product is created which we...helplessly define as “allegory” (ch.8)’. Hartman identifies the *prothalamic* imagination ‘which brings together not only man and woman, but also myth and reality, human and divine, nature and human nature’ (ch.8). In Wordsworth’s poem, Hartman traces a similar union, because ‘a precarious intermingling of vision and matter-of-fact is all the while maintained’ (ch.8).

For Hartman, Wordsworth’s poem is an ‘uncertain consolidation of thoughts’(ch.8). Whereas, as Hartman observes, Spenser’s famous repetition of ‘Sweet Themmes, runne softly, till I end my song,’ is ‘the very emblem of literary and natural continuity’ (ch.8). Wordsworth is ‘open to the terror of discontinuity’ in his own poem, stopping and starting, repeating himself (ch.8). His encounter is ‘unrelieved by myth or allegory or any steadying indulgence’, according to Hartman and the ‘strange repetitions’ ‘have no aim that is not mental and precarious; and the continuity, even on the level of rhythm...is uncertain’ (ch.8). Schulman notes that the ‘simile of the rock’ demands attention because it lacks an interpreter. It thus ‘cries out to be made an example of, to be explained’ (42). Because Wordsworth insists ‘on its status as figure, as poetry, the rock is a monument to the mind’s power over things, and to its freedom to bestow meaning’ (42). Yet in my reading below, the transformation of the rock shows the power of processes happening prior to elaborated meaning. What I show is, indeed, the ‘mind’s power over things’ but I focus on evolved cognition as one aspect of mind. One aspect of Wordsworth’s poem that is, indeed, continuous is to be found in the invariance between the changing form and the intuitive attribution of agency. The poem is of course a highly-wrought text *designed* to play in deliberate ways with influence and expectation and, as I go on to argue in chapter two, cognitive reading should not regard texts as transparent windows onto cognition but should attend to their textuality. Nevertheless, I first want to trace the action in the centre of ‘Resolution and Independence’.

The central episode, then, in the eighth and ninth stanzas of Wordsworth's poem, involves a transformation that can accurately be described as a topological action. This transformation demonstrates invariance in relation to cognitions that anthropomorphize and then seek to interpret the subject to which agency is attributed. Evolved cognition attributing and interrogating agency constrains how this episode should be read historically and in specific relation to Wordsworth. I will draw this idea out through a reading of the various histories overlapping in the narrative. The main transformation takes place between lines 50-70 of the poem:

> Now, whether it were by peculiar grace,
> A leading from above, a something given,
> Yet it befel, that, in this lonely place,
> When up and down my fancy thus was driven,
> And I with these untoward thoughts had striven,
> I saw a Man before me unawares:
> The oldest Man he seemed that ever wore grey hairs.

The stanza with lines 57-63 (which Wordsworth excluded from *The Miscellaneous Poems of William Wordsworth,4 vols*, 1820) describes how the poet 'stopped' when he 'espied | The Old Man in that naked wilderness' (57) and how he watches him 'a minute's space I guess' (60) before drawing to 'the Pool's further margin' (62). The next stanza continues:

> As a huge Stone is sometimes seen to lie
> Couch'd on the bald top of an eminence;
> Wonder to all who do the same espy,
> By what means it could thither come, and whence;
> So that it seems a thing endued with sense:
> Like a sea-beast crawl'd forth, which on a shelf
> Of rock or sand reposeth, there to sun itself.
> (50-63).

Bewell observes of this transformation that, 'Wordsworth focuses less on the man himself than on how he is figuratively transformed in the eyes of the watching poet'.[98] Attention is

[98] Alan Bewell, *Wordsworth and the Enlightenment: Nature, Men, and Society in the Experimental Poetry,* (Yale University Press: Newhaven, 1989), p.264.

inevitably drawn to the transforming figure in this poem. Yet the poem is careful to highlight not just the figurative transformation that Bewell analyses but also how the mind of the narrator approaches, processes and understands the moment of transformation in the more literal sense of a shape undergoing a process of change. Invariance as continuity under transformation is, as we have seen, derived from the mathematical field of topology. This field examines the underlying stability of changing forms.[99] It is the 'geometry of distortion' (Fletcher, p.14). For example, in topology, a torus may be transformed into a coffee cup or a car tire without cutting or breaking any surface, in what amounts to a topological transformation that is '*continuous'* and 'stable' (14, emphasis original). The change in 'Resolution and Independence' is precisely a '*continuous* and [...] stable' transformation, and a 'distortion' (14). Furthermore, it depends on evolved cognition for its poetic power. Prior to the introduction of the leech gatherer in stanza seven, the poem emphasizes how little control the narrator seems to have over his own mind; demonstrating that he is cognizant of limitation in his self-awareness. It is at a moment when he strives with 'untoward' (54) thoughts that the image appears. Lack of mental control is given weight by the poem leading up to the Leech-gatherer's appearance. The narrator is described as childlike — 'as happy as a Boy' — and the 'pleasant season did [...] [his] [...] heart employ' (18-19). The first two stanzas have already introduced the sound of the woods and the roaring of water: 'There was a roaring in the wind all night; | The rain came heavily and fell in floods;' (1-2). The hare has been introduced:

> [...] running races in her mirth;
> And with her feet she from the plashy earth
> Raises a mist; which, glittering in the sun,
> Runs with her all the way, wherever she doth run.
> (11-14)

[99] Angus Fletcher, *The Topological Imagination: Spheres, Edges and Islands*, (New Haven: Harvard University Press, 2016).

When the narrator hears the woods, and sees the hare, the reader is already alongside him, having been provided with these antecedent images, to flourish on the mind's eye. This lends power to the alternative that is then given, 'or heard them not' (18). In following the narrator's sequence of images, we are also asked not to hear and, therefore, to not imagine these sounds. It is difficult not to imagine what has already been suggested and consequently, rather than a negative ('heard them not'), the sequence ultimately results in a heightened consciousness of how the narrator's perception is limited; the images are pulled back into silence, having been given, the senses limited, having been previously assumed. The narrator appears not to be in control of his own thoughts, and the reader, consequently, is also forced to question the origin of the narrative's progress.

Whereas the narrator describes a detailed, almost phenomenological awareness of his experience he is at the same time also aware of movement beneath it. Conscious awareness is impinged upon by forces that nevertheless remain largely hidden. The narrator's heart is employed by the season itself. He appears to move through the landscape without deliberation and is subject to motivations that the poem leaves indefinite. The poem describes how mood can rapidly change: 'As high as we have mounted in delight | In our dejection do we sink as low' (24-25). Here again the narrator is not certain why his mental state changes. It is simply 'as it sometime chanceth' (22). The arc from high delight to low dejection (24-5) provides a sense of helpless motion to changing mood. This change in mood did simply 'happen so' (26). Like the heart employed, the narrator is passive. He describes how 'fears, and fancies, thick upon me came' (27). He is overcome: 'Dim sadness, & and blind thoughts I knew not nor could name' (28). Here thought apparently moves from height to depth, in dimness, without sight or self-knowledge and without a well differentiated intention. The first image of the leech gatherer now comes in stanza seven: 'I saw a Man before me unawares' (55). The narrator does not know what has brought the appearance of the man, whether

'peculiar grace', 'A leading from above, a something given', and it only remains for him to observe that it 'befell' him that he comes to see 'a Man' (50-5). Bewell for example claims that the poem's rhetorical structure implies that the meeting does not take place by accident (i.e., that it is somehow fated). Yet there is nothing that clearly leads to the leech gatherer's appearance. [100] Rather, it is an event that befalls. The man himself is 'unawares' (55) although given the dimness of the narrator's thoughts up until now, and the ambiguity of the sentence, it could also be the *narrator* who is 'unawares' even though he apparently sees the man before him. This accords with the delimiting of the aural and visual perceptions of the hare and the wind; percept and delimiting of percept overlap to such an extent that they almost become coterminous. It is in this immediate context that the central transformation occurs.

Now the image of the man transforms into a boulder, and then into a 'Sea-beast' (69). The imagination is given partial preparation by the 'grey hairs' (56) and the great age of the man. Those familiar with the granite boulders in the Lake District, or on English moors, are likely to recognise a similitude between long grey hairs and the trails of lichen that cover the surface of some rocks, lending a blue-grey tinge.[101] His age is brought into congruence, through this imagery, with a geologically related time. The reader already knows that what is observed is a man — in stanza eight he watches him from across the water — functioning at once to enhance his age, and to remove him somewhat from human ageing altogether and somewhat towards the ageing of stone. Again, as with the delimiting of perception, one

[100] For example, see: Bewell, p.264.
[101] Elaine Scarry, particularly in *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999), examines how authors instruct readers to imagine, and how cognition figures into this process regarding the vivacity of imagined images. One of her examples includes the use of flowers and vegetation. I will engage with this material in following chapters. One might also hear, of course, Spenser's 'goodly greenish locks all loose untied'.

category appears to flow into another. The 'more than human weight' (77) suggests time and mass beyond the human, so that time and stone press down upon him.[102]

Bewell's account draws attention to the way in which the poem uses Romantic ideas about geology and specifically how it is 'bound up with postdiluvian/postrevolutionary trauma, in the anxious, conservative response [...] to the violence of the Deluge' (261). During this period, erratic rocks perched atop hills were the subject of speculation as to their origin. One notion was that they had been deposited there by a great flood. By emphasising the erratic boulder, Wordsworth is seen to insert the poem into a geological history, and to support the notion that a great flood deposited these erratic rocks. Hence the narrator and the leech gatherer are seen to wander in a post-apocalyptic landscape aligned with the post-revolutionary world in which Wordsworth was writing. This is a world that has also fallen. Bewell explains that: 'In a geological universe, destruction provides the materials of new creation' (262). Built on this model was 'a specific conception of poetic vocation [...] in which the poet engaged in youth with the sublime revolutionary activity of breaking down traditional institutions, becomes, with age, the means by which these institutions are recovered and preserved'. In turn, their remnants 'can serve as the "soil" [...] of mankind in subsequent periods of revolution' (262). In this model, Bewell identifies the underlying fear that poetic careers follow a similar pattern to revolution, beginning in gladness, but ending in 'despondency and madness'. He notes, however, that what is distinct about Wordsworth's expression of his fears, is that 'he sets them within the context of [such] a hypothetical history' (263). Hence, the reader is encouraged to see similitudes between the poet and postdiluvian society. The dreary waste is placed into a time register that goes beyond human

[102] Indeed, it is this very phrase that some contemporary ecological writers have used to describe non-human life on Earth, such as David Abram in *The Spell of the Sensuous* (New York: Vintage, 1997). However, in writing about cognition, for example Frans de Waal's work, *Are we Smart Enough to Know How Smart Animals Are?* (London: Granta, 2016) observes how even the term 'non-human' still sets humans up as the measure of intelligence — when evidence from ethology, primatology, cognitive studies etc., show that an array of different intelligences, and ways of processing information, exist across nature.

lives and where the figure of the poet walks both in a real present time and in a potentially infinite history.

The transformation of stone into sea-beast, into old man affords critical relationship to a variety of historical schemes. For example, it recapitulates the eighteenth-century idea that nature was organized to develop into ever more complex forms in that it progresses in complexity and order.[103] An alternative is that, because the poem first presents the leech gatherer as a man, it suggests a cyclic view of time. Such a view is put forward by thinkers such as Giambattista Vico. Here a notion of geology fits on which 'destruction provides the materials of new creation' (Bewell, p. 262). The overall transformation does seem to be circular: man-rock-amphibian-man. Bewell cautions that the poem instantiates a procedure for questioning 'the interpretive framework of those who observe, while simultaneously making the history of this deconstruction itself part of an anthropological history of mind as it moves from superstitious to factual fictions' (262). Here the poem moves us away from a mythical past and towards one informed by the kind of new evidence and argument employed by geologists and other natural philosophers (265). Wyatt notes that geological histories co-exist with mythic, religious, and other forms of antecedence across Wordsworth's work.[104] If the poem affords the critic opportunities to include its narrative in wider Romantic histories (geological, anthropological, political), it is evolved cognition that affords the central symbol; the transformation which interoperates with these imagined histories.

Prior to the leech gatherer being a *figure* fitting into the hypothetical histories described above is the topological change: a '*continuous* and [...] stable transformation', and a 'distortion' (Fletcher, p.14). This transformation depends for its power on the way in which it is processed mentally between social and physical cognition. The transformation engages

[103] See for example, Piper.
[104] John Wyatt, *Wordsworth and the Geologists* (Cambridge: Cambridge University Press, 1995).

that sense of something being there, which many people will be familiar with on a dark night. The phenomenon where the mind tends to detect agents in the environment very easily, even where none may exist. The universal ability and tendency to anthropomorphize and attribute agency adds a historical 'stratum' no less distinct than the layers studied by stratigraphers. It is not only geology that has a natural history (however imagined) that deflects critical narrative but an idea of evolved cognition working across time and space. The leech gatherer's form remains invariant, although his shape changes. This invariance corresponds to processes going on inside the narrator's mind. This invariance is in the form itself, but it also relates directly to the imagined mind of the narrator and to that of the reader. The brain looks for agents and tends to see the world as imbued with intention and then tries to understand and predict. The text interacts with how evolution and cognition inform intuitive responses to the transformation at its centre, affording the strange transformation of the central figure, and contributing to the power of this imagery.

This way of bringing evolved cognition into critical narrative is perhaps a 'horizontal' form of E.O. Wilson's vertical integration. It simply responds to the coexistence of two branches of enquiry, evolved cognition and critical reading, in relation to a specific poet, Wordsworth. Examining invariance in Wordsworth involves two senses of history, one concentrated on the poet's life and history and one on evolved cognition. Clearly a time-lag of only several hundred milliseconds may exist between 'the onset of a feeling and our...awareness of it', whereas evolution occurs across the 'bewildering antiquity' of the Earth with human concerns relating to both. [105] Jeremy Davies' (2016) study of the Anthropocene geological epoch, takes a 'stereoscopic' perspective on geological time. Events are attached to two (or more) points in the past (144). Each link chains us to events happening

[105] Jeremy Davies, *The Birth of the Anthropocene* (Oakland: California University Press, 2016), p.23; see also: David S. Miall, 'Wordsworth's "First-Born Affinities: Intimations of Embodied Cognition"' *Poetics Today* 32.4 (2011), pp.693–715 (p.708).

at a radically different time. For example, both models of human evolution that encompass the Pleistocene and neurological events happening at the speed of electrochemical signals feed into perception. Similarly, when we come to critical narrative about an individual, events in and around the lifespan are salient. Lines drawn back from the present moment like the chains on several anchors, are important for understanding events happening now (Davies, p. 143). 'Resolution and Independence' shows how a central episode of transformation unfolds in relation to anthropomorphizing tendencies in evolved cognition. The power of the leech gatherer's transformation then informs the ways in which the poem deploys this image. Constructing a narrative account of the episode, for example in relation to Bewell's analysis of geological and anthropological histories, means adding another stratum. The incident is not *about* evolved cognition (as one form of Carroll's literary Darwinism might suggest) but without such automaticity, arguably the episode would not take place. Similarly, it is not enough to claim that the incident is an example of Romantic narratives of sympathy although they emphasize automaticity in encounters. Evolved cognition allows constraints under which perception operates to be newly identified. Without naming constraints, reading could not build out an account differentiating the strata of imagined histories from evolved cognitive invariance. Its narrative would thereby be impoverished.

*Chapter Conclusion*

In this chapter I have given a conceptual history of invariance and shown how the concept relates to criticism informed by cognition and evolution. I have differentiated my approach from existing cognitive reading and from an approach based on Romantic notions of sympathy. Finally, I have given a reading of 'Resolution and Independence' to demonstrate

evolved cognition in a poem of Wordsworth's and show how it deflects a critical narrative. Ultimately cognition and evolution do not simply enable the interactions we read in Wordsworth, as if cognition simply delivers experience. They actively contribute to how those interactions come about in Wordsworth's texts. Hence although Wordsworth certainly calls into question 'the indirect sympathy that connects us with our fellow beings' as Yousef observes, what such sympathy stands for remains relevant. 'Resolution and Independence' elaborates on how indirect connection figures in experience. Reliance on 'empirical findings and scientific experiment', are criticized by Yousef for a neglect of 'the humanistic genealogy of contemporary scientific paradigms' (13). But scientific paradigms are built alongside the world they purport to describe. Rousseau shows how seventeenth century neurology provided the material context for Romantic notions of sympathy to develop, by drawing attention to the brain and its connected nerves as the centre of consciousness. The development of an evolutionary paradigm deflects research in the social sciences and humanities, for example through the work of Barkow, Cosmides and Tooby. Although 'giving and withholding, recognizing and responding' are fluid in Romantic sympathy in ways that are at issue in literary reading it is also true that the cognitive processes constraining giving, withholding, recognizing and responding are almost certainly universal. Identifying constraints provides for new ways of reading that manifest when we read texts and attend to concrete problems.

# Chapter 2. Survival and the Future

## *I. Cognitive Reading and Future Time*

This chapter puts forward a mode of cognitive reading in relation to how Wordsworth imagines change and permanence. In doing so it offers a view of history for the thesis shown, in microcosm, through re-reading episodes within the spots of time, contextualized within the 1799 *Prelude*. Whereas cognitive critics already examine how Wordsworth uses the past in his work, for instance in terms of childhood development and memory (e.g. Nancy Easterlin, 2000; Beth Lau, 2002; Scott Harshbarger, 2010), a relationship between cognitive readings and Wordsworth's poetics of the future is yet to be articulated.[1] The mode of reading for which I argue here paves the way for the following chapters in their readings of *Home at Grasmere*, *The Tuft of Primroses* and *The Ruined Cottage* which re-assess the importance of specific times and places in these poems and in Wordsworth's overall poetic project, as opposed to the ongoing persistence of human nature in their meaning structures. Moreover, I suggest that Wordsworth sets up a conditional vision of the future open to the possibility of change.

The extent to which texts should be thought of as transparent windows into cognition or psychology or, conversely, the extent to which textuality and poetic design impact interpretation based on cognitive evidence, is at issue in how cognitive reading relates to an

[1] Nancy Easterlin, 'Psychoanalysis and the "Discipline of Love"', *Philosophy and Literature*, 24.2 (2000), 261-279 (p. 262) (repr.. in *Evolution, Literature and Film: A Reader*, ed. by Brian Boyd, Joseph Carroll and Jonathan Gottschall (New York: Columbia University Press, 2010) pp.348-359); Beth Lau, 'Wordsworth and Current Memory Research', *Studies in English Literature 1500-1900*, 42.4 (2002), 675-92; Scott Harshbarger, 'Intimations of Neoteny: Play and God in Wordsworth's *1799* Prelude, *Philosophy and Literature*, 34.1 (2010), 112-30 (p.113). Cognitive accounts often build out and away from prior psychoanalytic readings which themselves attempt to uncover what Jeffrey Steele terms, in relation to Jungian approaches, 'the way down' and to ask questions regarding origins and originality. See: Jeffrey Steele, *Unfolding the Mind: The Unconscious in American Romanticism and Literary Theory* (New York: Routledge, 2017).

idea of time. Marcus Nordlund (2002) for example writes that cognitive critics must eventually decide whether to engage in poetics or thematics.[2] On the one hand reading would 'engage in poetics concerned with the evolutionary function of art and the cognitive disposition it activates' and, on the other hand, 'with the meaning of literary works, such as how texts relate to human universals' (Nordlund, p.226). 'Absolute peace; permanence; endurance' was Wordsworth's overwhelming concern according to Stephen Gill (2011).[3] An imperative that his poetry '*might live*' and then survive, relates in turn to his own imagined futures. Since Wordsworth expresses a desire that his writings '*might live*' and survive, his imaginings of scientific change give a futural context to how survival is expressed in his work.[4] As noted in chapter one, Richardson distinguishes between interdisciplinarity and interdiscursivity in relating science to literature. Interdiscursivity involves 'reading across disciplinary boundaries' without necessarily 'placing one's home disciplinary perspective into sustained [...] dialogue with the rival perspective of colleagues'.[5] Without attempting to resolve the relative values of scientific and literary evidence we can nevertheless draw evidence together discursively. Of course, Wordsworth can be and has been read through evolved cognition without relation to an idea of future time. Yet because Wordsworth's poetics directly relate to a complex of past and future and the notion of survival, future time is a critical context against which cognitive readings relating to change, permanence and survival, should be placed. If Wordsworth concentrates on permanence and endurance, what survives does so into a future the parameters of which condition the meaning of such survival. Gill's account shows Wordsworth being 'drawn imaginatively to emblems of

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[2] Marcus Nordlund, 'Consilient Literary Interpretation', *Philosophy and Literature*, 26 (2002), 312-33 (repr. in *Evolution, Literature and Film: A Reader*, ed. by Brian Boyd, Joseph Carroll and Jonathan Gottschall (New York: Columbia University Press, 2010), pp.224-30.
[3] Stephen Gill, *Wordsworth's Revisitings* (Oxford: Oxford University Press, 2011).
[4] Preface to *The Excursion*', pp.170-1. (Wordsworth quotes this passage in his July 13th 'Advertisement' to the 1850 *Prelude*.)
[5] Mark J. Bruhn, 'Exchange Values: Poetics and Cognitive Science', *Poetics Today* 32.3 (2011) 404-460 (p. 406).

survival by the deepening conviction that values could not be nurtured other than by continuity of transmission across the generations' (112). His 'fundamental project' according to Andrew Bennett (1999) is 'the articulation and practice of such survival'.[6]

Cognitive criticism is itself futural to the extent that its evidence is open to falsification. More precisely the mediating role of scientific evidence has an impact on the ways we might be able to read. Jonathan Kramnick (2012) suggests interdisciplinary scholarship on cognition and evolution could keep 'the principles of evolutionary biology', 'no closer than the laws of physics'.[7] Yet new evidence does transform Nordlund's wider 'conception of the world' that mediates the act of reading (324). Critics including Easterlin, Harshbarger and Lau, for example, draw parallels between accounts of infant development in modern developmental psychology and between Wordsworth's treatment of memory, contrasting developmental interpretation against prior psychoanalytic readings (e.g. Richardson, 1988).[8] Information from modern psychological science in these cases undermines the use of psychoanalytic claims in reading, yet not because psychoanalytic readings are any less interesting *in themselves* within literary studies.

When Wordsworth describes his fear of being pursued as a young boy on Derwent Water (1799.I.81-129), for example, it is possible to focus on immediate guilt that the boat is stolen and/or on the way in which his passage through the landscape engages evolved cognition. The value of the new readings must relate to purportedly more reliable scientific evidence about, in this case, childhood development. In turn, using new evidence allows new focus on under-represented areas in Wordsworth. The new psychological paradigm here encourages an emphasis on continually growing attachment as opposed to rupture and

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[6] Andrew Bennett, *Romantic Poets and the Culture of Posterity* (Cambridge: Cambridge University Press, 1999).
[7] Jonathan Kramnick, 'Literary Studies and Science: A Reply to My Critics', 38.2. (Winter 2012), 431-460). p.543.
[8] Alan Richardson, 'Wordsworth at the Crossroads: "Spots of Time" in the "Two-Part Prelude"', *The Wordsworth Circle*, 19.1 (Winter 1988), 15-20 (p.16).

trauma. For example, critics employing psychoanalysis tend to see mountains in Wordsworth as a 'father substitute' and the cliff as a phallic metonym for the father (Richardson. p.16). What drives the episode is primarily guilt for having stolen the shepherd's boat and 'violating the maternal lake' (p.17). The pursuing cliff, as part of the landscape, represents the boy being chased away from his sexual interest in the mother figure. Richardson observes the cliff as an image of the boy's own phallus; it 'rose upon the stroke' (1799.I.105). In this sense, the 'conflict with guilt towards the father would thus be mediated by a scene of frustrated, interrupted masturbation' (p.17). In object relations theory, a child desires his mother's breast and so apprehends this object, coming eventually to apprehend other objects. The child resists giving up what he most desires but eventually is forced to do so. However, in later life, some adults keep this desire and so experience a sense of bonding or an 'oceanic feeling' (p.17). Here the 'two consciousnesses' of Wordsworth (1799.II.30-31) refer to the adult and primal desire for the mother's breast. On either reading the landscape symbolizes Freudian meaning. Cliff is to phallus; lake is to mother's breast and rowing is to masturbation. The forms that trouble the boy represent guilt at transgression and power drawn from the act of transgressing.

These critical readings using psychoanalysis do not fully align with recent accounts in developmental psychology. This is a problem Nancy Easterlin (2000) raises in critiquing 'commonly employed psychoanalytic assumptions about infant experience and, demonstrating the correlations between the current research model and Wordsworth's description of infant experience'.[9] Psychoanalytic assumptions oppose union with the mother in the primary childhood state, to 'separation and individuation', therefore framing the 'mother-infant relationship as paradigmatically conflicted' (Easterlin, p.261). However,

[9] Nancy Easterlin, 'Psychoanalysis and the "Discipline of Love"', *Philosophy and Literature*, 24.2 (2000), 261-279 (p. 262) (repr.. in *Evolution, Literature and Film: A Reader*, ed. by Brian Boyd, Joseph Carroll and Jonathan Gottschall (New York: Columbia University Press, 2010) pp.348-359). Easterlin goes on to make the case that mother-infant interaction is fundamental to the *Prelude*, through a reading of the 'infant babe' passage.

developmental psychologists now view the infant as a 'self-organizing system engaged in a *fundamentally productive* and social relationship with his primary caregiver, usually his mother' (261, emphasis original). Easterlin, alongside arguing that common assumptions in psychoanalytic readings go against modern thinking in developmental psychology, makes the parallel point that Wordsworth's treatment of infant experience is remarkably similar to modern developmental ideas. Harshbarger (2010) makes parallel points for the 1799 *Prelude,* noting the consensus underpinning developmental psychology that prolonged childhood in humans is vital to human evolution. [10] Adults retain juvenile traits largely due to the prolonged juvenile period, twice as long as our nearest ape relative. This allows adults latitude in later life to exhibit playfulness and innovative behaviours. Freud, however, had contended along with Ernst Haeckel, that 'ontogeny recapitulates phylogeny'; that is, that childhood is placed alongside 'primitive' 'stages' in human development that are to be overcome. Since evolution is understood to be teleological within this framework, it follows that early stages of development (childhood) were inferior to later developmental stages (adulthood). Hence Freud, 'continued to encourage a view of childhood as primarily a trauma-prone breeding ground of adult neuroses' (Harshbarger, p.113). Directly opposed to this view, evolutionary psychology now tends to view childhood as a distinct and positive part of human nature, making possible the development of the large, complex brain that allows human life (114). The potential symbols from a psychoanalytic reading are, in this way, decoupled from the most robust notions of childhood development in evolutionary and developmental psychology.

To the extent it opens itself to new information, then, criticism using scientific evidence does engender a specific and traceable relation to the potential for knowledge to be

[10] Scott Harshbarger, 'Intimations of Neoteny: Play and God in Wordsworth's *1799* Prelude, *Philosophy and Literature*, 34.1 (2010), 112-30 (p.113).

disrupted and meaning changed. New reading is based in the enhanced ability to better articulate what was latent to begin with. In cognitive approaches to texts this latency is as Elaine Scarry (1999) observes in her study of mimesis, 'less in' texts 'than in our seeing of them'.[11] Explanation and prediction in cognitive approaches depend on the scale at which cognition and culture are observed. Robert Markley (2018) notes that in relating literature to science, various kinds of time, 'experiential time, historical time, speculative future times and climatological time' all 'flow over or into each other in a kind of creative...dissonance'.[12] For example, a time-lag of several hundred milliseconds may exist between 'the onset of a feeling and our...awareness of it', whereas evolution occurs across the 'bewildering antiquity' of the Earth. [13] Lisa Zunshine (2012) argues in relation to human metarepresentational ability that our knowledge of cognition 'will never *predict* what cultural representations we are bound to have or cannot have in the future'.[14] Future cultural representations are 'grounded in future history and as such are unpredictable even if they build on the same cognitive predispositions that have been with us for hundreds of thousands of years' (126). Mark Turner (2003) also notes that the study of cognitive structures brings science into contact with the same 'cognitive operations we will use tomorrow' and probably twenty thousand years from now', which are the same as those we used yesterday, a hundred years ago, and probably twenty thousand years ago'.[15] Yet Turner also points to an aspect of predictability in attending to

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[11] Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999) p.6. More precisely, Scarry contrasts verbal art to forms such as painting and music, which through their media are filled with sensory content. She also notes that though '[b]oth prose and poem take place in the realm of the non-actual' 'the poem is a few inches to the left of the narrative sense since it has its feet in the metrical world', pp.6-7. The Wordsworth circle were in the habit of reading (and composing) aloud — the form of words when voiced is clearly part of a poem's sensory content, but this does not invalidate the 'non-actual' or 'mimetic' ways in which 'imaginary vivacity' comes about.

[12] Robert Markley, 'As If: The Alternative Histories of Literature and Science', *Configurations* 26 (Summer 2018) pp. 260-61

[13] Jeremy Davies, *The Birth of the Anthropocene* (Oakland: California University Press, 2016), p.23; see also: David S. Miall, 'Wordsworth's "First-Born Affinities: Intimations of Embodied Cognition"' *Poetics Today* 32.4 (2011), pp.693–715 (p.708).

[14] Lisa Zunshine, *Why We Read Fiction: Theory of Mind and the Novel* (Columbus: Ohio State University Press, 2012), p.126.

[15] Mark Turner, *Cognitive Dimensions of Social Science: The Way we Think About Politics, Economics, Law and Society* (Oxford: Oxford University Press, 2003).

enduring structures, because in studying these structures, 'we want to know not only the intricacies of the previous products of these cognitive operations but also what those cognitive operations in fact are and what our prospects are' (Turner, p.15). Ancient processes are subject to new scientific investigation. The future 'must start from here and must develop through the neurocognitive processes that human beings have. We know that what we can follow from our present point in the historical path depends strongly on the point, on the path, and on human cognitive nature' (15). The meaning we can generate by relating cognition to culture comes down to 'widening or narrowing...our focus' (15). Interpretation shows us 'the web' or the connections between cultural outcomes whereas 'cognitive study connects past webs to each other and to future webs in its attempt to explain the underlying capacities that make all those webs possible' (59). More precisely, cognitive approaches to culture use statistical techniques to trace how slowly changing cognition interacts with more rapidly developing culture (the web).[16] Cognitive reading involves using such newer evidence and techniques. Hence readings are subject to change as evidence shifts in either predicted or surprising new directions.

To the extent that thematic cognitive reading should engage with 'the meaning of literary works' we should acknowledge that texts are not transparent and not simply, or even at all, reliable records. Wordsworth not only records but instantiates memory in his writing and performs a relationship to the future in his poetics. For example, Lau draws parallels between modern memory research and Wordsworth's focus on memory. According to Lau, applying 'new findings about memory's operation to a study of Wordsworth's poetry can open up fresh avenues of interpretation and clear up some misconceptions that have prevailed in Wordsworth criticism' (676). She observes for example that 'there is no such thing as an

[16] See: Richard McElreath and Robert Boyd, *Mathematical Models of Social Evolution: A guide for the perplexed* (Chicago: University of Chicago Press, 2007); McElreath, *Statistical Rethinking: A Bayesian Course with Examples in R and STAN* (Boca Raton: Chapman and Hall, 2020).

immutable, comprehensive, or objective memory' (676). Wordsworth's treatment of memory 'reflects an awareness of many of these aspects of memory's operation' for example, the 'idea that our past experiences shape our present perceptions, so that what we pay attention to and encode is largely determined by our established personalities' (676). The 'Preface' to *Lyrical Ballads* states that the purpose of poetry 'is to promote the cultivation of alert attention to subtle details of everyday life' (Lau, p.678). Lau urges 'literary scholars to join the interdisciplinary dialogue on the workings of memory and apply its important findings to new ways of reading Wordsworth's poetry', following the psychologist Daniel L. Schacter (1996; 2001) in arguing that 'writers and artists can convey more effectively than science "the personal, experiential aspects of memory" and its impact "in our day-to-day lives"' (Lau, pp. 687-88).[17] By contrast Grace Rexroth (2021) argues that we should not consider Wordsworth a 'trustworthy scribe' who shares 'the musings of his own memory with honest candor—as if it were merely an accident that such contemplations found their way into print and poetic form'.[18] Instead Rexroth emphasizes textuality in preserving memory for Wordsworth, analysing how he deploys mnemonics and how his texts function as vehicles for remembering and continuity, deploying '— a set of poetic strategies that bear witness to the emerging power of the page to constitute rather than just record one's experience and memory' (172). Rexroth's argument is that works such as 'Tintern Abbey' deploy tropes from the arts of memory that were popular in the period (154). Lau's approach is limited precisely to the extent that it relies on a certain 'honest candor' in Wordsworth as an interlocutor when it comes to his own psychology.

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[17] Daniel L. Schacter, *Searching for Memory: The Brain, the Mind, and the Past* (New York: Basic Books, 1996); *The Seven Sins of Memory: How the Mind Forgets and Remembers* (Boston: Houghton Mifflin, 2001).
[18] Grace Rexroth, 'Wordsworth's Poetic Memoria Technical: What "Tintern Abbey" Remembers', *Studies in Romanticism*, 60.2 (2021), 153-174. See also: Frances Ferguson 'Romantic Memory,' *Studies in Romanticism*, 35. 4 (Winter 1996), 509–33. For the history of the arts of memory see: Frances Yates, *The Art of Memory* (London: Routledge and Kegan Paul, 1966).

*Wordsworth and a Future-Facing Poetics*

Cognitive reading should reflect Wordsworth's poetics of permanence and survival to avoid a gap or epistemic distance between the cognitive side and the thematic outcome in which we present or unfold meaning from a text. The points of connection drawn by Lau, for example, are plausible replacements for prior psychoanalytic accounts of memory in Wordsworth. They place Wordsworth in relation to universal aspects of human nature. Rexroth's account of the arts of memory, arts which experienced a resurgence during the period with works such as Richard Grey's (1730) *Memoria Technia*, shows how Wordsworth intended for his work to survive. At the same time memory, permanence and the specific outlines of an imagined future into which poetry will persist are also key to Wordsworth's own poetics[19]. Moreover, Wordsworth sets up a conditional vision of the future that opens the possibility of change. Critics including Bennett and Emily Rohrbach (2015) develop a future-oriented register in Romantic writing.[20] Looking forward in these accounts accords with Frederic Jameson's notion that 'it is the present's responsibility for its own self-definition of its own mission that makes it into a historical period in its own right and that requires the relationship to the future...as much as it involves the taking of a position on the past' (Rohrbach, p.17). Wordsworth projects forward an idea of the future conditioned by scientific change then, but he also embeds an idea of uncertainty about that future. At the same time as Wordsworth imagines a future and projects his poetry into it, this future itself remains conditioned by unknowns both in Wordsworthian and Romantic imaginings concerning specific, unpredictable events.

[19] e.g., Richard Grey, *Memoria Technica: or a New Method of Artificial Memory* (London, 1730).
[20] Emily Rohrbach, *Modernity's Mist: British Romanticism and the Poetics of Anticipation* (New York: Fordham University Press, 2015). Both Bennett and Rohrbach develop an idea of the 'future anterior' from Jean Francois Lyotard, *The Postmodern Condition: A Report on Knowledge*. Trans. G. Bennington and Brian (Massumi, Minneapolis, University of Minnesota Press, 1984).

Jacques Derrida (2002) notes two ways of thinking about what is yet to come: the future we think of as predictable according to everyday experience (*le futur)* and the future that happens unexpectedly, surprising us like an unexpected guest (*l'avenir*).[21] Running through past imagined versions of the future (re-constructed now) is the predictability and surprise of which Derrida speaks, both in the Romantic period itself as Rohrbach emphasizes and in a specifically cognitive criticism. Such criticism is oriented towards a future through its basis in scientific evidence and the potential disruption from surprising new evidence. Until 1963 the scientific journal *Nature* bore Wordsworth's own words in its masthead: 'To the solid ground of nature trusts the mind that builds for aye'.[22] This statement expresses a scientific endeavour (building knowledge based on evidence) and the attention of science to the object of research: nature. Yet if nature provides a 'solid ground' for imagining, the phrase 'material revolution' from the 'Preface' to *Lyrical Ballads* also indicates change and unpredictability. Rohrbach compares the future imagining of Romantic thinkers to a mist: 'Rather than suggesting a linear movement toward a specific end point or goal, the mist of anticipation opens the present up to multiple possibilities' (Rohrbach, pp.10-11). Derrida's *le future* and *l'avenir* are reflected in Romantic imaginings.

Romantic writers understand, as Rohrbach argues, that their conception of the present time is 'shadowed by a dark futurity, even inhabited by it' (9). Rather than celebrating a pure vision of Enlightenment 'progress', 'Romantic "anticipations", by contrast, are open to the "possibility of surprise'" (19). This possibility is a dark one, informed by numerous influences including industrial and scientific change and political upheaval. Keats, for

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[21] Derrida, Jacques. Interview with Kirby Dick and Amy Ziering Kofman. *Derrida*. Directed by Kirby Dick and Amy Ziering Kofman, Zeitgeist Films, 2002.

[22] See for example: https://media.nature.com/full/nature-cms/uploads/ckeditor/attachments/7568/mission.pdf <accessed October 2021>. Wordsworth's own prediction of science and poetry working together is embodied in how scientists have used his work. For example, Gregory Tate (2020) notes that when the Irish physicist John Tyndall published a pamphlet of his inaugural address to the 1874 meeting of the British Association for the Advancement of Science, 'he ended the text with a quotation' from 'Tintern Abbey', one 'he identified as "words known to all Englishmen, and which may be regarded as a forecast and religious vitalization of the latest and deepest scientific truth"'.

example, contrasts his own tentative attempts to explore an imagined, unknown future with his perception that Wordsworth had gone further into the 'dark Passages' of the unknown, the yet to be.[23] According to Rohrbach an 'ongoing-ness of a "process of becoming" and a sense of incompletion' are critical to the 'future anteriority that we find in Romantic texts' (19). Maureen McLane's (2000) study examines Romantic attitudes to the future through the lens of debates about population growth and examines predictability and surprise.[24] McLane notes William Hazlitt's response to Thomas Malthus' famous thesis about population. Hazlitt argues against Malthus that 'the improvements in science have not hitherto been regular and permanent, [and therefore] it cannot be expected that any advantages depending on them should have been so; nor does the past history of mankind in this instance furnish a rule for our future conjectures' (McLane, 174-5). Giving the example of printing as what we might now term a *disruptive technology*, Hazlitt goes on: 'This single circumstance, which as a matter of mere accident, may be said in many respects to have given a new aspect to human affairs...' (174-5). Science and technology in this way 'argues for the suspension of disbelief and the sustaining of conjectural freedom' (175). In sum: 'Sudden discoveries have unpredictable effects; a specific technology may revolutionize knowledge'; the combination of science's ability to predict exists alongside the surprising aspects of scientific and technological outcomes (175).

Bennett shows how Romantic writers orient their work towards an imagined future specifically in relation to changes in printing technology. Wordsworth responds to changing cultures of print and consumption by holding to the 'inescapable obscurity of the living genius' (Bennett, p.39). Newly available and economical printing technology meant that publishing becomes more commonplace in the period. As books become more easily

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[23] Cited in Rohrbach. John Keats, *The Letters of John Keats, ed. by Hyder E. Rollins* (Cambridge, MA: Harvard University Press, 1958), pp.280–81.
[24] Maureen McLane, Maureen, *Romanticism and the Human Sciences: Poetry, Population, and the Discourse of the Species* (Cambridge: Cambridge University Press, 2000).

available (because more easily manufactured), authors are forced to contend with a potentially huge but unpredictable or unselected audience. Consequently, writers come to be viewed as part of a system of production. Romantic writers react by locating their own literary value not in the present reception of their work (reputation) which they regard as fickle but increasingly in an imagined posterity (fame) taking place in a more distant future. Bennett writes about a 'repeatedly emphasised' distinction, 'between two different kinds of poetic reception: an immediate and popular applause on the one hand and an initial rejection of the artwork followed by more lasting and more worthwhile appreciation on the other' (21). Thus, Bennett observes that 'Wordsworth ends a number of poems by assuring himself and his readers that his writing will be justified in its remains' (37). In the 1815 'Essay, Supplementary to the Preface' Wordsworth, 'in order to explain his own disappointing reception over the previous twenty years [...] presents a brief reception history of English poetry showing that neglect during their lifetime has always been the fate of poets of genius' (Bennett, p.39). Writers participate in the 'reinvention of posterity' by figuring their memories in the future perfect tense of the *what-will-have-been* (39).

In turn, Rohrbach emphasizes the creative aspect of the imagined future and the element of surprise in that future across a range of writers. Her work focuses on 'literary shapings of anticipation that envision the present in the terms of an unknown and unpredictable time, yet to come' (9). Wordsworth, alongside other Romantic writers, acknowledges uncertainty in his future imagining, showing that imagined futures in the period 'are never reducible to a straightforward prediction of what will have been. However awkward the construction, what *might will have been* in fact may be the closest grammatical formulation for the poetics of time at stake...' (9). The importance attached by thinkers such as Frederic Jameson (e.g. 2002) to the idea of the imagined future gaze, even over memory of

the past, is critical to period self-definitions.[25] Both the formulations of Rohrbach and Bennett describe the moment, in the past, looking forward to an imagined future which, in turn, is looking back into that moment.

Cognitive reading also implies a relationship of interpretation to history and future time through science, as we have seen. The constructions of Bennett and Rohrbach, then, elide the fact that our own critical position is also moving. We look back to Wordsworth (looking forward) from a critical position that is itself futural because it is open to specific kinds of new evidence. Thus, in acknowledging or defining a position in time for the cognitive reader, another dimension of the futural comes into view. Wordsworth famously writes in his 'Preface' to *Lyrical Ballads* of a 'material revolution' (p.80) associated with scientific and technological change yet to come in his lifetime.[26] As Roger Sharrock's (1962) seminal paper observes, Wordsworth's writing here is an 'astonishing prophecy of the transformation of human life by technology on the industrialized portion of the earth which has taken place in the century and a half [...]' since it was written.[27] Wordsworth writes that:

> If the labours of the Men of Science should ever create any material revolution, direct or indirect, in our condition, and in the impressions which we habitually receive, the Poet will sleep then no more than at present, but he will be ready to follow the steps of the Man of Science, not only in those general indirect effects, but he will be at his side, carrying sensation into the midst of the objects of the Science itself. (p.80)

This famous passage offers a conditional vision (if) of the future (then). As a kind of algorithmic function, Wordsworth states that *if* there is a material revolution to 'our condition, and to the impressions which we habitually receive' *then* the 'Poet will sleep no more than at present' both following 'the steps of the Man of Science' and indeed 'be at his

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[25] Frederic Jameson, *A Singular Modernity: Essay on the Ontology of the Present* (London: Verso, 2002).
[26] William Wordsworth, 'Preface and Appendix to *Lyrical Ballads*', in *Wordsworth's Literary Criticism*, ed. by W J. B. Owen (London: Routledge, 1974; rpr. 2016), pp.68-95.
[27] Roger Sharrock, The Chemist and the Poet: Sir Humphry Davy and the Preface to Lyrical Ballads', *Notes and Records of the Royal Society of London (1938-1996)*, 17.1 (1962), 57-76. See: Mary Moorman, *William Wordsworth, a Biography: The Early Years* (Oxford, 1957), p.154.

side'. This construction is deployed again in Wordsworth's lengthier description of how science might develop:

> The remotest discoveries of the Chemist, the Botanist, or Mineralogist, will be as proper objects of the poet's art as any upon which it can be employed, if the time should ever come when these things shall be familiar to us, and the relations under which they are contemplated by the followers of these respective Sciences shall be manifestly and palpably material to us as enjoying and suffering beings. If the time should ever come when what is now called Science, thus familiarized to men, shall be ready to put on, as it were, a form of flesh and blood, the Poet will lend his divine spirit to aid the transfiguration, and will welcome the Being thus produced, as a dear and genuine inmate of the household of man. (pp.80-81)

The biographer Mary Moorman (1957) finds this passage 'florid' and hard to grasp, as Sharrock notes.[28] Yet it is also prophetic or, more precisely, predictive of how science has developed. The 'discoveries of the Chemist, the Botanist, or Mineralogist' (p.80) and the newer disciplines have very obviously become less remote and those efforts contemporaneous to Wordsworth have *become* modern science. As Sharon Ruston (2013) notes, this period witnessed a 'new era of scientific specialization', and 'the beginnings of the professionalization of science' [29] Science has become 'manifestly and palpably material to us as enjoying and suffering beings' (p.81). It is embodied in 'the form of flesh and blood' (p.81) through biology and medicine. In other words, the condition embedded in these lines (an *if* followed by a *then*) is reduced because of where we the readers are now in relation to scientific development. If we were living in an age or a culture that had abandoned science, the conditional would not be activated in the same way.

Romantic writers including Wordsworth are also concerned with accompanying change to human life that techno-scientific change might engender. McLane notes that even 'a brief overview of the writings and doings of figures such as Godwin, Wordsworth,

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[28] Mary Moorman, *William Wordsworth, a Biography: The Early Years* (Oxford, 1957).
[29] Sharon Ruston, *Creating Romanticism: Case Studies in the Literature, Science and Medicine of The 1780s* (Palgrave Macmillan: London, 2013).p.3.

Coleridge, Southey, Scott, Mary Shelley and Percy Shelly reveals that, however different their political aesthetic, and moral aims, these writers repeatedly inscribed and concerned themselves with the mutual implication of the literary and the sciences of human being' (11). In the 'Preface' (p.80), Wordsworth's 'best known critical work, and his most original essay on aesthetics' the poet famously imagines a future reader integrating new knowledge derived by the 'Men of Science'.[30] As W.J.B Owen observes the 'Preface' references 'aesthetic, psychological, and sociological presuppositions' common to eighteenth century English writing on aesthetics, yet it also engages a Romantic concern with the imagined future (Owen, p.112). Sharrock famously shows mutual influence between Wordsworth, Humphry Davy and Coleridge. In outline, Wordsworth composes and revises the 'Preface' between June 1801 to April 1802 and writes the 'Appendix'. [31] The first version of the 'Preface' appears in 1800 with versions appearing in 1802, 1805 and subsequent editions of *Lyrical Ballads*. Between 1800-1802, Wordsworth adds material on the Poet and Scientist. Davy gives his *Discourse, Introductory to a Course of Lectures* (1802) to the Royal Institution in London, in January and reads Wordsworth's Preface as part of his proofing of the 1800 edition of *Lyrical Ballads*.[32] He proofed the 'Preface' for the second volume of 1800 as a personal favour. Sharrock notes similarities between the two texts.[33] Ruston goes on to observe 'echoes between the 1802 lecture and Wordsworth's changes to the "Preface" in 1802' illustrating, for example, the two-way traffic that Gillian Beer identifies between literature and science.[34] Davy 'would have discovered' in the course of proofing the text,

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[30] W.J.B. Owen and Jane Worthington Smyser, 'Introduction: General' in *The Prose Works of William Wordsworth* (Oxford: Clarendon, 1974). pp.111-114 (p.111).
[31] Owen, p.112. See also Sharon Ruston, *Creating Romanticism: Case Studies in the Literature, Science and Medicine of the 1780s* (Palgrave Macmillan: London, 2013), p.20.
[32] Humphrey Davy, 'A Discourse introductory to a Course of Lectures on Chemistry, Delivered in the Theatre of the Royal Institution, on the 21st of January, 1802', in *The Collected Works of Sir Humphry Davy*, ed. by John Davy (London: Smith, Elder and Co., 1839), pp. 307-26. <http://knarf.english.upenn.edu/Davy/davy2dis.html> [Accessed November 2020].
[33] Ruston, p.20. See also: Sharrock, p.72.
[34] Ruston, p.21. As Ruston notes, Catherine E. Ross claims professional and personal rivalry between the two men: See: Catherine E. Ross, '"Twin Labourers and Heirs of the Same Hopes" The Professional Rivalry of

'Wordsworth's statement that the philosophical opposite of poetry was science' (Ruston, p.26). In turn, when writing his own 1802 *Discourse,* Davy 'took up science's defence' (Ruston, p.21). Davy claims that science will transform the conditions for human life, sketching 'a bold forecast of a coming age of technology in which the chemist would be the architect of great benefits for mankind' (Sharrock, p.65). Wordsworth, in turn, develops his famous statements about a future reader integrating new knowledge derived by the Men of Science. Davy and Wordsworth set themselves parallel tasks in the *Discourse* and 'Preface' respectively, that speak to how they imagined the future: 'Both are trying to prove that a subject previously considered to be excessively specialized is in reality a primary concern of all intelligent and sensitive men of good will' (Sharrock, p.67). Both emphasise a sense of commonality among men. Both 'declare that a cultivation of their subject bears direct relation to social progress' (Sharrock, p.67). Wordsworth's imagined future here is an aggregate one 'in which scientific discoveries will become familiar not in the laboratory but in their application throughout the general framework of social life' (Sharrock, p.72). He looks forward to a changed 'material revolution' that will also impact 'enjoying and suffering beings' ('Preface', p.80). In this way both suggest that 'a third world would arise between the human world and the world of things studied by the scientist' (Sharrock, p.72).

Wordsworth of course writes that past and present are 'conjoined' (549) into two wings that lift the 'Spirit of human knowledge' (*The Tuft of Primroses,* 550) giving a powerful image of continuity of transmission into the future.[35] And in the 'Essay, Supplementary to the Preface' past and future are further elaborated as 'two wings':

> Towards the Public, the Writer hopes that he feels as much deference as it is entitled to: but to the People...and to the embodied spirit of their knowledge,

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Humphry Davy and William Wordsworth' in, *Romantic Science: The Literary Forms of Natural History* ed. by Noah Herringman (New York: SUNY Press, 2003), pp.23-52; Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction,* 2nd edn (Cambridge: Cambridge University Press, 2000), p.102.

[35] William Wordsworth, *The Tuft of Primroses*, *with Other Late Poems for The Recluse* by William Wordsworth, ed. by Joseph F. Kishel (Ithaca and London: Cornell University Press, 1986).

> so far as it exists and moves, at the present, faithfully supported by its two wings, the past and the future, his devout respect, his reverence, is due.[36]

Reverence for past and future will save his work 'from immediate destruction'. The *Primroses* lines concern an ancient set of buildings and traditions at the Chartreuse which Wordsworth is recalling and which he wishes had been preserved. And Wordsworth repeatedly uses an architectural metaphor to bring his work together into a persisting structure. The same dynamism in the image of the 'two wings' also enlivens the architectural figure. In the lines on the Chartreuse Wordsworth writes that 'a step | Between the Portals of the shadowy rocks | Leaves far behind the vanities of life' (552-534). The voice in the poem asks that 'This House, these courts of mystery' (546) be spared. In lines that recall the tempering voice of the Derwent the 'vanities of life' are contrasted with the 'courts of mystery'. One must only step through the 'Portals of the shadowy rocks' (553), moving through the ancient structure. The 'Preface' to *The Excursion* more famously uses architecture to argue that Wordsworth's search for the 'origin and progress' of his being is the necessary preparation for writing *The Recluse*. *The Prelude* ('That Work, addressed to a dear friend', p.171) and *The Recluse* are to be thought of as having '... the same kind of relation to each other [...] as the ante-chapel has to the body of a gothic church', making it clear that the poem is to be gone through on the way to the larger work. It is to come 'ante-' or before (p.171). The poet goes on that:

> he may be permitted to add, that his minor Pieces, which have been long before the Public, when they shall be properly arranged, will be found by the attentive reader to have such connection with the main work as may give them to be likened to the little cells, oratories, and sepulchral recesses, ordinarily included in those edifices' (p.171).

[36] William Wordsworth, Essay, Supplementary to the Preface', *Wordsworth's Literary Criticism*, ed.by W.J.B. Owen (London: Routledge, 1974; repr. 2016), pp.192-218.

The gothic cathedral forms a nexus for how Wordsworth articulates past and future. This metaphor appears to have had a continuing resonance for him, becoming an organising rubric for his *Poetical Works* in each new edition (Gill, p.34). More precisely, it shows that Wordsworth's emphasis on permanence depends on both past and future. If futurity is dark as Rohrbach suggests then the past also terminates in an 'unrememberable time of being' as Mark J. Smith (2013) shows.[37] On the one hand as Rexroth observes, 'instances of associating his poetry with the architecture of an archetypal church draws on popular mnemonic traditions that attended to the way spatial formations mediate mnemonic practice' (Rexroth, p.166). In this sense the 'little cells' orient towards future time. Wordsworth addresses Dorothy, for example, in the final paragraph of 'Tintern Abbey', constructing 'her future mind — her memory —as a mansion (from Latin *manere*, meaning "remain, stay"), a place for remains, a place which, by its very nature, remains' (Bennett, p.105). Rexroth's work notes that 'Similar allusions to the "mansion" of the mind circulated throughout the 1790s' (Rexroth, p.165). For Bennett Wordsworth enacts a 'performative memorialisation, a performance of memory, the paradoxical achievement in the present of a future remembrance' (Bennett, p.122). This formula quickly collapses however, because 'William does the remembering for Dorothy, he remembers himself' (122). It is only 'the collective judgement over time which guarantees the eternal and universal work of art, the work which transcends both its own time and the temporality of historical reception'. In turn, 'permanence and atemporality can only be guaranteed in and through time' (Bennett, p.76). Yet Rexroth suggests that it is precisely through the mnemonic techniques of the classical arts of memory that Wordsworth preserves memory into the future, encoding memory and habits of mind into the text.

[37] Mark J. Smith, '"Unrememberable" Sound in the 1799 *Prelude*', *Studies in Romanticism*, 42.4 (2013), 501-18.

On the other hand, the architectural metaphor involves being 'ante-' or before. In setting up the *Prelude* itself as an 'ante-chapel' to his larger work, Wordsworth positions the poem as a precursor to that work.[38] It is something to be gone through on the way to *The Recluse* and it is to retain such a relation to Wordsworth's whole body of work. Both author and reader must pass through this 'ante-' chamber in which Wordsworth asks about his own origins, to move forward. Smith suggests that the 'topoi of Wordsworth's argument are not, as in classical rhetoric, conventional or commonplace relationships' (Smith, p.510). Instead of *topoi* Wordsworth '... seeks to uncover a single topic: that unrememberable relation that holds between mind and the things of nature, out of which perceptual situations may be recollected and reconstructed' (Smith, p.510). Wordsworth in this way is always overtaken by a past he cannot quite remember. Like 'These hedge-rows, hardly hedge-rows, little lines | Of sportive wood run wild' in 'Tintern Abbey' that run out into the landscape, these images always exceed a set place or time.[39] Smith suggests that Wordsworth 'goes in pursuit of an unarticulated whole' and instead pulls up 'variously articulated strings of world in its net' (Smith, p.510). There is an 'elemental' 'struggle between what is inexpressible and what is discoverable' in Wordsworth's poem. The poem's theme is 'what has been forgotten, or more precisely, on what has never been and can never be remembered. Both poet and reader suffer the unrememberable... the peculiar "sympathy" that Wordsworth's associationist terminology can never quite pin down' (Smith, p.510). Wordsworth writes that 'my brain | Worked with a dim and undetermined sense | Of unknown modes of being' (1799.I.120-22). His work incorporates the 'obstinate questionings | Of sense and outward things'.[40] The 'strings of world' or perhaps the 'fallings from us, vanishings' evidence both the attempt to recover the

[38] 'Preface to *The Excursion*', p.170.
[39] William Wordsworth, 'Tintern Abbey, On Revisiting the Banks of the Wye During a Tour, July 13, 1798' in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* (London: Norton, 2014), pp.113-120.
[40] William Wordsworth, 'Ode [Intimations of Immortality]' in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* ed. by., Nicholas Halmi (London: Norton, 2014), pp.619-631, (ll.144-146).

past and the partial failure of the attempt.[41] Yet what comes prior remains, in the end, inaccessible.

The failure, as it were, to remember and trace backwards accords with modern understanding of both memory and broadly, the nonconscious aspects of cognition. The river of the mind is indeed fed from a 'blind cavern' (1805.XIII.173). Lau for example shows that Wordsworth's treatment of memory accords with modern understandings on which memory is often an unreliable construct more than it is a record or picture of the past. More generally, Kathryn Hayles' (2017) metaphor for imagining how conscious awareness relates to hidden processes is a ship on which the conscious awareness is like a stowaway, with most of the work going on outside their knowledge.[42] Consciousness depends on mostly inaccessible processes; it '*requires* nonconscious processing of information and could not function effectively without it' (56, emphasis original). Mary Thomas Crane (2001) writes that: 'From a cognitive perspective…most mental functioning is unconscious, and the unconscious mind is largely unconscious not because of repression but because mental processes are simply too complex and swift to be registered'.[43] The mind is produced by the brain and bodily systems (which are therefore prior to it) and awareness is the very tip of a complex pyramid (the bulk of mental processes are inaccessible to and precede, conscious awareness). On this view, 'the mind is what the brain does' (Crane, p.10). David S. Miall (2011) observes that 'the brain regions responsible for interpreting perceptual input are also those that represent an imagined perception (e.g. something that we are reading about)'.[44] For example, 'the size or distance of an image is also represented' in the area of the brain involved in representing it to

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[41] — 'Ode [Intimations of Immortality]' in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* ed. by Nicholas Halmi (London: Norton, 2014), pp.619-631 (ll.145-48).
[42] Kathryn Hayles *Unthought: The Power of the Cognitive Nonconscious* (Chicago: University of Chicago, 2017).
[43] Mary Thomas Crane, 'Embodying the author function', in *Shakespeare's Brain: Reading with Cognitive Theory* (Princeton: Princeton, 2001), p. 18.
[44] David S. Miall, 'Wordsworth's "First-Born Affinities: Intimations of Embodied Cognition"' *Poetics Today* 32.4 (2011), pp.693–715 (p.711).

consciousness; as something grows bigger to the sight, a corresponding growth of activity happens in the brain (711). Peter Stockwell (2012) notes that humans are 'products of our evolution, and our human size, shape and configuration, in relation to the world, provides the framework within which our brains understand the world, and ourselves'.[45] A consequence is that 'the physical material and sensible world and the abstract idealised and conceptual world are intimately bound together — dichotomy and discontinuity tend to be rejected or treated with caution in cognitive reading, including that between mind and body, literal and metaphorical, real and fictional' (5). In sonnet XII from the River Duddon sequence, Wordsworth describes an architecture suspended in time. He talks of the permanence in the stream with: 'Objects immense portrayed in miniature'; 'Wild shapes for many a strange comparison! | Niagaras, Alpine passes, and anon | Abodes of Naiads, calm abysses pure | Bright liquid mansions, fashioned to endure' (XII). If the mansion is a figure of permanence, then the poet practices permanence here by ensuring it is 'fashioned to endure' but this endurance takes place within a continuity; it is not rooted anywhere, finally, in the past.

Wordsworth goes back in his re-writing and re-visiting. He frames the 1799 poem as a question about the relationship of experience to future continuity. Critics read this relationship along several dimensions. Within 'boat stealing' for example, biographical happenstance (the going out, the finding of a pinnace) coexist with timeless aspects such as the geometry of a boat moving over the planar surface of a lake as well as the limits of memory and introspection. Forms go on to persist ambiguously, forward, into his thoughts, '[...] huge and mighty forms that do not live | Like living men moved slowly through my mind [...]' (1799.I.127-8). These forms seem Platonic yet are also said to 'live' although 'not as men do'. Critics including Christopher Ricks (1972), James A. W Heffernan (1984), Mark

[45] Peter Stockwell, *Texture: A Cognitive Aesthetics of Reading* (Edinburgh: Edinburgh University Press, 2012). p.4.

J. Smith (2013), Wenjuan Yao (2013) Aaron Ottinger (2016) have noted how the boat stealing episode and the other spots of time use geometry. For instance, Ricks observes the ambiguity inherent in the 'huge and mighty forms' that haunt the boy — do they 'not live'; live 'like living men'; or live, 'but not as men do?' (1799.I.127-8).[46] Ricks notes the lineation of these words, with 'Like' coming at the start of the line following 'live'. The white space follows 'huge and mighty forms that do not live' (1799.I.127) giving a pause filled with potential, or a 'flicker of hesitation' before the 'Like' of the following line (1799.I.128).[47] Ottinger's thesis notes that 'While not in all cases, generally speaking, "forms" and "shapes" for Wordsworth indicate a connection to the Platonic or geometrical figures'.[48] Heffernan examines how the cliff in the episode exploits geometry in that it, 'seems to cross the line between earth and sky, animate and inanimate, nature and supernature'.[49] To express this sense of 'limitlessness', however, the line has first to be drawn. Before the poem can gesture toward a sense of vast space ('the stars', 112), the reader is asked to imagine the line itself (Heffernan, p.52). Geoffrey Durrant (1970) argues that Wordsworth's, 'whole poetic bent is away from the local and the particular…the limitation of variety and of detail is imposed in the interest of a preoccupation with the placing of each object in its place on the scale of life and showing it in relation to everything else that exists between the rocks and the stars'.[50] Here the cosmos is regarded along Newtonian lines. Wordsworth reveals himself concerned with life, 'as a pattern woven between earth and sky by the interplay of vast and ultimately simple forces' (45). Scarry observes how the reader is asked to 'meditate at length on the upward stretching of the horizon' (217). W.K. Thomas and Warren U. Ober (1989)

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[46] Christopher Ricks, 'Wordsworth: "A pure organic pleasure from the lines"', in *William Wordsworth*, ed. by Graham McMaster (London: Penguin, 1972), pp.505-34.
[47] Ricks, p.515.
[48] Aaron J. Ottinger, 'The Role of Geometry in Wordsworth's "Science of Feelings"' (unpublished doctoral thesis, University of Washington, 2016), p.37.
[49] James A.W. Heffernan, 'Wordsworth, Coleridge, and Turner: The Geometry of the Infinite', *The Bucknell Review*, 29.1 (1984), 49-72 (p.52).
[50] Geoffrey Durrant, *Wordsworth and the Great System* (Cambridge, Cambridge University Press, 1970) p.47.

emphasize the impact of Wordsworth's geometric and mathematical interests on his description of the 'prism and silent face' of Newton in St John's College, Cambridge, found in the *Prelude*.[51] Yao follows Peter Stockwell (e.g., 2012) to examine kinaesthetic perception in the episode, so that the tilting of the horizon noted by Scarry is amplified into felt movement; a fictive movement suggesting ascendence.[52] Both writers emphasise the felt quality of shifting angles for the reader, imagining the boy on the lake. Smith argues closely that Wordsworth is always overtaken by a past that ultimately lies beyond memory even as he builds images of the past (503). Monique R. Morgan (2008) analyses narrative and lyric tendencies in the 1799 poem, observing that the poem's 'temporality becomes much more complex at the local level of an individual episode'.[53] The *Prelude* in this way involves 'narrative means serving lyric ends' (309). In other words, whereas individual episodes begin 'with some narrative elements' these are quickly subsumed 'to the subjective intensity and temporal suspension of lyric' (309).

The spots of time, like the small poems of Wordsworth's architectural figure, open both backwards into the unrememberable past and forward towards an unknown future. In turn my reading builds a different scale of attention based around invariance in cognition. Rather than either looking for a relationship to ideal (e.g., Euclidian, Platonic) forms or to a finally inaccessible past, we should pay attention to how the episode engages ongoing cognitive processes. In other words, a cognitive description shifts critical attention forward from the 'unrememberable time of being' and away from Platonic and Euclidean emphases on unchanging relations, towards ongoing experience. Consequently, rather than a specific locale or moment in time that Wordsworth and the reader attempt to recover from the past,

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[51] W.K. Thomas and Warren U. Ober, *A Mind Forever Voyaging* (Edmonton, Alta, University of Alberta Press, 1989).
[52] Wenjuan Yuan, 'A Cognitive Poetic of Kinaesthesia in Wordsworth' (unpublished doctoral thesis, University of Nottingham 2013).
[53] Monique. R. Morgan, 'Narrative Means to Lyric Ends', *Narrative*, 16. 3 (2008) pp. 298–330 (308-9).

we should re-imagine the spot of time as persisting into time through a relationship to evolved cognition in the mind of the reader. It is a this point that an awareness of predictability and surprise in the future-oriented mode of reading also indicates a meta-interpretation: The forms that move but not 'like living men' persist into Wordsworth's dreams emblematizing complementarity between science and poetry and embodying a form of revisiting in Wordsworth not limited to a specific place, time or textual element but focused on persistence within time of ongoing relationships between mind and world. In the section below, then, by tracing the movement of the young Wordsworth through the 'spots of time' in relation to cognition I demonstrate first the relevance of evolved cognition to key moments and secondly their relevance to Wordsworthian permanence and survival. Cognitive reading shows how, indeed, the subject matter of poetry does relate to its survival, as Wordsworth claims and it re-contextualizes the importance of the past in Wordsworth so that rather than specific times and places, the continuity of his verse is grounded in the invariant properties of cognition. Reading for evolved cognition, in turn, depends both on evolutionary history and science. Another way of putting it is that cognitive reading re-grafts Wordsworth's focus on the past and on hidden origins onto the present unfolding of cognition. Finally, the chapter examines the forms in Wordsworth's poem in relation to thematic reading.

*II. Cognitive Reading in the 1799 Prelude*

The spots of time begin from Wordsworth looking back to the origins of his mind and creativity to orient himself to the future writing of *The Recluse*. The 1799 poem starts as Gill (2011) notes 'at the dawn of life with the baby at the breast' and 'traces a development from this infant's growingly tenacious apprehension of the world outside itself, through to the

ecstatic recognition by the poet in his seventeenth year that he participated in one life' (63). Gill identifies the end of the poem as a *confessio fidei* and suggests that Wordsworth needs 'not only to understand but also to explain how he comes to be able' to make his grand claim and hence move into the future (62). The first lines of the 1799 poem ask a question: 'Was it for this [...]?' (1799.I.1-26). In other words, what does Wordsworth's history add up to given his failure to start on *The Recluse,* the poem he and Coleridge had envisaged at Alfoxden and which Coleridge would continually challenge him to complete? In Goslar where sister and brother were staying midwinter, unable to socialise because neither spoke German and Dorothy's position was difficult to explain, Wordsworth 'turned in, intensely, upon himself'.[54] He begins to compose the poem experiencing physical pain and weakness which often accompanied his composition. By the time Wordsworth left the town, the 'coherent 400-line poem on his early years had come into being'.[55] During this time he also writes the 'Lucy' and 'Matthew' poems meditating on loss and the *Essay on Morals* arguing that systematic thinking must 'melt into our affections' and become part of the 'blood and vital juices of our minds' if it is to have continued relevance. The 1799 *Prelude* lines follow the achievement of the *Lyrical Ballads* and the composition of major poems including 'Tintern Abbey' and *The Ruined Cottage* but Wordsworth had not started on *The Recluse* and as yet did not know if his reputation as a poet would be assured. Morgan notes that the modern reader comes to the poem already knowing the answer to Wordsworth's question because readers know that Wordsworth did succeed in writing canonical poetry.[56] Yet at the time Wordsworth was composing his 400-line poem on his early life the question was a genuine enquiry.

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[54] Stephen Gill, *William Wordsworth: A Life* (Oxford: Oxford University Press, 1989), p.159.
[55] Gill, (1989) pp. 160-161.
[56] Monique. R. Morgan, 'Narrative Means to Lyric Ends', *Narrative*, 16. 3 (2008) pp. 298–330.

Wordsworth's 'Was it for this [...]' (1799.I.1) involves a beginning ('it') and a situation ('this'). The poem asks about the relation between an antecedence and the meaning of what follows and in the future context of *The Recluse*. Wordsworth begins during this time to incorporate questions about the future in his composition, realizing that 'the creative power of the present moment' (that Gill identifies as the 'this') 'entails an obligation to the future'. This obligation: 'May spur me on, in manhood now mature, | To honourable toil' (1799.I.452-53). Beginning engages with change on the one hand, the expectation that a present state will change into another state and continuity on the other, the expectation that what is changed nevertheless continues to relate to the act of beginning. In *The Ruined Cottage* and 'Tintern Abbey', Wordsworth had, as Gill observes, 'already begun to give an account of his own life, which took as its starting point a profound gratitude that somehow, despite all loss, pain, and discontinuity, he had survived, not just as a whole and joyful man, but as a creative being' (162). Lines connected to *The Pedlar* find their way into the *Prelude,* for instance, through being transferred into the first person.[57] On the 1799 lines, Gill notes that Wordsworth 'deepened' the 'brief and schematic accounts he had already attempted' through evoking 'the pleasures and pleasing terrors of childhood and by mediation on memory's power both to retain an image of the self as one evolving whole and to draw nourishment from the past for the sustenance of the present and the future' (162). Here again understanding how experience informs present and ongoing survival constitute a motive force for Wordsworth. The spots of time relate directly to the questions and answers forming the kernel of the 1799, 1805 and 1850 poems. As well as looking back, Wordsworth looks forward in writing the poem. He writes that the spots of time have a 'fructifying virtue' or a 'renovating virtue' in later versions.[58] The direct response to his question ('Was it for this

[57] Sally Bushell, 'Wordsworthian Composition: The Micro-*Prelude*', *Studies in Romanticism*, 44.3 (2005), 399-422 (p.416).
[58] John Beer, *Wordsworth and the Human Heart* (London: Macmillan, 1976).

[...]?') beginning the poem, is to write the series of vivid episodes later included in Book I of the 1805 and 1850 texts. Another question then follows the listing of these episodes. As Jonathan Wordsworth, M.H. Abrams and Gill (1979) write, he asks: 'What is the link between such childhood experiences and his adult creativity?'.[59] The strict 'spots of time' sequence follows and appears in the 1805 and 1850 texts. In the 1799 text this sequence follows immediately, whereas in the later texts it is deferred. Jonathan Bishop (1959) observes that 'spots of time' should be generalized to include vivid childhood episodes in the *Prelude* texts and not only those identified by Wordsworth explicitly.[60]

The 'boat stealing' episode is one of those memories that the poet says retains a 'fructifying virtue' where there is 'life and food for future years' (1799.I.288-90). In establishing what Gill (2011) terms 'continuity of transmission' it is widely acknowledged that Wordsworth is drawn to specific memories and places from the past through memory and imagination, in person and through textual revisiting (10). Gill, for instance, distinguishes between 'revisitings' as a 'return to the past *in his writing*' and 'retrospection' or 'dwelling on memory of the past' (112). He notes that such revisitings are 'fundamental to those elements in Wordsworth's poetry which maintain its continuing appeal' (9). Yet Wordsworth's casting backwards and his identification of places and times are exceeded by the imagery he deploys in the 'spots of time' and the ways he relates past and future. In other words, though Wordsworth positions the poem itself as a search for origins to prepare the way for a larger work, in both the poem's macro structure and in the microcosm of each spot of time, what comes before always exceeds his powers of expression. For example, the 1814 'Preface' to *The Excursion* notes that a search for the 'origin and progress' (p.171) of Wordsworth's being prepares the way for *The Recluse*. Wordsworth wants to create a poem

[59] Jonathan Wordsworth, M. H. Abrams, Stephen Gill, 'Preface', in *The Prelude 1799, 1805, 1850*, ed. by Jonathan Wordsworth, M.H. Abrams, Stephen Gill, Norton Critical Edition (New York: Norton, 1979), pp. ix-xii (p.x).
[60] Jonathan Bishop, in 'Spots of Time', *ELH*, 26.1 (1959), 45-56 (p.45).

that '*might live*' and so 'it was a reasonable thing that he should take a review of his own mind and examine how far Nature and Education had qualified him for such an employment' (pp.170-1). It is 'As a subsidiary to this preparation' that 'he undertook to record, in verse, the origin and progress of his powers, as far as he was acquainted with them' (p.171). The poem is said to be 'biographical' and 'conducts the history of the Author's mind to the point when he was emboldened to hope that his faculties were sufficiently matured for entering upon the arduous labour which he had proposed to himself' (p.171). As Gill notes Wordsworth 'declares explicitly...that these explorations of his past have taken shape in an attempt to understand himself and to explain to Coleridge "how the heart was formed | Of him thou lovest'" (Gill, p.9). In going back, Wordsworth hopes to go forward. Yet Wordsworth famously revises and rewrites his work, a fact that already suspends his search for origins, as it were, in an ongoing and creative process. Susan Wolfson (1984) for example argues that the poet's practice of continually revising key passages means that there is no 'true Wordsworth' to be recovered from his work.[61] On the other hand, edited volumes of the *Prelude* tend to privilege earlier texts as being more authentic and 'Wordsworthian' hence identifying authenticity with periods of time in the poet's youth prior to extensive revision and re-remembering.[62] Gill notes that 'Crossings out, wholesale deletions, drafting in margins, asterisks, arrows and brief memoranda are the messy track of the struggle to impose fresh ideas on to existing verse' (20). Sally Bushell (2002) interrogates longitudinal processes of composition and revision in relation to how meaning is read in long poems.[63] Here the notion of an authentic or original poet meets the idea of an 'active reader'. The processes of long poem composition make gaps or indeterminacy in the text. The reader must extract the

[61] Susan J. Wolfson, 'The Illusion of Mastery: Wordsworth's Revisions of "The Drowned Man of Esthwaite," 1799, 1805, 1850', *PMLA*, 99.5 (1984), 917-935 (p.918).
[62] David Chandler, 'The Importance of the *Three-Part Prelude*' *Essays in Criticism*, 57.3 (2008), 193-209.
[63] Sally Bushell, *Re-Reading* The Excursion*: Narrative, Response and the Wordsworthian Dramatic Voice* (Abingdon: Routledge, 2002).

system 'for himself' so that there is a 'multitude of possible personal responses to the poem's teaching'. [64] Given the practice of revision and revisiting it is difficult or not meaningful to locate an authentic Wordsworth in the past so much as find traces in an ongoing process.

Wordsworth does make numerous specific revisitings, of course. The 1799 poem for instance returns to 'moment of prophecy' as Wordsworth tries to explain 'what had led him to believe he had a poetic vocation and why after a decade's unsettled wandering he had returned to the Lake District to fulfil it' (Gill, p27). In his early poem, 'The Vale of Esthwaite' (c.1787) Wordsworth 'imagines the close of his life and declares that if he is spared his mental powers he will remember or gaze on his native mountains' (27). In turn 'the melancholy portentousness of the 17-year old's deathbed farewell is critically placed by the adult' in 1799, the words: 'Were uttered in a casual access | Of sentiment, a momentary trance | That far outran the habit of my mind' (1799, II. 164-78). Although casual and momentary this experience was 'important enough to be included' as evidence of: 'That sense of dim similitude which links | Our moral feelings with external forms' (II.165). In other words, Wordsworth seeks to locate and examine in the *Prelude*, 'nothing less than the ground of convictions whose origin and significance this autobiographical poem is devoted to exploring' (Gill, p.27).

My aim here is to show that Wordsworth's poetry is defined by cognition in a way that impacts interpretation.[65] Wordsworthian intimacy always exceeds automaticity in human relations as Nancy Yousef (2013) claims.[66] Intimacy in Wordsworth should be thought of as 'para-cognitive' in that it always exceeds reductive interpretations.[67] The spots of time are certainly para-cognitive in that their meaning exceeds or is adjacent to the automaticity of evolved cognition. Yet identifying automaticity in the 1799 poem nevertheless engenders a

[64] Bushell, *Re-Reading* The Excursion, ch.3. Ebook.
[65] Yousef.
[66] Nancy Yousef, *Romantic Intimacy* (Sanford: Stanford University Press, 2013).
[67] Yousef.

radical shift in how these episodes should be contextualized. As we have seen Jerome Barkow, Leda Cosmides and John Tooby's (1996) argument shows how the Standard Social Science Model (SSM) works not only by explicitly disregarding cognition but through simply assuming that culture is unmediated by mental processes.[68] My purpose below is to show how, as the reader moves through key episodes in the spots of time, elements in these episodes interact with cognition to inform Wordsworth's imagery. Evolved cognition mediates the central episode of the 'boat stealing' passage, for example, where a child's perspective changes as he rows across the surface of a lake. Specifically, the episode engages a suite of cognitive biases including the attribution of agency, the operation of empathy and the psychological encounter with the shape of the landscape itself. I compare readings through geometry (line, angle, shape) and kinesthetics (felt movement). What Scarry terms the 'materials of composition', consisting in specific interactions between textual elements and cognitive dispositions, should be expanded to include the attribution of agency, empathy and the evolutionary psychology of landscape.[69] The forms, for instance, should be understood in the context of cognitive evolutionary invariance involving agency attribution and intuitive response to the landscape just as much as indicating Platonic or Euclidean permanence or conversely gesturing towards the time of 'unrememberable being' in Wordsworth's own history.[70] Just as Wordsworth's image of the present from the *Essay Supplementary* 'faithfully supported by its two wings, the past and the future' we should imagine a key origin of these episodes as an ongoing, active process. The spots of time retain a 'fructifying virtue' in part because they engage specific aspects of cognition in the reader. Finally, concluding this chapter, I note the possibility of a futural interpretation.

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[68] Jerome Barkow, Leda Cosmides and John Tooby, *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (Oxford: Oxford University Press, 1996).
[69] Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999).
[70] Aaron J. Ottinger, 'The Role of Geometry in Wordsworth's "Science of Feelings"' (unpublished doctoral thesis, University of Washington, 2016), p.37.

I focus this reading on the pivotal event in the boat stealing episode in which a child's perspective changes as he rows across the surface of a lake. What had at first been a horizon because of the steep line of sight sinks to reveal a farther horizon as the boat moves horizontally, continuing to grow in contrast as the boy moves on. This changed relation is an example of *parallax* enabled by line angle and shape. Parallax is where: 'Difference or change in the apparent position or direction of an object as seen from two different points' and is used in astronomy, as a special kind of triangulation, to measure distance that cannot be directly measured.[71] Line, angle and perspective provide the conditions necessary for the episode. Child, boat, water, sky and mountains appear as points and vectors as the reader progresses. The passage of the boat across the water is at one point reduced to a single line, the boat moving on:

> Leaving behind her still on either side
> Small circles glittering idly in the moon
> Until they melted all into one track
> Of sparkling light. [...]
> (1799.I.93-6)

The rhythmical language and enumeration in describing the motion of the boat emphasizes that an austerity and order underlie motion: 'twenty times | I dipped my oars…' (1799.I.103-4) and the functioning mechanics in play: 'And, as I rose upon the stroke, my boat | Went heaving through the water, like a swan —' (1799.I.105-6). Scarry notes the cadence of the rowing. Prior to these orderly actions, the boy has looked over the horizon and seen: 'nothing — but the stars and the grey sky' (1799.I.102). The rising cliff interposes into this sense of orderliness. The stars are obscured by the rising cliff which 'Rose up between me and the stars' (1799.I.112) although the geometry of the action again gestures towards them. Heffernan points out that the cliff, 'seems to cross the line between earth and sky, animate

[71] "parallax, n." *OED Online*. Oxford University Press, September 2019. Web. 13 November 2019. From: Wordsworth, William 'The Two-Part Prelude' in Jonathan Wordsworth, *William Wordsworth: The Pedlar, Tintern Abbey, and The Two Part Prelude* (Cambridge, Cambridge University Press, 1993) pp.41-76.

and inanimate, nature and supernature' (52). In order to express this sense of 'limitlessness', however, the line has first to be drawn. Before the poem can gesture toward a sense of vast space ('the stars', 112), the reader is asked to imagine the line itself. Heffernan notes that the rising cliff, crossing the pre-established horizontal line, impacts the boy because of the 'angle of vision' from which it is seen (Heffernan, p.63). Scarry notes as well that in this passage the reader is asked to 'meditate at length on the upward stretching of the horizon' (Scarry, p.217). In the sense that the cliff appears suddenly and unexpectedly so thought falls away, the terror that the boy feels may perhaps be an example of the Kantian dynamical sublime. However, it is the intercession of the cliff between the boy and starry sky, that engenders terror, rather than the scale of the starry sky. The vastness of 'nothing but the stars and the grey sky' (1799.I.102) which plausibly might have engendered a sense of anomie, is blocked by the cliff. And before this the 'nothing' (102) had no impact; the boy had counted and rowed. The repetitive rowing, his self-locating within the world through angles — 'I fixed a steady view' (1799.I 99) — constitutes a structure preventing exposure to the sublime. What interrupts the boy is not the vastness of space indicated by parallax but the agency of the cliff itself which 'Upreared' (1799.I.110) and 'Strode after' (114) him, 'like a living thing' (113). The sublime episode fails to resolve in reason but defers resolution into those moving forms, which themselves are very unlike representations of reason for they 'do not Live | like living men' (1799.I.127) and they 'trouble' (129) his dreams. The cliff comes close to the human eye of the boy, filling his field of view. Rather than being distant, the cliff is sublime because it is viewed from an angle that connects the 'vital energies of landscape and the powers of the human eye' (Heffernan, p.70). The new horizon rises into infinity, only after having been fixed.

Geometry not only indicates beyond itself (as in Heffernan's notion of the line as limit, gesturing towards infinity) but partly constitutes the moment of perception through

interacting with the ability of poetry to break a Euclidean chain of thought. It is well known that Wordsworth expresses interest in mathematics and geometry. He reads Newton's *Optiks* in the Hawkshead School library as a boy and Euclid's *Elements* sits 'on the fourth shelf of one of the large bookcases on each side of the fire' at Racedown Lodge.[72] In the *Prelude* the poet finds pleasure 'gathered from the elements | Of geometric science' (1805.VI.135-7). He finds solace in 'mathematics, and their clear | and solid evidence' (1805.X.901-4). Mathematics links cognitive and affective domains in Wordsworth according to Ottinger. Wordsworth's poetry deploys embodied cognition alongside mathematical principles (Ottinger, p.8) Wordsworth uses poetry to interfere with sequential thinking in both a Euclidean and associationist sense. He unbinds a particular feeling from its associated ideas using poetry (16). Poetry allows the order in which thinking takes place to be disrupted, so that our response to the world is also changed: 'Wordsworth suggests that poetry can actually upset this order connecting idea *A* and feeling *a* to idea *B* and feeling *b,* and so on. Instead, Wordsworth's poems communicate a "gap" or break that disrupts the consistency of established sequences of thought'' (18). This event might terminate in anomie (18). For example, Robert in *The Ruined Cottage* falls into madness and ruin himself once his orderly routine is disrupted. Because poetry can engender a break in association of one idea to another, severing links of Euclidean axiomatic thought, a corresponding reflexive act is required, for a new image and feeling to come into being. Poetry can reset 'the logical order of thoughts and feelings' through interaction with the Euclidean geometry universally taught to schoolboys at the time in England (20). Geometric relations not only indicate limit and the infinite but partly constitute the episode. For example, Ottinger notes that in the boat stealing and ice skating scene (in which Wordsworth is 'figure skating') his sudden stopping 'creates

[72] W.K Thomas and Warren U. Ober, *A Mind Forever Voyaging* (Edmonton Alta: University of Alberta Press, 1989); Gill, p.107.

the illusion that the world is spinning ever more rapidly' (37). In both episodes 'Wordsworth discovers or stumbles upon some shape or form' recalling Euclid (37). He physically bumps 'against the idea of these figures and their animation or their coming into existence' (37). The spots of time impact consciousness but do not inform, or 'attempt to control the mind' (166). Yet evolved cognition shows that the 'figures' are interacting with intuitive biases in perception. If the image touches 'the phenomenal self' in Wordsworth it not only provides 'an intimation of its existence...like one universe causing a ripple in a different, remote, impossibly connected universe' (166) but in part internally constitutes the very spot of time itself. What disrupts axiomatic thought is evolved cognition, enabling the intuitive response of the boy and of the reader within the episode.

Scarry's (1999) 'virtual reinvention' of imagery studies (Richardson, 2010) grounded in cognitive science identifies 'global features' of texts that engage with cognition in specific ways to afford vivid imagining in the reader's mind.[73] What is imagined is part of the way in which imagining happens, not only an obscurity or a surface which the mind comes against. As we will see in chapter four on *The Tuft of Primroses* the size and shape of a flower is, for example, more easily imagined vividly than the larger crucible of a valley. Scarry cites experimental results from Stephen Kosslyn (1996) in cognitive psychology that show a 'ratio of extension to intensity' in mental picture making.[74] Scarry's driving question is how imagining unaided is 'ordinarily enfeebled and impoverished' whilst 'when under authorial instruction' it comes at times to 'closely approximate actual perception' (4). This question which is also found in Plato, recurs in cognitive approaches to literature, as Zunshine (2010)

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[73] Primarily in: Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999); Alan Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010). For a useful contextualization of Scarry's work see: Mary Thomas Crane and Alan Richardson, 'Literary Studies and Cognitive Science: Toward a New Interdisciplinarity', *Mosaic: A Journal for the Interdisciplinary Study of Literature* 32.2 (1999), 123-40 (p.137).

[74] Scarry, p.53. Stephen M. Kosslyn, *Image and Brain: The Resolution of the Imagery Debate* (Cambridge: MIT Press, 1996).

observes: the products of imagination are more feeble than the way minds experience percepts in the world.[75] The converse is the 'rich and vivid' experience of literary reading, when compared to unaided imagining, such as in a daydream. Scarry identifies what she has termed 'global features' of narrative that appear to help instruct vivid imagining (9). Specific techniques assist in imagining and what we imagine may not be neutral to the way in which something becomes present to the imagination. The ability of some texts to afford readers vivid imagery without the benefit of any mimetic qualities, is tied with a germinative idea in cognitive approaches to literature that the reader follows and experiences the scene the narrator is imagined to have done, because in imagining the scene through the text's instruction, the mind images those same experiences to itself (9). Hence in tracing the progress of a boy along the surface of a lake the reader's cognition is partly enacting that experience as if it were taking place in the first person.

In the first instance where the intuitive response of boy and reader inform the episode, parallax itself interacts with nature imagery. Psychological studies where natural scenes are reproduced on videos report that viewers perceiving depth in the image feel greater benefits than if the screen did not display depth. [76] In these studies, participants using screens report an 'increase in user's connection to the wider social community, connection to the natural world, psychological wellbeing and cognitive functioning' (452). The 'parallax problem' interferes with these benefits and is one feature that marks out a reproduction of nature from an actual window in terms of its cognitive impact (463). Being able to perceive changed angle within a natural scene impacts the sense in which that scene is regarded as genuine and impacts on the felt reality of what is viewed. Because of the way it is composed,

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[75] Lisa Zunshine, 'Introduction: What is Cognitive Cultural Studies?' in *Introduction to Cognitive Cultural Studies* ed.by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.1-43 (p. 19).
[76] On the mediation of parallax, see: Batya Friedman et al., 'Office Window of the Future? — Field-Based Analyses of a New Use of a Large Display' in *International Journal of Human - Computer Studies*, 66.6 (2008), 452-465. Further work is reported in Peter Kahn, *Technological Nature: Adaptation and the Future of Human Life* (Mass: MIT Press, 2011).

an event of line, angle and perspective coupled with natural scenery, has psychophysiological impact. Moreover, evolved cognition offers a framework for the explananda of the boy turning back and stealing home.

The central episode of parallax is described by Wordsworth as a 'huge cliff' (1799.I.108 which: 'Rose up between me and the stars, and still, | With measured motion, like a living thing | Strode after me. [...] (1799.I.112-4) within a landscape with specific natural features, namely line, angle and perspective. At the same time the landscape itself comes to interpretation as already participant in meaning and not as a neutral matter. Adjacent to the scene drawn using line and angle and lent emotive valence through parallax, is the sense in which the landscape itself corresponds to theorized ways in which mind and nature interact. The imagined landscape itself contributes to the sense of fear in the episode. For example, as Peter Kahn, (1999) who studies environmental psychology and landscape aesthetics, notes in relation to landscape preferences, 'people consistently reported low preferences for settings that were blocked, such as a dense tangle of understory vegetation dominating the foreground of a scene'. [77] These findings, 'did not appear to be directly attributable to a wide variety of competing explanations, such as knowledge about an environment, urban versus rural upbringing, or race'.[78] Research in the 1960s 'provided tentative evidence that middle levels of complexity — the richness or number of different objects in the scene — largely explained environmental preferences and later research from the 1980s and 1990s suggests that complexity is probably one factor among others (Kahn, p.11).

Kahn reports two further characteristics of landscape that affect preference. *Legibility* describes the extent that one could find one's way back if one ventured further into the scene depicted. Such scenes offer visual access, but with distinct and varied objects to provide

[77] Peter Kahn, *The Human Relationship with Nature: Development and Culture* (Cambridge, Mass: MIT Press, 1999).p.10.
[78] Kahn (1999).p.10.

notable landmarks. A second characteristic is *mystery,* that one could acquire more information by venturing deeper into the scene and changing vantage. Such scenes include winding paths, meandering streams and brightly lit areas partially obscured by foliage (11). The boy enters one kind of landscape, characterised by calm water, before at parallax crossing into a second more threatening kind characterised by the cliff impinging more and more into the foreground, blocking out a view of the sky. He becomes terrified as the cliff apparently advances on him in what Yao identifies as fictive movement (we understand that the cliff is not really moving, but it seems to move). In doing so, the interceding cliff also alters the landscape that is apparent from the boy's view. This adds interaction of mind and landscape to the parallax event through evolved cognition. The landscape is not neutral but is part of the 'matter' being expressed.

In both the boat stealing and ice-skating episodes, the boy is brought into a geometric relation with the stars and the landscape. In ice-skating, the boy cuts across 'the shadow of a star | That gleamed upon the ice' (1799.I.173-4) and once he has:

> Stopped short; yet still the solitary cliffs
> Wheeled by me, even as if the earth had rolled
> With visible motion her diurnal round;
> Behind me did they stretch in solemn train
> Feebler and feebler, and I stood and watched
> Till all was tranquil as a summer sea.
> (1799.I.180-5)

For Richardson this moment touches on a neural register of sublime experience because the reader glimpses the massive, darkly moving brain beneath awareness. Unlike the Kantian dynamical sublime, however, which resolves in reason, 'the subject is not left marvelling at the power of Reason but rather stunned by the capacity and complexity of the brain'.[79] For example Miall notes evidence that 'the size or distance of an image is also represented' in the

[79] Alan Richardson *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010).pp.28-9.

size of the area of brain involved in representing it to consciousness; if the cliff in 'boat stealing' grows in Wordsworth's vision or if the imagination focuses the 'solitary cliffs' then a corresponding growth of activity happens in the brain of the reader (711). Physiologically completely inaccessible to the experience, such an episode nevertheless highlights for Richardson that 'the brain is at least partly creating the world that the mind perceives' (Richardson, p.18).

Scarry's reading shows how the lines enact a movement from horizontal to vertical, so that the floor rotates, 'as polished ice lifts slightly up to the tufted surface of the grassy plain, then tilts further upward to shadowy banks, and finally stretches further upward to the wheeling cliffs'. This kinaesthetic movement uses the dizziness of the skater to relate multiple scales and acknowledges the power of subjective experience for '—yet still the solitary cliffs | Wheeled by me, even as if the earth had rolled | With visible motion' (I. 181-3). The 'still' functions to show the motion as fictive even as it expresses the subjective experience of turning. The final image is of a line ('solemn train', 183) running out into invisibility ('Feebler and feebler', 184) and, as the boy watches, everything fades into a single featureless surface ('tranquil as a summer sea', 185). In the felt swing of the young boy as he careens across the frozen lake Scarry notes that: 'We feel the full sway of his body as he veers off to solitude because the motion is performed in miniature with the roll of our eyes' (149). Wordsworth positions 'glanced sideway' at the start of the line below, so that 'our eyes, rolling sideways, enact the very motion the skater's body carries out on the mental retina' (149). Yet just as geometric relations are not only indicative of what lies beyond or beneath awareness, the movements are not only kinaesthetic. The moment of arrest when Wordsworth 'Stopped short' (180) on the ice also reveals the centrality of subjective experience and points to what Richardson terms 'the ordinarily secret workings of the brain' (25).

Of course, the most obvious sense in which the boat stealing episode engages evolved cognition is in the way the young Wordsworth attributes agency to a part of the landscape. Just as the leech gatherer in 'Resolution and Independence' undergoes a topological transformation that affords the attribution of agency, the cliff in the boat stealing episode 'Upreared' (.I.110) and 'With measured motion, like a living thing/ Strode after me' (112-4). Wordsworth feels its presence, is terrified of it and flees back to shore. Moreover, the stalking quality of the pursuit that lends a shine of the supernatural communicates through the poem to the 'strange forms' that continue to haunt the boy's dreams: The 'huge and mighty forms that do not live | Like living men moved slowly through my mind | By day, and were the trouble of my dreams' (127-29). In the sense that the cliff appears suddenly and unexpectedly so that thought falls away and leaves the subject experiencing reality, the terror that the boy feels may be an example of the Kantian dynamical sublime. However, it is the intercession of the cliff between the boy and starry sky, that engenders terror, rather than the scale of the sky. The vastness of 'nothing but the stars and the grey sky' (102) is blocked by the cliff. And before this the 'nothing' (102) had no impact as the boy had counted and rowed. The boy 'fixed a steady view | Upon the top of that same craggy ridge, | The bound of the horizon' (99-101). What interrupts the boy is not the vastness of space, but the agency attributed by the boy to the fictive movement of the cliff. This cliff engages intuitive biases regarding agency.

The episode is of course filled with agents in its use of terms such as the 'spirits' (69) and 'quiet powers' (73) as well as its implication of power and intention in the landscape such as the 'rocky steep' that 'uprose' (97). Ambiguous agency radiates throughout the lines surrounding the boat stealing episode, including the 'Gentle powers' (35) that drive 'anxious visitation' (38). There are those 'spirits' (69), 'quiet powers' (73) and the 'Others' (77) who administer 'Severer interventions' (I8). These agents lead the reader into the boat stealing

passage and the boy is ‘guided’ and ‘led by them’ (81). And once the boat is returned, Wordsworth describes how the ‘huge and mighty forms that do not live | Like living men moved slowly through my mind | By day, and were the trouble of my dreams’ (127-29). Agency both leads in and out of the episode, as well as surrounding it. In the boat stealing and ice-skating episodes, having been progressing through an ordered, geometric world, the boy’s conscious awareness is impinged upon by the ways nonconscious aspects of cognition engage with invariance in the environment.

The reader’s imagining may well mimic this event through the episode. Wordsworth’s poetry, however, is not a clear window onto psychology, as Rexroth observes. Similarly, Yousef identifies Wordsworth as ‘para-cognitive’ in that automaticity in his work is always exceeded. If evolved cognition informs the way these episodes unfold, as I hope to have shown, then interrogating the mode of history in which to do cognitive reading alters the critical context into which meaning is received. The imagined future Rohrbach identifies as what *might will have been* is also imagined by the reader as *what was the might will have been* because we are already in the future and more specifically able to deploy new knowledge. Moreover, cognitive criticism itself exists in relation to new evidence in specific ways so that *what was might will have been* becomes what *might* (be read as) *what was the might will have been*. The point is that if Wordsworth’s prophecy of a future informed by science, which he makes in the ‘Preface’ to *Lyrical Ballads*, is partially fulfilled by scientific developments for the modern reader, it is also confronted out of that future by what would have been unforeseen and new information. In turn, this new information offers a changed context for reading.

H.W. Piper (1962) famously argues that between 1793-4 ‘Wordsworth ‘absorbed the new philosophy of nature’ from the French *philosophes* and ‘began to apply it to his own

experience'.[80] Wordsworth's forms derive from an attempt to communicate with the life in nature, emphasizing direct experience; the forms of nature expressed '…an independent life which was to be known and loved for its own sake and this love brought with it illumination and benevolence towards all life' (Piper, p.79) For Piper, Wordsworth is able to frame the 'moments of ecstasy' he had experienced in childhood 'with a theory which explained them both in religious and scientific terms as a direct contact with the divine principle of the world' (79). Piper's book describes a process in which Wordsworth's originary experiences in nature are later taken up with and changed by a new doctrine of the living universe. Wordsworth was absorbed in the intellectual life of Paris on this view. He was 'in a state of intellectual excitement and intensely receptive to new ideas' (60). Wordsworth's pantheistic ideas began to appear shortly afterwards and '…in forms and phrases that point to the theories held by these men rather than to more remote and scholarly origins' (61). Initially explained in terms of eighteenth-century Christianity and only later, once the poet had been exposed to new ideas, in new terms. In this way Wordsworth's 1791 letters describe the Simplon Pass 'in the language of eighteenth-century Christianity and it was only in 1799 that he remembered it as pantheistic' (62). Conversely, by the time of his next verse in 1794, he had 'acquired some of his most characteristic beliefs and his opinions then were almost exactly those which *The Prelude* ascribes to his Cambridge days. An experience is first elaborated in terms of Wordsworth's Christian upbringing and only later as part of a doctrine of the living universe. In other words, a powerful experience is given a post-hoc elaboration. The interpretive outcome in this example terminates in observing the changing cultural meaning that Wordsworth gives to his experiences. Though the interpretive outcome depends on the

[80] H.W. Piper, *The Active Universe: Pantheism and the Concept of Imagination in the English Romantic Poets* (University of London: Athalone Press, 1962).

elaboration, as Piper's account details, it also depends on iteratively new readings of the originary experience itself and its impact on reading.

Wordsworthian permanence and survival has long been recognised as involving universal or shared human experience. Gill (2011) notes, for example, that the 'one common bond of all human hearts is that we are mortal' (9). Yet what has remained unexamined are ways in which cognitive science opens notions of human nature in Wordsworth to go beyond broad acceptance of shared physiology and experience of mortality to inform his poetics of survival.

Gill's account shows Wordsworth being 'drawn imaginatively to emblems of survival by the deepening conviction that values could not be nurtured other than by continuity of transmission across the generations' (112). He observes that 'peace; permanence; endurance' were Wordsworth's overwhelming concerns (112) . The poet's 'fundamental project' according to Bennett is 'the articulation and practice of such survival' (96). The Romantic period witnessed 'new ways of imagining futurity' in which the present came to be a '*singular* historical period in its own right' (Rohrbach, p.18). History accelerated from the 1790s onwards and Wordsworth observes in the 'Preface' to *Lyrical Ballads* 'the great national events which are daily taking place' (Rohrbach, p,18). Where Wordsworth complains of the 'degrading thirst after outrageous stimulation' (*PLB,* p.73) in the 'Preface' he of course engages with such Romantic tropes as speed and uncertainty. The period sees an 'unprecedented sense of speed or acceleration' where 'major historical events take place in succession' alongside 'the idea of an unknowable, unpredictable future' (Rohrbach, p.18). However, the poet then puts forward a counter to that change in the form of permanence or more precisely the 'deep impression' (p.73) of his that the human mind has 'certain inherent indestructible qualities' (p.73) and is subject to 'certain powers in the great and permanent objects that act upon it, which are equally inherent and indestructible' (p.73). Wordsworth

sets up a relationship between mental structures and the 'great and permanent objects' in nature and poetry (p.73).

Poetry will survive into the kind of futures imagined in Bennett and Rohrbach's studies (ones influenced by scientific, technological and social change) because human beings share the same 'human heart'. After all, the poet is described as 'the rock of defence for human nature' and: 'In spite of difference in soil and climate, of language and manners, of laws and customs, in spite of things silently gone out of mind and things violently destroyed, the Poet binds together by passion and knowledge the vast empire of human society, as it is spread of the whole earth, and over all time' (*PLB*, p.90). Wordsworth observes 1835 that: 'If my writings are to last', 'It will I myself believe, be mainly owing to this characteristic. They will please for the single cause, "That we have all of us one human heart!"'.[81] McLane highlights Wordsworth's attempt to define the poet in the 'Preface', 'not in his distance from other men but insofar as he embodies what is most human among them' (29). His definition of poetry 'begins with the poet's sensorium' (27). In recent decades critics such as Richardson (2005) have drawn parallels between Wordsworth's focus on the 'sensational, bodily, and emotive origins of mind' and both Romantic era and contemporary sciences of mind. Richardson sees Wordsworth's emphasis on embodiment as connecting forward to modern ideas about evolved cognition, observing that 'A genuine poetic sensibility for Wordsworth, is one that continues to register the permeation of thought with feeling and remains in touch with the sensational, bodily, and emotive origins of mind'.[82] He draws on the image above of the 'beating mind' in the *Prelude* (1799.I.13-16) to emphasize the poet's awareness of biological and neuroscientific thinking at the time, drawing connections between Wordsworth's treatment of the infant mind and Enlightenment thinkers such as

[81] As noted by Gill (2001). See also: John Beer, *Wordsworth and the Human Heart* (London: Macmillan, 1978).
[82] Alan Richardson, *British Romanticism and the Science of the Mind* (Cambridge: Cambridge University Press, 2005). 'Chapter 3'. Kindle ebook.

Herder (Richardson, p. 66). Both thinkers for example engage 'in overlapping projects, each drawing eclectically on Lockean sensationalist psychology, Enlightenment anthropology, the vein of French thought running back to Diderot, and the new naturalistic and biological approach to mind then prominent in radical circles' (67). Richardson notes that the interest in 'cognitive unfolding that confounds distinctions between reason and emotion and that places the infant in a world of passionate social interaction from the moment of birth [...] looks as much forward to recent cognitive neuroscience as backward to analytic philosophy' (67). However, Richardson's cognitive historicist approach (which he originates with Francis Steen) never rules on the relative validity of scientific or literary evidence. The relationship between the validity of scientific and literary evidence and the place of each in reading remains largely unexplored.

McLane describes the emergence of 'a literary anthropology — a conscious conjunction of the literary and the human' around this time and Wordsworth's words as an 'invocation' of the human. Yet they also invoke the influence of nature. The *Prelude* contrasts the 'mean and vulgar works of man' (I.135) and 'high objects, with eternal things, | With life in nature' (I.136-7). It contrasts the 'fretful dwellings of mankind' (I.13) with the river Derwent tempering Wordsworth with 'A knowledge, a dim earnest, of the calm | Which Nature breathes' (I.13-15). The 'infant babe' passage (II.292-6) talks of circulation in the 'infant veins' and the sense in which they carry weight, 'gravitation' and close connection; a 'filial bond' that connects the infant to 'the world'. Wordsworth describes how as a young boy after summer days of 'tumult' and 'loud uproar': When all the ground was dark, and the huge clouds | Were edged with twinkling stars, to bed we went | With weary joints and with a beating mind' (I.13-16). The young friends row away from a companion with a flute, and impressions are carried into the heart with weight, where 'the sky, | Never before so beautiful,

sank down | Into my heart and held me like a dream' (II.213-15). The ethereal attains imagined mass and impact through the interaction of human action and nature.

Wordsworth links the future reception of his poetry to its subject matter, writing that the difference between an 'admirable' and a 'superlatively contemptible' verse is: 'Not from the metre, not from the language, not from the order of the words; but the *matter* expressed [...] '.[83] He makes repeated statements on permanence and change, such as the need 'to discern and part | Inherent things from casual' (*Home at Grasmere,* MS.B. 1026). In the 'Essay, Supplementary', Wordsworth states that poetry 'if genuine, is as permanent as pure science'. [84] In the 1799 Prelude he places the 'fretful dwellings of mankind' (I.13) next to the river Derwent which tempers the young boy with 'A knowledge, a dim earnest, of the calm | Which Nature breathes' (I.13). He argues in the 1800 'Preface' for what Gill (1989) calls 'a permanently valid language' (189). This poetry sought to differentiate itself 'in language, in subject matter, but above all in its tendency to disclose the quiet, the simple, the unreguarded aspects of human nature' (189). The desire to create a poetry connected to the permanence of natural forms implies a future time and that some portion of permanence be communicated between nature, mind and poetry.

*Chapter Conclusion*

In this chapter I have argued that cognitive reading in Wordsworth should be contextualized against how Wordsworth imagined permanence, survival and the future. The chapter first shows that Wordsworth's imagined future is characterised by predictability and surprise and observes parallels with cognitive science, making the point that cognitive criticism depends

[83] 'Preface and Appendix to *Lyrical Ballads*', p. 87.
[84] 'Essay, Supplementary', pp.192-3. Emphasis original.

on future evidence. The chapter then put forward the Wordsworthian images of the wings of past and future alongside the famous architectural metaphor for his works to show how his return to the past, to go forward, is always incomplete. In place of or alongside this failed return to origins I suggested a return to ongoing cognitive processes. In the next section, the chapter examined the 1799 *Prelude* in terms of its relationship to Wordsworth's imagined future work and, again, his return to the past. In isolating specific episodes within the spot of time, the chapter aimed to demonstrate how cognition not only enables but also structures key aspects of Wordsworth's imagery. In ending, the chapter observed that what survives in Wordsworth's poetry does so into a future that is, indeed, characterised by a 'material revolution' such as the one he prophesies. Finally, then, without returning to Rohrbach's *what might will have been*, modern science illumines (precisely, indicatively, tentatively) more of 'human nature' and the permanence in nature with which it is associated in Wordsworth. It gives a picture, growing in detail, of how we do all have if not the same 'human heart' then nevertheless a shared experience deeply and inevitably informed by hidden processes in the brain, within the environment. Wordsworth 'went back' and returned 'to places that mattered to him as a man and as poet and tested his sense of the present and the intervening years in fresh acts of creation' as Gill (2011) notes (9). He tells us in the 'Preface' that: 'Emphatically may it be said of the Poet, as Shakespeare hath said of man, "that he looks before and after."'[85] The image of the present from the *Essay Supplementary* 'faithfully supported by its two wings, the past and the future' offers a dynamical view of future reading also instantiated in the architectural figure of the gothic church that opens both onto the unrememberable past and out onto the unknown future. The spots of time retain a 'fructifying virtue' in part because they engage specific aspects of cognition in the reader. Hence in revisiting the spots

[85] William Wordsworth, 'Preface and Appendix to *Lyrical Ballads*', in *Wordsworth's Literary Criticism*, ed. by W. J. B. Owen (London: Routledge, 1974; rpr.2016), pp.68-95.

of time within the 1799 *Prelude* and in re-imagining specific episodes the reader should note not only the biographical, textual and historical past but the ongoing present of evolved cognition and, necessarily, the new knowledge and techniques that make cognitive reading possible.

## Chapter 3. Agency in *Home at Grasmere*

In *Home at Grasmere* Wordsworth builds his vision of Grasmere Vale and his 'solitude' within it by engaging closely with the landscape in ways that a cognitive and evolutionary approach elucidates. Processes such as agency attribution and empathy happen beneath and prior to symbolism associated with the Vale. At the same time, however, they afford an opportunity to modulate interpretation of the poem's symbolism. 'This solitude of mine', Wordsworth writes, 'Is fetched out of the heaven in which it was' (MS.B. 83-4).[1] The Vale, constructed in the poem as a 'termination and a last retreat' (166), both conceals and gestures towards a nature extending beyond its apparent boundaries. And while it does so, it gestures to the hidden workings of the mind in relation to nature.

The readings here qualify solitude and show that, despite Wordsworth's description of a landscape wholly enclosed ('Perfect Contentment, Unity entire' 170) emphasized for example by Karl Kroeber (1974), the portrayal of *agency* in the landscape belies any easy sense of boundedness or isolation that the poem seems to advance.[2] As such the chapter draws attention an aspect of nature's 'brute facticity' as it is manifested through the poem in relation to cognition.[3] In the chapter 'agency' is again a technical term referring to the *attribution* of agency by the brain, to the surroundings, whether or not a real agent can be said to exist. Tracing evolved cognition shows how the poem engages a depth or, more helpfully, the *texture* created by the biases through which people intuitively attribute agency, track

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[1] For all references to this poem, see: William Wordsworth, *Home at Grasmere, Part First, Book First of* The Recluse*, by William Wordsworth*, ed. by Beth Darlington (Ithaca and London: Cornell University Press, 1977). MS.B unless otherwise noted.
[2] Karl Kroeber, "'Home at Grasmere': Ecological Holiness", *PMLA*, vol. 89. 1 (1974), pp 132–141.
[3] Jeffrey Steele, *Unfolding the Mind: The Unconscious in American Romanticism and Literary Theory* (New York: Routledge, 2017), p.117.

movement and develop empathic responses to living things. Within cognitive poetics, Peter Stockwell (2012) uses the term, as Wenjuan Yuan (2013) notes, to express a comparison 'of a literary discourse to a piece of fabric' and articulate the felt quality of a text for a reader.[4] Yuan observes that just as a piece of fabric might be described in terms of its texture (coarse, silken, close-weaved), this notion 'can also be extended to literary reading [...] the sense of texture, in its literal meaning, requires either a visual or kinaesthetic perception' (161). The term as I use it here goes beyond a visual emphasis on texture in cognitive poetics noted above by bringing up the felt quality of experience within reading.

Regarding the Vale at a metaphorical level as constituting a kind of *veil*, the texture of the fabric, so to say, nevertheless remains to be examined. More concretely, evolved cognition allows us to examine cognitive latencies in the poem that nevertheless inform the poem's symbolism. The way I read symbolism in relation to evolved cognition is, I believe, a new approach to this poem. However, the approach I put forward in this chapter certainly connects to older intellectual traditions, in which a texture identified in the world (or read in the *Book of Nature*) provides access to imminence. For example, M.H. Abrams (1971) in *The Mirror and the Lamp* traces how Paul's 'Epistle to the Romans' (1.20) represents an early text setting up an idea of 'God's relation to his created universe' (p.239) that is encoded in the text itself. Scholars in the Middle Ages glossed this text so that 'the world of sense is indeed what it appears to be, a structure of physical objects; but that it is at the same time a mirror and mystical typology of the attributes...of the Creator himself.[5] In turn, the Book of

[4] Wenjuan Yuan, 'A Cognitive Poetic of Kinaesthesia in Wordsworth' (unpublished doctoral thesis, University of Nottingham 2013), p.161; Peter Stockwell, *Texture: A Cognitive Aesthetics of Reading* (Edinburgh: Edinburgh University Press, 2012).

[5] Scholars in the Middle Ages glossed this text 'to mean that the world of sense is indeed what it appears to be, a structure of physical objects; but that it is at the same time a mirror and mystical typology of the attributes...of the Creator himself. For God has declared himself in two manifestations, in the Holy Scriptures and also in the Great Book of Nature. And as the Scriptures are manifold in meaning, embodying both literal and typological significance, so with the Book of Nature, though this process a duplicity peculiar to itself. It declares to us not only God's creation in and for itself; through the veil of its tangible surfaces, it also declares to us "visibly invisible," to its Author. God is immanent in this sense in his creation and its texture. Schlegel takes this idea to relate to modern writers, seeing that the writer rather than God is imminent in their creation. Abrams argues that

Nature embodies 'both literal and typological significance' because it is isomorphic with some aspect of the divine. Abrams suggests that more recent psychoanalytic approaches (at the time of his writing) are an extensions of this tradition, suggesting that 'what we...think of as the Freudian theory of literature was [in fact] mainly the result of applying medieval hermeneutics to secular works of fiction and poetry'. That God is 'imminent in his creation and its *texture*' (emphasis mine) shifts to a view on which symbolism in a work points in *two directions*: 'ostensibly representing an outer world, but indirectly expressing the author'. The notion, then, of a *texture* in cognitive poetics, by contrast, articulates the interaction of cognition with textual features. Yet rather than an individual author, what I want to highlight in my reading here is an interface or texture between evolved cognition through the construction of the text.

Ways that agency, empathy and Theory of Mind (ToM) function in *Home at Grasmere* form a latent texture then. At the same time, they lead to and support Wordsworth's own construction of Grasmere Vale as a beneficient entity, 'A Power and protection for the mind' (469).[6] In this section, I interrogate agency and apply notions including ToM and work on empathy (with its literal translation of 'feeling into' seeming to parallel Wordsworth's 'we see into the life of things' as expressed in 'Tintern Abbey') to assess how agency works both within a hypostatized landscape that Wordsworth as a historical human may have moved through and how agency works within the text as it is read.[7] In doing so this chapter intervenes in well-known readings privileging the specific

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'what we now think of as the Freudian theory of literature was mainly the result of applying medieval hermeneutics to secular works of fiction and poetry'. On this view there is a dual symbolism at work, 'pointing in two directions, ostensibly representing an outer world, but indirectly expressing the author' (p.241).

[6] See: Frans de Waal, 'Putting the Altruism Back into Altruism: The Evolution of Empathy', *The Annual Review of Psychology*, 59 (2008), 279-300 (p. 292); Jean Decety and Philip L. Jackson, 'A Social-Neuroscience Perspective on Empathy', *Current Directions in Psychological Science: A Journal of the American Psychological Society*, 15.2 (2016), 54-58.

[7] Empathy has its roots in the German term *Einfühlung* which means 'feeling-into'. See for example C. Montag et al., 'Theodor Lipps and the Concept of Empathy: 1851-1914', *The American Journal of Psychiatry,* 165.10 (2010; William Wordsworth, 'Tintern Abbey, On Revisiting the Banks of the Wye During a Tour, July 13, 1798' in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* (London: Norton, 2014), pp.113-120

locale of Grasmere Vale in Wordsworth's poem (Kenneth R. Johnston, 1975; Kroeber) to emphasize instead invariance and shared experience. Because the poem engages ToM and empathy so powerfully, it gestures to meaning beyond its immediate locality or the particular time in which it was written. *Home at Grasmere* shows Wordsworth attending to an intensely local scene with particular personal importance. Yet the poem participates in cognitive and evolutionary histories that transcend that attention, even as they also inform the power of Wordsworth's imagery. The texture of the poem is deepened and made more resonant through the way it engages agency, ToM and empathy.

Wordsworth is of course alive to a nature beneath and prior to symbolism, to those invariant relations between nature and mind that persist through material and social change. This tendency or attraction towards what the 1799 *Prelude* calls the 'gravitation and the filial bond of nature' (1799.II.293) exerts its own influence on the poetry, pulling at apocalyptic and material registers alike. Wordsworth describes his solitude in the poem as 'fetched out of [the] heaven' (84), and he does refer at the end of the poem to 'highest things' and 'Great God' | Thou art breath and being' (1042). In the later manuscript he refers to the more ambiguous 'dread Power' (MS.D.853).

Abrams (1971) famously argues that in Romantic literature, prosopopoeia or 'personification', 'came to be a major index to the sovereign faculty of imagination, and almost in itself a sufficient criterion of the highest poetry' as I have already noted (56). Yet attribution of agency in the landscape is intuitive. Indeed, it may in fact be far easier to perceive agents in the landscape than not to do so. Hence, when Wordsworth uses

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(l.50). For empathy see: Simone G. Shamay-Tsoory, 'Empathic Processing: It's Cognitive and Affective Dimensions and Neuroanatomical Basis' in *The Social Neuroscience of Empathy* ed.by J. Decety and W. Ickes (Cambridge, Mass: MIT Press, 2009), pp.216-32; C.A.N. Lamm, 'How Do We Empathize with Someone Who is Not Like Us: A Functional Magnetic Resonance Imaging Study', *Journal of Cognitive Neuroscience*, 22.2. (2010), 362-76; For ToM as well as my introduction, see: Lisa Zunshine, 'Theory of Mind and Experimental Representations of Fictional Consciousness' *Narrative*, 11.3 (2003), pp. 270–29 (273); Blakey Vermeule, 'Machiavellian Narratives' in *Introduction to Cognitive Cultural Studies*, ed. by Zunshine (2010), pp.214-30 (p.221).

prosopopoeia, part of his use should be grounded in the intuitive bias towards perceiving agents where there may be none and then further, in the hunger to try to place oneself in relation to their imagined intention through ToM and the operation of empathy. Part of the 'sovereign faculty' of imagining the landscape as an agent, then, is in fact somewhat different; nonconscious influence on the awareness affords an imaginative story (Abrams, p.56). Wordsworth's protagonists move through a world that is influencing them before they realise it. Personifying the landscape makes it more intuitively interesting to the reader, and because Wordsworth allows agency to move freely among agents, as well as back into the landscape, agency represents a direct way in which mind and nature are 'blended' in Wordsworth's text.[8] The mind of the narrator, protagonist, and the mind of the reader are to that extent, in sympathy.

*Home at Grasmere* may seem a surprising choice to read alongside ToM because, although it does contain humans (including the protagonist and his sister), there is little attention on apparently complex social interaction. Lisa Zunshine (2003) observes that literature 'pervasively capitalizes on and stimulates Theory of Mind (ToM) mechanisms that evolved to deal with real people, even as readers remain aware on some level that fictive characters are not real people at all'.[9] Blakey Vermeule (2010) highlights minimal characteristics necessary for a 'round' literary work that exploits ToM to the maximum. Among the minimal characteristics Vermeule notes is 'a dyadic, or more likely triadic or quadratic — scene of reflection and counter-reflection', usually within an enclosed world, with a 'mastermind' character who sees more than others, characters who appear more than usually 'blind' to what is going on, and 'several cues in the form of tropes that we are in the

[8] Preface to *The Excursion*', p. 173
[9] Lisa Zunshine, 'Theory of Mind and Experimental Representations of Fictional Consciousness' *Narrative*, 11.3 (2003), pp. 270–29 (273).

presence of high narrative flexibility'.[10] Such characteristics combine to form a work which involves ToM to a high degree.

*Home at Grasmere* does engage with ToM mechanisms. Firstly, I will note how in the story of an affair (469-531), a key feature is mis-reading the internal states of other people is featured. From here, I then note that as well as targeting other people, Wordsworth presents a case of misreading which has consequences for 'seeing into' the landscape. Here I go on to borrow from notions in the study of empathy to further explore how CE antecedents provide an unexplored aspect to the way nature is experienced in the poem. Wordsworth describes how 'In this Native Valley dwelt a Man, | The Master of a little plot of ground' (472-3). The man is described as hard-working and healthy ('Studious withal, and healthy in his frame' 480), but with a weakness, 'faults | At work to undermine his happiness | Little by little' (487-88). His wife is similarly described, 'industrious' but with industry that 'tended more | To splendid neatness, to a showy trim, | An overlaboured purity of house | Than to substantial thrift' (491-5). Combined, these weaknesses cause a degree of poverty, bringing 'distress of mind, | Which to a thoughtful man was hard to shun | And which he could not cure' (500-02). Following this, the man 'gave way' to 'thoughts of troubled pleasure', having an affair with the 'blooming Girl' who serves the couple at home. Now the man is described:

> Unhappy Man!
> That which he had been weak enough to do
> Was misery in remembrance; he was stung,
> Stung by his inward thoughts, and by the smiles
> Of Wife and children stung to agony.
> (507-511)

He then ranges 'through the mountains, slept upon the earth' (518). The landscape seems to reproach him. He 'Asked comfort of the open air' but finds 'no quiet' in night, and 'no

[10] Blakey Vermeule, 'Machiavellian Narratives' in *Introduction to Cognitive Cultural Studies*, ed. by Zunshine (2010), pp.214-30 (p.221).

pleasure' in day. His flock of sheep becomes a 'clog' — he wants to fly, but he does not know where. Finally, like the 'smiles' of his wife and children that 'stung', the 'gracious Church',

> That has a look so full of peace and hope
> And love — benignant Mother of the Vale,
> How fair amid her brood of Cottages! —
> She was to him a sickness and reproach.
> (524-8)

In this passage there are several instances where mistakes are made about the internal states of others, which the poem must correct. Firstly, the 'Man' and 'Master' and his wife are shown to be slightly defective in character, having first been presented positively ('of just and placid mind', 481) and 'None more industrious' (491). These weaknesses then lead to a general decay, and in this context the man and girl have an affair. Afterwards, the poem does not claim that wife and children are aware — indeed, they are blind to what has happened. It is precisely this blindness on their part, that is so stinging to the man, their 'smiles' 'stung to agony'. Similarly, the landscape, and the church also now mean something other than what is obvious — the 'fair' church, personified as 'Mother of the Vale' is 'to him a sickness and reproach' (328).

Wordsworth begins this incident by gesturing to: 'Yon Cottage' and asking, 'would that it could tell a part of its own story'. 'Thousands' he says, 'might give ear, | Might hear it and blush deep' (470-71). After the episode, Wordsworth over six lines describes another hidden story. He gestures to 'That Ridge' (533) describing how it leads to a 'Plain' (534) and 'rocks and woods' (534) that in turn 'Conceals a Cottage' (535). Here the reader is told that a father looks after his children, having been widowed. Wordsworth then cautions the reader:

> I begin
> With words which might be prelude to a Tale
> Of sorrow and dejection, but I feel —
> Though in the midst of sadness, as might seem —
> No sadness, when I think of what mine eyes

> Have seen in that delightful family.
> (538-543)

As Wordsworth looks into the features of landscape ('Deep pools, tall trees, black chasms, and dizzy crags —', 918) there is a sense that he is trying to gauge a hidden mental state, and the concomitant sense that the landscape may be doing the same:

> I loved to look in them, to stand and read
> Their looks forbidding, read and disobey,
> Sometimes in act, and evermore in thought.
> (919-921)

The 'look' and 'looks' provide a change of perspective on agency between the first and second lines. First it is Wordsworth who is looking, but after the line-ending 'read', the surprise comes: 'Their looks forbidding' (920). The landscape is looking back. Moreover, Wordsworth continues to read on and to 'read and disobey' (918). The line gap between first and second 'read' suggests that the jarring transfer of who is doing the looking, is deliberate. The landscape is agentic in a direct way; it is commanding (Wordsworth can 'disobey', 920). Now the sequence enacts the attempt to read, to understand, hidden but intuited processes. The fact that Wordsworth and the landscape are able to hold two different mental states creates an additional level of tension and interest.

The lines imply an observer who is neither Wordsworth, nor the landscape, and is only partially identified with the reader. Wordsworth would be seen (by an imagined observer) disobeying only '*Sometimes* in act' (921) (my emphasis). What would be hidden from the imagined observer (but not completely from the reader to whom Wordsworth has revealed this aspect of his inner mind) is the disquieting fact that in his inner world, he is disobeying the landscape *all the time*, 'evermore in thought' (921). A dynamic is set up in which the Wordsworth who the reader is asked to imagine, is trying to 'see into' the

mentality of the landscape; the landscape in turn is looking back ('looks forbidding', 920) and Wordsworth reads this meaning. In turn, Wordsworth is seen to sometimes 'read and disobey' in his actions (roaming through the landscape, 'Among wild appetites and blind desires, | Motions of a savage instinct', 913-14) and always to be disobeying in his own intention. Now because, having set up a 'he thinks (narrator), it thinks (landscape), but he actually thinks (narrator again)' — the kind of ToM sequence that Vermeule observes adds texture to characterization — Wordsworth at the same time elides a notional intention, so that the reader is left still guessing. Wordsworth directs attention to the inner state of his younger self. However, when this state is revealed, it is one of 'wild appetites' (913), 'blind desires' (913), 'savage instinct' (914) — impulsive, hardly conscious impulses which are familiar from the 1799 *Prelude*. Wordsworth uses a martial image to show just how strong his impulses are, how he 'heard of danger met':

> Or sought with courage, enterprise forlorn,
> By one, sole keeper of his own intent,
> Or by a resolute few, who for the sake
> Of glory fronted multitudes in arms.
> (924-927)

Wordsworth compares his impulses to the emotions he feels when hearing tales of valour in a sequential way. The final lines describe a face-off between a 'resolute few' (926) 'who for the sake | Of glory fronted multitudes in arms' (926-27). Here the original impulses Wordsworth describes are compared to the emotions he feels when hearing tales of valour. These are then concentrated in 'one, sole keeper' (925) before expanding into 'a resolute few' (926) and then multiplied out into 'glory fronted multitudes in arms' (927). The effect of these lines is a gathering of strength that emphasizes the power of the impulses ('wild appetites and blind desires, | Motions of savage instinct', 913-15) that Wordsworth feels, by transferring them into the tales of 'danger met' (923) — the careful expansion from one, to a few, to multitudes, is the correlate of the vague agency that Wordsworth first notes,

expanding out beyond the ability to count. The landscape itself, and Wordsworth as the protagonist, both become 'rounded', complex agents through this expansion, but the agency itself never stops with either one; it flows back out into the texture of the poem. An aspect of the poem's texture is provided then, in part due to voracious and intuitive faculties working to understand the intention of other minds, both real and imagined.

In the 'Prospectus' lines towards the end of *Home at Grasmere* Wordsworth explains:

> How exquisitely the individual Mind
> (And the progressive powers perhaps no less
> Of the whole species) to the external world
> Is fitted; and how exquisitely too —
> Theme this but little heard of among men —
> The external world is fitted to the mind;
> (1006-1011)

Gillian Beer notes of these lines that the word 'fitted' 'takes its energy from the muted reference to diverse human concerns rather than from a purely abstract amalgamation of mind and world'. [11] Within its valence are 'just proportions, exact craftsmanship, sexual harmony, healthful mutuality' and as such: 'Mind and world have a hoped-for appropriateness to each other— "fittedness"'(44-45). A sense of 'congruity of the inner and the outer worlds allows harmony and development without the need to insist upon a preordained design'(45). The way in which Wordsworth's poem uses agency as a resource is complementary to these valences. In turn, as I expand below, tracing agency allows something of the texture of this interaction to be brought to light. Where Wordsworth speaks of the 'creation' with which the mind, and the 'external world', 'with blended might | accomplish' I suggest that one resource for this creation is the mutation of agency, an idea to which the chapter now turns.[12]

[11] Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction,* 2nd edn. (Cambridge: Cambridge University Press, 200) 2nd ed.pp.44-5.
[12] Preface to *The Excursion*', p.173.

*I. Agency in Natural Objects*

Wordsworth is clear that he feels deeply about the valley. It is 'a haunt | Of my affections' and a 'haunt | Of pure affections' (50-1). His being there is 'a choice of the whole heart' (78). At the very start of the poem, Wordsworth describes how this vale had an impact on him, before he realises this is happening: 'And with a sudden influx overcome | At sight of this seclusion, I forgot | My haste —' (5-7). He asks of the Vale, 'Who could look | And not feel motions there?' (25-5). He sees the valley and is 'overcome'. Wordsworth has been in 'haste' but is stopped by a 'sudden influx' (5). The 'motions' (25) lead him to think of clouds, and the effect is that Wordsworth's onward momentum is continued not in his body (which has stopped), but in the clouds. The reader now imagines clouds, or more precisely, Wordsworth remembering himself, thinking about clouds:

> I thought of clouds
> That sail on winds; of breezes that delight
> To play on water, or in idle chase
> Pursue each other through the liquid depths
> Of grass or corn, over and through and through,
> In billow after billow evermore;
> (25-30)

Agency appears to flow through the objects he names. When reading the poems in the Cornell edition, MSS.B and D are presented on facing pages, as the most complete earliest and latest versions of the poem respectively. In the case of the next few lines, the two MSS both identify agents, but these agents slightly differ:

MS.B:

> Of Sunbeams, Shadows, Butterflies, and Birds,
> Angels and winged Creatures that are Lords
> Without restraint of all which they behold.
> (MS.B.31-33)

MS.D:

> Nor unmindful was the Boy
> Of sunbeams, shadows, butterflies, and birds;
> Of fluttering Sylphs and softly gliding Fays,
> Genii, and winged Angels that are Lords
> Without restraint of all that they behold.
> (MS.D. 31-35)

Sylphs, Fays and Genii are added, and 'winged Creatures' replaced by 'winged Angels'. This is suggestive that the sense of agency running through is more important than the objects themselves which are said to be agents. MS. B has the next line, 'I sate, and stirred in Spirit as I looked, | I seemed to feel such liberty was mine' (MS.B.34-5), while MSD has it, 'The illusion strengthening as he gazed, he felt | That such unfettered liberty was his' (MS.D36-7). This sense I want to tease out is that agency operates both within named objects (sunbeams, birds, angels) and through them (because they are able to change, and fanciful objects such as Fays are allowed to co-exist with plausible ones such as birds).

*II. Texture of the Landscape and the 'Unity entire'*

Readings of *Home at Grasmere*, including well-known accounts by Kenneth R. Johnson (1975) and Karl Kroeber (1974), tend to emphasise either a reading of unity in the poem or, conversely, the sense in which this ostensible unity is undermined.[13] Aldous Huxley's (1929) essay, 'Wordsworth in the Tropics', imagines that, had Wordsworth been exposed to the varieties of nature outside of western Europe, he would have been less able 'to ignore the disquieting strangeness of things, to interpret the impersonal diversity of Nature in terms of a

[13] Kenneth R. Johnston,. '"Home at Grasmere": Reclusive Song"', *Studies in Romanticism* 14.1 (1975), 1-28; Karl Kroeber, '"Home at Grasmere": Ecological Holiness', *PMLA*, 89.1 (1974), 132-41.

divine, anglican [*sic*] unity'.[14] It is upsetting to Huxley that, having insight into the 'character' and profusion of nature, Wordsworth 'chose, in a word, to be a philosopher, comfortably at home with a man-made and, therefore, thoroughly comprehensible system [...]'. This criticism, that Wordsworth chose to look through the textured complexity of nature, to what he imagined as its unity, is also found in commentary on the historical reception of Darwinism. Robert M. Ryan (2010) for example presents a case that what had, by the time Darwin published *The Origin of Species*, become a 'Wordsworthian' view of nature as a 'unity entire' (which tended to render inconsequential the rich complexity of nature) prevented many people from accepting Darwin's view of a purposeless, profoundly complex nature inimical to human concern.[15] Where Huxley criticises Wordsworth for ignoring the complexity and strangeness of nature, because he never visited the tropics, Kroeber does the opposite in his discussion of the poem. Kroeber praises Wordsworth for his attitude to nature in *Home at Grasmere*, *despite* not having been to the tropics, because 'Wordsworth, *without* the advantage of reptile-rich or insect-rich surroundings, foreshadows late twentieth-century conservation' (p.132, my emphasis). Kroeber singles out Wordsworth's treatment of 'unspectacular places and usually fecund things', to portray 'what we now call an ecological unity'. This unity is centred on Grasmere Vale, and according to Kroeber's account, is isomorphic with the structure of the poem itself. One of Kroeber's claims is that *Home at Grasmere* represents *The Recluse*: '"Home at Grasmere" is *The Recluse*. Wordsworth could never "finish" *The Recluse* because he had already written it'. The 'truncation' of the long poem into one book is 'formally appropriate to the poet's ambition' (133). Kroeber justifies this assertion, by contending that the poem represents an 'esthetic unity' — rather than extending 'horizontally' (in terms of length) the poem is said to

[14] Aldous Huxley, 'Wordsworth in the Tropics' in *Do What You Will: Twelve Essays (His Collected Works)* (London: Chatto and Windus, 1949), pp.113-129 (p.128).
[15] Robert M. Ryan, 'Wordsworth's Response to Darwin. (Critical Essay)', *Wordsworth Circle*, 41.1 (2010), 10-13.

cohere ‘vertically’, which terms Kroeber takes as suggested from Wordsworth’s emphasis on ‘height-depth dimensions’. There is a ‘perfect spherical enclosure’ to the Vale (17). In praising Wordsworth, what Kroeber gestures toward is ecological unity. Wordsworth does stress several times that that the Vale is unitary: ‘Within the bounds of this huge Concave; here | Should be my home, this Valley be my World’ (42-3).

> Embrace me then, ye Hills, and close me in;
> Now in the clear and open day I feel
> Your guardianship.
> (129-31)

And perhaps most emphatically describing the Vale as:

> A termination and a last retreat,
> A Center, come from wheresoe’er you will.
> A Whole without dependence or defect,
> Made for itself and happy in itself,
> Perfect Contentment, Unity entire.
> (166-170)

A consistent theme in critical reading of the poem is that Wordsworth also belies the notional unity. Johnson, for example, writes that Wordsworth wants to ‘portray Grasmere as the center of his world’s circumference’, but to do so must ‘put down’ ‘apparently gratuitous thought [...] that raises the possibility that the center will not hold’ and that what he values in the Vale will ‘spin out of control, out along a line that gives no meaningful shape to events but simply strings out “the heavy and the weary weight | Of all this unintelligible world”’(Johnson, p.8). There is certainly an ambiguity in the centre of *Home at Grasmere*, and Wordsworth finds he is unable to express, himself, exactly what it is about the Vale that he regards as so special. In describing the Vale, he notes the ‘one sensation that is here’; ‘Here as it found its way into my heart’ (156-7); ‘‘Tis (but I cannot name it), ‘tis the sense [...]’ (161). It is ‘Something’ (163). Despite these tensions, ‘Something’ nevertheless makes its way into Wordsworth’s heart.

Apart from these claims to unity, and evidence of uncertainty undermining them, they take place against a background invariance; a texture in nature defined in part by evolved cognition. Kroeber argues that the poem is vertical, 'the linking of earth and sky is climactically imagined in the lake below reflecting the heavenly dome — between which the swirling birds rise and fall' (Kroeber, p.133). This very image, the wheeling and rising of the birds, represents a texture in both the literal sense of a textured surface whose presence belies the simplicity of the birds' wheeling and their reflection in the water, and the more oblique texture found in the felt-motion of the creatures. A moment identified as describing, through shape and movement, the wholeness of the valley — the wheeling and rising of the birds — repeatedly uses the metaphor of the fountain, suggesting hidden textural depths beyond the water's surface.

> Witness the delight
> With which ere while I saw that multitude
> Wheel through the sky and see them now at rest,
> Yet not at rest, upon the glassy lake.
> They cannot rest; they gambol like young whelps,
> Active as lambs and overcome with joy;
> They try all frolic motions, flutter, plunge,
> And beat the passive water with their wings.
> Too distant are they for plain view, but lo!
> Those little fountains, sparkling in the sun,
> Which tell what they are doing, which rise up,
> First one and then another silver spout,
> As one or other takes the fit of glee —
> Fountains and spouts, yet rather in the guise
> Of plaything fire-works, which on festal nights
> Hiss hiss about the feet of wanton boys.
> (766-81)

These 'little fountains', 'Fountains and sprouts' (79) bright like 'plaything fireworks' (80) are energetic and visually stunning, and they break the surface of the 'glassy lake' (769), they 'beat the passive water' (773) to create the 'fountains, sparkling in the sun' (775). Fountains that are like fireworks, sparkly and hissing in the imaginary night (because it is daytime). In M.H. Abrams terms, the 'fountains and sprouts' (79) may be read as exemplars of the

'fountain' metaphor, which along with the lamp and projector replaced those of the mirror and reflector in representing both the nature of art, and the mind's place in nature. Reading the sudden bursts of light in these terms, following the 'mutation of metaphor' from reflection to projection accounts well for the way in which energy flows through the lines.[16] The whole landscape in the following lines appears luminous, and its light eventually fills out into the vision of a mountain of pure light:

> The birch tree woods
> Are hung with thousand thousand diamond drops
> Of melted hoar-frost, every tiny knot
> In the bare twigs, each little budding-place
> Cased with its several bead; what myriads there
> Upon a tree, while all the distant grove
> That rises to the summit of the steep
> Is like a mountain built of silver light!
> (784-91)

Translating these founts into Abrams' metaphor for the creation, however, is faced with the immediate problem of what agency is doing the creating. Wordsworth consistently suggests that agency rests here, in the world and specifically, in his experience of the Vale. Similar language is used in 'Resolution and Independence' when describing the splashes of bright mist kicked up by a hare:

> [...] running races in her mirth;
> And with her feet she from the plashy earth
> Raises a mist, that, glittering in the sun,
> Runs with her all the way, wherever she doth run.
> (11-14)

Like the hare, the wheeling birds 'cannot rest' (770), and their 'frolic motions' (772) are almost frantic, fluttering, plunging, in 'the fit of glee' (778) and if the splashes they engender

[16] M.H. Abrams, *The Mirror and the Lamp : Romantic Theory and the Critical Tradition* (Oxford: Oxford University Press, 1971) p.57.

in the distant water have their symmetry in the fireworks, then the birds, like the boys, are similarly ‘wanton’ (781). The motion of the birds is reflected in the lake:

> See yonder the same pageant, and again
> Behold the universal imagery
> At what a depth, deep in the Lake below.
> Admonished of the days of love to come,
> The raven croaks and fills the sunny air
> With a strange sound of genial harmony;
> And in and all about that playful band,
> Incapable although they be of rest,
> And in their fashion very rioters,
> There is a stillness, and they seem to make
> Calm revelry in their calm abode.
> (792-802)

Wordsworth’s instruction at the beginning of these lines is: ‘Witness the delight’ (766), and again ‘See yonder the same pageant’ (792). The reader is asked to witness the scene. In the lines immediately preceding the wheeling birds, Wordsworth devotes 33 lines (720-52) to ‘those humbler sympathies | That have to me endeared the quietness | Of this sublime retirement’ (721-23). These lines show Wordsworth doing two things, deliberately trying not only to see, but to ‘inscribe’ (724) upon his heart an affection for the creatures he lists and observing through introspection that ‘humbler sympathies’ (721) are at work in him.

In this passage he refers to a specific grey horse, a sheepdog, a pair of eagles, an owl, heifer, a generic red-breast, thrush, and wren, ‘a hundred warblers more’ (737) and humans. Wordsworth firstly assigns his ‘sympathies’ for these creatures a function — of having ‘endeared the quietness | Of this sublime retirement’ (723-24) to himself. He then also proceeds to be deliberate about cultivating these sympathies: ‘I begin | Already to inscribe upon my heart’, he says, ‘A liking’ for the ‘small grey Horse’ (724-5). The ‘inscribe’ (724) suggests effort and skill; and that his ‘liking’ may not be automatic. He is confident, however, that the other creatures will partake in his sympathies in a similar manner, through such effort.

Taken together, these lines show a repeated attempt by Wordsworth to become affectionate towards animals with which he may not, yet, have had any direct contact. The emphasis appears to be on his own intentional action in relation to these living things, against a background of sympathy that is already present. The 'famous Sheep-dog' (729) for example, although currently 'yet to me a Stranger, will not be | A Stranger long' nor the 'blind Man's Guide | Meek and neglected thing, of no renown' (729-32). Introducing the birds, he asks:

> Whoever lived a Winter in one place,
> Beneath the shelter of one Cottage-roof,
> And has not had his Red-breast or his Wren?
> I have them both; and shall have my Thrush
> In spring time, and a hundred warblers more;
> (733-5)

With the eagles, similarly, Wordsworth is confident that if they return to 'their ancient Hold': 'Then shall I see, shall claim with those two Birds | Acquaintance,' and 'The Owl', 'soon will be | A chosen one of my regards' (740-44). From the soaring eagles, attention focuses finally on the heifer. Here, the lines emphasise another actor, 'one who holds' the heifer 'dear' (755). Once again, the reader is instructed to 'See there':

> The Heifer in yon little Croft belongs
> To one who holds it dear; with duteous care
> She reared it, and in speaking of her Charge
> I heard her scatter once a word or two,
> domestic, yea, and Motherly,
> She being herself a Mother. Happy Beast,
> If the caress of human voice
> Can make it so, and care of human hands.
> (MS.B.744-52)

Words appear here to have physical presence: 'I heard her scatter once a word or two' (748). Here the agency of the mother is also deliberate 'with duteous care | She reared it' (746). The words she scatters are 'domestic [...] and Motherly' because she is 'herself a Mother' (749-50). The final two lines also suggest human agency, the 'caress of human voice' (751) and

the ‘care of human hands’ (752). These lines echo the way Wordsworth hopes to ‘inscribe’ affection on his heart.

All objects in the vale are potentially subjects of other minds. These minds and the objects with which they commune are not clearly bounded; the poem instead diffuses agency:

> Look where we will, some human heart hath been
> Before us with its offering; not a tree
> Sprinkles these little pastures, but the same
> Hath furnished matter for a thought, perchance
> To some one is as a familiar Friend.
> Joy spreads and sorrow spreads; and this whole Vale,
> Home of untutored Shepherds as it is
> Swarms with sensations, as with gleams of sunshine,
> Shadows or breezes, scents or sounds.
> (664-7)

Through the poem, examples can be shown of ‘Objects’ (652) such as shadows, breezes, sounds, and sunshine, being ascribed a degree of agency. When Wordsworth makes the claim that ‘Joy spreads and sorrow spreads’ (664) and that the Vale ‘Swarms with sensation’ (666), it is in this way invested with agency that cannot easily be reduced to human or nature. Part of the ‘blended might’ which Wordsworth terms ‘creation’, is imagined through the blending of agency (1012-14). This effect is in part accomplished thanks to the intuitive bias toward agency detection and the hunger to understand the internal states of others that are presumed to have such agency, that an idea such as ToM evidences. At the same time, through perceptual mimesis on which the reader somewhat inhabits the imagined landscape which the poem details, the treatment of agency adds to the layered texture of the poem. It both increases the felt reality of the Vale and methodically suggests that agency is diffused throughout the Vale, by drawing attention to agentic objects (so that the reader is invested in trying to understand their imagined motivations) before shifting the sense of agency it has built up out and into the landscape.

Returning to the image of wheeling birds (792-802), this image is preceded by a description of Wordsworth attempting to inscribe affection onto his heart for the animals he lists, and by the sense that he is already somewhat involved in these 'humbler sympathies' (721). The birds then follow this effort, suggesting that Wordsworth is already tuned-in somewhat to lives which are different from himself. There is limited knowledge about how people empathize with agents who are dissimilar — with birds, insects, or imagined agents, for example.[17] If the ability to empathize did develop over evolutionary time in relation to other human beings, then it may be the case that empathizing with non-human others requires more effort. Some evidence does point to this idea.[18] Perhaps making this repeated effort, as Wordsworth lists different creatures, makes the reader more susceptible to the image of the far-off birds. At the same time, the evidence from mirror neurons which, as we saw, are neurons that fire not only when a person is moving, but when somebody is observing movement, suggests that the brain mimics actions that it sees and, to some extent, prepares to act in relation to them. Hence the same luminosities that fill out splashes of water like fireworks or fill the Vale with 'gleams of sunshine', really do spread joy and sorrow, in swarms of sensation, as the reader imagines them — and are literally 'lighting up' neurons in the brain.

[17] See: Simone G. Shamay-Tsoory, 'Empathic Processing: It's Cognitive and Affective Dimensions and Neuroanatomical Basis' in *The Social Neuroscience of Empathy* ed.by J. Decety and W. Ickes (Cambridge, Mass: MIT Press, 2009), pp.216-32.
[18] C.A.N. Lamm, 'How Do We Empathize with Someone Who is Not Like Us: A Functional Magnetic Resonance Imaging Study', *Journal of Cognitive Neuroscience*, 22.2. (2010), 362-76.

*Chapter Conclusion*

Highlighting evolved cognition in the poem shows that agency is diffused through the lines, blurred among narrator, inhabitant, animal, plant and landscape including the Vale itself. This blurring happens through the attribution of agency and the repeated emptying-out of agency from those objects, back into the landscape itself. Where agency and object are related, textual revisions suggest that this relation is fluid, indicating that in Wordsworth's own experience of the Vale and writing about it, agency works both through individual encounters with objects and in a more diffuse way in relation to the environment. The role of agency in the poem is further developed through empathy and neural systems that attempt to mimic action. This engenders a reassessment of Grasmere Vale as a 'termination and a last retreat' (166). Agency in the poem problematizes themes of boundedness and isolation by engaging social cognition and, essentially, filling the poem with agents. The reader, intuitively interested in these agents, is presented with a Vale textured by such interest. What cognitive reading allows is a description of this texture and an estimation of which moments contribute towards it and why. Such readings also transform the trope of personification by showing that attributing agency is easier than not doing so — the vale is not necessarily peopled by agents through the 'sovereign faculty of imagination' as Abrams would have it but through a lowly and probably universal process.

Moments in the text recall Abrams' famous argument about the Romantic era that metaphors for the nature of art and the human place in nature shifted from reflectors to

projectors during the period. Fountains and lamps are strong images in the poem.[19] If the poem might be construed as a 'lamp' which indeed Wordsworth hopes ('that my verse may live and be | Even as a Light hung up in heaven to chear | Mankind in days to come!'1032-5) then, to bend Abram's metaphor to our own uses, apart from the light beam as a constituent of the metaphor (with its shining out) there remains the character of the light and the texture of the glass through which the light passes. Grasmere Vale is said to have 'heard | The Poet mutter his prelusive songs' (MS.D.183-184). Again, we hear agency already configuring meaning. Reading Wordsworth 'before and after' involves careful attention towards what is prelusive to meaning. As such it will be interested in what comes before and informs meaning, of which evolved cognition is no small part. In this sense cognitive readings of Wordsworth will be always 'something evermore about to be' (*Prelude*, 1805.VI.542) both in their tracing of what does come before conscious awareness and in their use of (one hopes) more refined intellectual tools in the study of evolved cognition.

[19] M.H. Abrams, *The Mirror and the Lamp : Romantic Theory and the Critical Tradition* (Oxford: Oxford University Press, 1971), p.67.

# Chapter 4. Invariance in *The Tuft of Primroses*

## *I. A Symbolic Scheme of the Vale*

In this chapter I assess Wordsworth's *The Tuft of Primroses* in terms of its relation to *Home at Grasmere* and *The Recluse* by positing and interrogating a relationship between the symbolic value of the primrose flower and invariance in the texture of nature across both poems. In *The Tuft of Primroses* Wordsworth laments for specific aspects of Grasmere Vale that have been destroyed. Moreover, in lamenting for unwanted change, Wordsworth presents an unfinished poem in *The Tuft of Primroses*, apparently unable to reconcile his world-building with the partial destruction of his world. The poem nevertheless offers, against this destruction, the 'little Primrose of the rock' as some kind of answer, for the flower 'Remains, in sacred beauty, without taint | Of injury or decay, lives to proclaim | Her charter in the blaze of noon' (235-8).[1] The poem remains one of the less studied in Wordsworth but it has seemed a difficulty to critical readers that the Vale, which Wordsworth apparently sets up as a symbolic home of all that he loves in *Home at Grasmere*, is ultimately shown to be fragile and subject to destructive forces in *The Tuft of Primroses*.

Kenneth R. Johnston (1976) places *The Tuft of Primroses* as a beginning to *The Recluse* rather than a sequel to *Home at Grasmere*. Unfinished, the poem represents his discovery that the longer poem will be impossible to complete.[2] For Laurence Goldstein (1973), the Vale in *The Tuft of Primroses* is a source of power to which Wordsworth can return as a touchstone for his philosophy of nature, 'centred on the Vale and its providence'.

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[1] For all references to this poem, see: William Wordsworth, *The Tuft of Primroses*, *with Other Late Poems for The Recluse* by William Wordsworth, ed. by Joseph F. Kishel (Ithaca and London: Cornell University Press, 1986).

[2] Kenneth R. Johnston, 'Wordsworth's Last Beginning: The Recluse of 1808' *ELH*, 43.3.(1976), 316-41 (p.316).

Yet his confidence in the Vale renders him 'vulnerable' to its physical fragility.[3] Stephen Gill (2011) observes that 'In *The Tuft of Primroses*, a poem intended for *The Recluse* but never completed, Wordsworth wrestles with the truth, made all too apparent locally in the recent felling of many of Grasmere's ancient trees' that, in Wordsworth's words:

> the best
> And Dearest places of the heart
> Vanish beneath an unrelenting doom.[4]

Jessica Fay (2013) connects Wordsworth's association of permanence with the pine trees in the poem and his 'pining' for their eventual loss.[5] Yet despite affirming the wholeness and uniqueness of the Vale in *Home at Grasmere*, Wordsworth nevertheless refers in both poems to textures that characterise nature well beyond the valley. It is in this context, I argue, that the symbolism of the primrose should be read. If I have been able to show in previous chapters ways in which Wordsworth engages with textures of nature I have described as invariant, my argument here turns to the implications this has for assessing the primrose as a symbol. I argue that the affirmation of the primrose should be read in relation to an ongoing process, rather than a poor reply to the weakening of the Vale's symbolic value. In place of such a weakened replacement for the Vale, therefore, the primrose should be understood as a symbol that emerges in part from the textures of nature; it exists behind the asserted security and wholeness of the vale so that, when the vale is shown to be fragile, a value is revealed that is not reliant on a specific time or place. The symbolic power of the primrose is predicated, as I read it, on invariance; those aspects of the experience of nature by humans that persist over time.

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[3] Laurence Goldstein, 'The Auburn Syndrome: Change and Loss in "The Deserted Village" and Wordsworth's Grasmere', *ELH* 40.3 (1973), 352-71 (p.370).
[4] Stephen Gill, *Wordsworth's Revisitings* (Oxford: Oxford University Press, 2011), p.110.
[5] Jessica Fay, 'Prospects of Contemplation: Wordsworth's Winter Garden at Coleorton, 1806-1811', *European Romantic Review,* 24.3 (2013), 307-15 (p. 7).

The Vale in this poem is read by prior critics as a symbol under attack by the evidence of destructive change it enumerates in the valley; these readings have allowed the poem to be placed in relation to Wordsworth's projected project in the *Recluse*. I too consider the tension between change and continuity as central to the poem. And do so in relation to Wordsworth's claim that critics have labelled as weak and almost desperate: that the apparently insignificant tuft of primroses can somehow make up for the 'doom' (279) and desolation which the poem describes as having happened to Grasmere Vale. Yet I connect specific aspects of the primrose as a symbol to invariant textures in nature brought into discourse through cognitive reading. And I begin to frame questions concerning the extent to which a relationship between critical interpretation, and experience of a real nature, can be traced.

Wordsworth had finished *Home at Grasmere* in 1806, and it was two years later that he returned to *The Recluse*: The six hundred lines of *The Tuft of Primroses* were the result, and Wordsworth left-off from them in the spring and summer of 1808. These lines mourn specific changes to the Vale — the felling of firs and sycamore trees, human deaths, and the decay of a cottage.[6] This poem is both unfinished, and also considered a kind of nexus in Wordsworth's poetry around this time — primarily because of its relation to Wordsworth's projected, and unfinished epic, the *Recluse*. Johnston, for example, notes that *The Tuft of Primroses* is both 'a new start' dealing with new material from the decade of reworking *The Prelude*, *The Ruined Cottage* and *Home at Grasmere*, and also 'a last beginning', because by the next spring Wordsworth turned 'his energies away from epic-poetry [...] back toward the looser narrative-dramatic poem which eventually became *The Excursion*'. Johnston argues that *The Tuft of Primroses* looks more like a beginning to *The Recluse* than a sequel to *Home at Grasmere*, which Wordsworth labelled as the first book of the *Recluse*. In this sense as

[6] James A. Butler, 'Wordsworth's "Tuft of Primroses": "An Unrelenting Doom'" *Studies in Romanticism*, 14.3 (1975),237–248 (p.240).

well, it is a beginning that was never finished. Like *Home at Grasmere*, Johnston suggests, *The Tuft of Primroses* was supposed to 'be directed outward toward Man, Nature and Human Life from the coherent centre of sensibility' (Wordsworth and his security within the Vale), yet the poem 'turns inward' instead, 'and he finds himself writing meditations *on* his own person'.[7] As a result Wordsworth realised that the work of *The Recluse* he projected in *Home at Grasmere* was untenable. In this sense, *The Tuft of Primroses* is the last major contribution Wordsworth made toward writing *The Recluse* and as such is representative of his discovery that the project was impossible for him to complete.

*The Tuft of Primroses* has been located in this way through a reading of symbolism both in this poem and in *Home at Grasmere*; specifically that of the Vale of Grasmere in contrast to the small tuft of primrose flowers. The poem has been deemed problematic (both in itself, and as a beginning to the *Recluse*) because its core subject has been read as the failure of Grasmere Vale as a symbol. Symbolic readings of this kind present the reader with a difficulty, however, because although the damage in *The Tuft of Primroses* is said to be of a symbolic kind — it is because Grasmere no longer functions as a symbol of security from which to set off, that Wordsworth is unable to properly begin *The Recluse* — it is nevertheless clear as well that damage to the Vale was experienced by Wordsworth as a series of real, destructive changes to the valley. In this sense, then, the question arises as to how what the poem describes as destructive change to the Vale, makes its way into symbolism and, finally, how this symbolism should be assessed.

Laurence Goldstein (1973) for example, articulates the function of the Vale in *The Tuft of Primroses* in terms of a source of power to which Wordsworth can return: 'At issue is the survival of an originating Power, a Centre, a Home, without whose existence the poetic

[7] Johnston, p.317.

imagination would itself "vanish beneath an unrelenting doom"'.[8] Wordsworth's return to Grasmere in 1799, on this idea, allows him confidence in a philosophy of nature centred on the Vale and its providence. However, his 'absolute confidence' leaves him 'vulnerable' to any interference to the Vale.[9] The changes to the Vale detailed in *The Tuft of Primroses* represent an attack on the embodiment of Wordsworth's past, so he comes to be cut off from the sources of his inspiration; he can no longer return. There is a transition in this line of thinking between the physical aspects of the Vale in terms of change and continuity, and the symbolism of the Vale.

Reading both *Home at Grasmere* and *The Tuft of Primroses,* James A. Butler (1975) argues that Wordsworth wants to set the Vale up as a symbol in order to serve as the starting point for *The Recluse* — because 'a symbol for "home" and "paradise," the speaker could find in that protective environment the mental repose needed to generate his epic'.[10] On returning to Grasmere from Coleorton, Wordsworth writes *The Tuft of Primroses*, 'mourning the changes' to the valley, which engender an 'odor of decay and death' in his poem.[11] Butler lays stress on the 'failure of the symbol' that would have made *The Recluse* possible. Although Butler attends to material changes in the landscape and society of Grasmere in the two poems, it is as a 'symbolic home' that Grasmere is of greatest relevance to him when it comes to critical reading — in that it is a symbol that is undermined by changes in the Vale, and a damaged symbol which plays a role in preventing Wordsworth from writing more of the *Recluse*.

Such accounts that stress the symbolic aspects of nature in *Home at Grasmere* and *The Tuft of Primroses* do approach the 'brute facticity' that Steele identified as a critical

[8] Laurence Goldstein, 'The Auburn Syndrome: Change and Loss in "The Deserted Village" and Wordsworth's Grasmere', *ELH* 40.3 (1973), 352-71 (p.370).
[9] Goldstein, p.353.
[10] Butler, p.238.
[11] Butler, p.243.

resource for Wordsworth.[12] Quickly, however, they then refer back to symbolic value, without interrogating the relationship between real, existing nature, and symbolism. The accounts of Johnston and Goldstein consider the physical, actual destruction that took place in the Vale, while also emphasising its symbolism, and in this sense draw attention to an action working across physical change into ways in which symbols mutate. Although the three articles I have cited engage carefully with biographical detail, they do not make particular attempts to engage psychology. My point here though is that where these critics leave off from what has happened to the material Vale, they are led away from the textures of nature that can be evidenced to be at work both in *Home at Grasmere* and *The Tuft of Primroses.* In doing so, they miss an important way in which symbol, change and continuity relate.

Both poems evidence continuities in the experience of nature and, although changes to the valley do seem to have affected how Wordsworth was able to deploy the Vale as a symbol in his poetry, tracing invariance brings to light continuing textures that also affect how the poems are able to deploy both change *and* continuity — and to calibrate a reading of how both may figure in their symbolism. This critical pause allows a central tension in *The Tuft of Primroses* to be interrogated from a new angle, asking just *how* the 'little Primrose of the rock' (235) can be put forward by Wordsworth against the desolation which his poem takes the time to detail, the 'unrelenting doom' (279), and the 'gulf' (230) which 'renders nothing back' (231). Or put differently, how Wordsworth feels able to put forward a defence of nature whilst telling stories in which devastation and loss appear to triumph in ways that seem to be experienced as definitive and emotionally charged. CE readings allow a pause to consider the texture of nature at work and to ask if this texture impacts how meaning might

[12] Jeffrey Steele, *Unfolding the Mind: The Unconscious in American Romanticism and Literary Theory* (New York: Routledge, 2017), p.117.

be read. They allow interrogation of what Johnston terms the 'structural contract' of the poem, the 'juxtaposition of ruined or threatened buildings with frail emblems of natural resilience'.[13] Emphasising invariance in the relation between mind and nature by focusing on relatively stable human traits such as empathy re-calibrates the way change can be read across *Home at Grasmere* and *The Tuft of Primroses*, and how that change figures in symbolism.

*II. Identifying Invariance*

In *The Tuft of Primroses* Wordsworth speaks of the 'voices' (519) he has heard, 'whispers that pursue' (521) from the Chartreuse, exclaiming: 'Yes I was moved and to this hour am moved' (526). In the broken final lines of the poem, Wordsworth describes 'an unassuming brook | Working between these hills its aimless way | Through meadow, chestnut wood, and olive bowers | And tilth and vineyard. —' (590-92). While these lines trail off, they also seem to swell onwards with a force of continuous movement in the image of the river. The final lines (590-92) are rehearsed earlier in the poem ('Soft murmuring among woods and olive bowers | And tilth and vineyards', 485-6). This sense in which movement resonates, recalls other powerful moments in Wordsworth. This include the 'huge and mighty forms' that live on in the boy's mind following boat-stealing and the resonating movement of the girl-with-pitcher as she struggles against the fierce wind, as well as the song of the solitary highland lass whose music Wordsworth carried with him in 'Solitary Reaper' at the final line of the poem 'Long after it was heard no more'.[14] In 'I Wandered lonely as a Cloud' Wordsworth writes of the 'never-endling line' of flowers, numerous and extensive as the stars in a night

[13] Johnston, p. 319.
[14] Wordsworth, 'The Solitary Reaper', in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* ed. by Nicholas Halmi (London: Norton, 2014),pp.592-94 (l.32).

sky, ‘Continuous as the stars that shine’, and of the image which ‘flashes’, ‘upon that inward eye’ and then lingers there, as the heart ‘fills’ and ‘dances’ on.[15]

The 1799 *Prelude* speaks of ‘high objects [...] eternal things | [...] life and Nature (1799.I.136-7). These ‘high objects’ are presented in contrast to the ‘mean and vulgar works of man’ (135). The river Derwent moves in the poem as such an object, from the first lines, ‘Among the fretful dwellings of mankind’, seemingly more continuous than they, tempering Wordsworth’s thought with ‘A knowledge, a dim earnest, of the calm | Which Nature breathes’ (13-15). The poem contrasts human constructs and the enduring forms of nature.

*Home at Grasmere*, as has been shown, has been read as localising endurance into a single vale — a ‘termination and a last retreat’ (166). In *The Tuft of Primroses* Wordsworth is lead from the idea of a ‘unity entire’ in *Home at Grasmere* to what he describes as an ‘unrelenting doom’ (*The Tuft of Primroses,* 279) resulting from the apparent lack of endurance in features of the Vale on which he has focused.[16] However, this scheme is problematised when it is considered that both poems engage with change and continuity.

*Home at Grasmere* certainly speaks about the importance of continuity to what Wordsworth possesses in the valley, and to his poetic project: ‘Something which power and effort may impart. | I would impart it; I would spread it wide, | Immortal in the world which is to come’ (MS.D. 685-91). However, *The Tuft of Primroses*, in turn, also emphasises continuity — of the flowers — apparently set against the perishability of other aspects of the valley. The ‘throne’ from which the flower sits in ‘splendour unimpaired’ (14) is ‘imperishable’ (09) and the flower — ‘Thou’ — is said to ‘maintain | Conspicuously’ (12-13). Later the flower ‘remains and has survived’ (78). Having described a cottage falling into disrepair, so that ‘all are ravaged’ (217), with ‘works | Of love and diligence and innocent

[15] Wordsworth, ‘I Wandered Lonely as a Cloud’ in *Wordsworth’s Poetry and Prose: An Authoritative Texts Criticism* (London: Norton, 2014), pp.14-15.
[16] A form of words linking back to the boat stealing passage: ‘Or blank desertion; no familiar shapes [...]’ (*Prelude*.1799.I.124).

care' 'sullied and disgrac'd' (229-30), 'swallow'd' by 'a gulf' (230) 'which renders nothing back' (231) 'Meanwhile' Wordsworth goes on to claim, 'the little Primrose of the rock | Remains, in sacred beauty, without taint | Of injury or decay' (235-37). The destruction in the Vale set against the continuity of the tiny primrose flower: 'That little Flower remains and has survived' (78).

It is nevertheless the case that the 'doom' in *The Tuft of Primroses* is both described as unrelenting, and also enumerated in the disappearance of specific natural features, objects, and persons from the Vale, all of which take an emotional toll on the poet. Wordsworth is lead to ask 'Was it a dream!', and he is, like the sole remaining 'straggling Tree' 'left | To mourn in blanc and monumental grief' (97-103). His identification of grief with the devastation of the landscape is emblematized, in a pun picked up by Jessica Fay (2013; 2018) writing on the importance of Wordsworth's work in designing the Winter Garden at Coleorton to his poetry around this time, where a 'straggling Tree was left | To mourn in blanc and monumental grief, | To pine and wither for its fellows gone' (101-3). 'Pine' both standing as a solitary tree, and as Wordsworth's pining for what has been uprooted.[17] The suggestion is of a close identification between Wordsworth and the remaining tree — his feeling appears to merge with the presence of the single pine. Wordsworth describes the death of a family and the ruined cottage they had previously inhabited where the steeple 'now beholds that roof | Laid open to the common day, | And marks five graves beneath his feet' (142-4). And the landscape itself rises up with fictive motion, so that 'hillocks which like waves | Heave close together' (145-8). The waves of the hills swell and engulf; transmuting solid landscape into a dangerous body of water. This image also recalls the death of John Wordsworth at sea in 1805, who is described in *Home at Grasmere* as 'A never-resting

[17] Jessica Fay, 'Prospects of Contemplation: Wordsworth's Winter Garden at Coleorton, 1806-1811', *European Romantic Review,* 24.3 (2013), 307-15 (p. 7). — *Wordsworth's Monastic Inheritance: Poetry, Place, and the Sense of Community* (Oxford: Oxford University Press, 2018).

Pilgrim of the sea,' (866) but who had drowned when Wordsworth writes *The Tuft of Primroses*. Wordsworth leaves a space outside of articulation in *The Tuft of Primroses* for the pain that he feels here, describing it as 'something like a pain' (202).

The identification of poet with pine, and the image of hills mutating into waves suggest a sense of loss that is a struggle to articulate, but it also suggests a subtle interaction between change (e.g. here, environmental destruction, human mortality) and continuity (a remaining tree and the nature in which it exists; the onward swelling of the sea). Where Johnston argues — as I detail next — that Wordsworth mourns loss in the valley because it reduces the potential of the landscape to inform poetic imagery, 'the image-making power', part of the way in which these images are powerful is because they relate to continuity. Johnston suggests that Wordsworth mourns for a human communion with nature. For example, for the jasmine which was the daughter's 'own charge, which she had trained | To deck the wall' so as 'to pervade | The inside of her chamber with its sweet' (222-26). Wordsworth says: 'I grieve to see that Jasmine on the ground | Stretching its desolate length' (227-228). In such devastation one is led to ask, then, about what does indeed survive. What Johnston reads as having been destroyed is the human image of nature, 'that malleable nature does not long retain Man's stamp'.[18] If the mind is fitted to nature, 'human energy seems meaninglessly wasted when, having transformed nature into a human image, the image of mutual identity is inexorably worn down by natural processes themselves'.[19] After this grief, and the opening of a 'gulf' 'which renders nothing back' (231) Wordsworth makes his statement about 'the little Primrose of the rock' (235). For Johnston, this image of 'the little Primrose' and 'Her charter in the blaze of noon', is forced on Wordsworth as a kind of stop-gap — he must have a symbol, even if weakened, to replace the loss of the valley's integrity.

[18] Johnston, p.325
[19] Johnston, p.325.

Yet a question remains as to what *has* persisted. More specifically, what about this remnant gives it the critical mass — the necessary symbolic value — that Wordsworth feels it may, in Johnston's terms, substitute for the Vale?

The sheer force of imagery deployed — 'hillocks which like waves' — belies any loss of the 'image making' power, and calls into question a symbolic scheme on which the primrose is primarily a weaker symbol of continuity than the Vale had been in *Home at Grasmere*. Although a critic such as Goldstein can claim that 'the chief characteristic of Grasmere had been its imperviousness to loss', in point of fact, the poem shows the perviousness of the valley (368). The apparent loss of the swans, the story of the affair, the strange call — 'An awful voice, | 'Tis true, I in my walks have often heard' (*Home at Grasmere.* MS.B. 407-8) — connote a sense that the 'unity entire' contains or adumbrates destructive change and danger of loss. Wordsworth is explicit about this: 'That Nature of this favourite Spot of ours | Yields no exemption' (838-9). And his envisaged 'stream of words' (621) 'Shall speak of what is done among the fields, | Done truly there, or felt, of solid good | And real evil [...]' (623-5). Wordsworth certainly emphasizes loss, and in *Home at Grasmere*, foreshadows future imagined loss: 'in sorrow (but of that | I have known little)' (MS.B. 48-9). At the same time, he also dwells on invariant aspects of experience in nature. *The Tuft of Primroses* enacts the weakening of Grasmere as a unitary symbol but, in so doing, it 'lifts the Vale' to reveal invariances in the play of mind and nature that comprehend and transcend the particulars of time and of place. Where hills rise up and begin to move, attention is drawn to invariance of surface and movement in the way that images are formed. It is to shape and movement in the image of the primrose flower that I now turn.

*III. The Primrose as a Symbol in Relation to Invariance*

*The Size and Shape of Flowers*

The primrose flower may be an image that can be imagined with greater ease of resolution than a valley. In this sense I will suggest that the claims Wordsworth makes for the Vale may be more easily expressed by the image of the flower. Moreover, I go on to suggest that the flower itself affords an interpretation in relation to invariance. As Scarry has observed, citing a number of experiments by Stephen Kosslyn in cognitive psychology, in mental picture making, there appears to be a 'ratio of extension to intensity'.[20] In other words, imagining objects of a certain small size involves imagining them close-by, so that they tend to occupy the field of view, allowing close examination of their detail. Imagining very large objects, however, involves placing them further away in mental vision, so that the finer details of what is imagined are harder to discern. It is in this sense that: 'The labour of construction has a certain radius: in imagining, as in painting, the localization of intensely filled-in surfaces becomes possible with a smaller surface'.[21] It is in this context that flowers, 'appear to be the perfect size for imagining'.[22] Speculatively, a linked-aspect of the flower that eases the way for its mental picturing of particular relevance to Grasmere Vale, is also its bowl-like shape. This shape — for example, that of the common evening primrose as it opens its petals to the sky — reflects the bowl of the Vale. It could be speculated, then, that the image of a topographical crucible is reduced in extension, so that it may take on a more radiant intensity by being placed before imagination as a flower, or a tuft of flowers. Writing about how attitudes to perspective shifted in Romantic era art, Heffernan claims that instead of a rectilinear grid to represent the world through perspective — as in classical perspective in

[20] Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999), p.53. For example: Stephen M. Kosslyn, *Image and Brain: The Resolution of the Imagery Debate* (Cambridge: MIT Press, 1996).
[21] Scarry, p.54.
[22] Scarry, p.46.

painting — in Romantic painting and literature the ' [...] energy of the eye re-creates it as a rounded whole'[23]. Grasmere Vale is particularly suited to this kind of vision due to its bowl-like shape, and the same may be said of the primrose flower.

Thinking along these lines would place the flower within changing modes of artistic looking. Using Scarry's terminology, these aspects of flowers — shape and size — are part of what render them easy and extraordinary to imagine; because they relate the attributes of flowers directly to human perception. What Wordsworth does, in this reading that I have just sketched, is to partially abandon his imagery of the valley — imagery which physical changes had rendered difficult to sustain — as whole and entire, and instead brought the mind's eye to a tuft of flowers, whose forms and patterns of growth are familiar, and whose perennial nature in itself, already affords a sense of continued life and flourishing amidst change. Of size, shape, and patterns of growth, it is the latter that is, perhaps, most difficult to articulate and, in turn, which I believe points out a way to how the symbolism of the primrose tuft may be placed in relation with invariance. It is to varying speeds of change, and the location of the primrose as a symbol in relation to these, that I now turn.

*Differing Speeds of Change and Vegetative Growth*

When Wordsworth wrote *The Tuft of Primroses* he had just returned from a stay at Coleorton, where he had been designing a Winter Garden for Sir George Beaumont. Wordsworth had met Beaumont in the summer of 1803, and the older man became a lifelong patron and friend. Beaumont was impressed by Wordsworth's poetry of nature, even giving Wordsworth a parcel of land.[24] Mary Wordsworth gave birth to a son, Thomas, in June 1806. The family

[23] James A.W. Heffernan, 'Wordsworth, Coleridge, and Turner: The Geometry of the Infinite', *The Bucknell Review*, 29.1 (1984), 49-72 (p.70).
[24] Stephen Gill, *William Wordsworth: A Life* (Oxford: Oxford University Press, 1989), pp.220-21.

had been living in cramped conditions at Town End, in Grasmere, and rapidly needed more space.[25] Beaumont, who was building a house at Coleorton in Leicestershire, offered them the farmhouse in which to stay. In October, they accepted, and set off on their long journey; they would stay at Coleorton until June 1807. During the stay, Beaumont asked if Wordsworth could create a winter garden for the new house. Wordsworth accepted, and set about doing so, demonstrating detailed knowledge of landscaping and horticulture.[26] It is during his time away that the changes he describes happen to Grasmere.

In a (2013) piece by Jessica Fay examining the importance of Wordsworth's experiences in designing the garden for his poetry around this time, it is shown that Wordsworth is alive to differing speeds of change at work in natural processes and seeks to use these to effect both in his garden design and his composition. Wordsworth, for example, envisages a bower that will continue in time, even outlasting the house and surrounding gardens, 'when yon Mansion and the flowery trim | Of this fair Garden, and its alleys dim, | And all its stately trees, are passed away, | This little Niche, unconscious of decay, | Perchance may survive'. In June 1807 Wordsworth and Beaumont planted a cedar in the garden, and Fay notes that cedar, cypress, and pine trees were rich, for Wordsworth, with connotations of continuity. Wordsworth based some of his knowledge of trees in a reading of John Evelyn's *Discourse on Forest Trees*, where Evelyn describes how cedar and cypress link the civilizations of ancient Rome to contemporaneous Britain. Fay continues that: 'The cedar holds together past and future poets [...] implying the tree's ability to exist within time, without perceptible decay' (312). This kind of 'associative thinking' Fay suggests, 'is an iteration of his own (and Evelyn's) understanding of the capacity of trees to out-do transient prospects and speak across generations' (312). The cedar of Lebanon also has, as Fay notes,

[25] Gill, p.251.
[26] Gill, p.254.

biblical connotations, ‘as the tree that stood above other evergreens, exemplifying the everlasting life that will come to all’ (310). Wordsworth plants firs to ‘provide shelter and protection’ to the Winter Garden. In turn, the destruction of all but one ‘of the firs at Grasmere exposed the moving clouds and called attention to the diurnal changes those trees had disguised’ (312). In Wordsworth’s thinking, then, the trees and the ‘living stone’ of the ‘little Niche’ both exist within time, and change more slowly than other aspects of the garden or house — in Fay’s words, ‘without perceptible decay’. The stone niche, in particular, is ‘unconscious of decay’ and may outlive even the trees. Wordsworth’s design in this sense envisages an imagined future for the garden. The various aspects of the garden identified, changing at different speeds, project into that imagined future with more or less clarity.

At the same time as projecting into an imagined future time, Wordsworth attends to a hypostatized present moment, in which, for example, the visitor to the Winter Garden has their experience. In a letter to Sir George Beaumont, Wordsworth describes how a path ‘should wind round the garden mostly near the boundary line’, which will at times ‘be kept out of sight, so that the imagination might have room to play’.[27] The interplay of various speeds of change occurs around a kind of ‘present’ that Wordsworth indicates. The imagination plays in the present moment — within a garden whose various identified aspects Wordsworth considers as changing more or less slowly.

In the sections dealing with memories of the Chartreuse and the story of Basil, Wordsworth places continuity at the centre of his meditations. Fay’s (2018) work on the influence of monasticism on Wordsworth’s writings (1806-1822) shows they are ‘persistently responsive to the cultural and material remains—the routines and structures, the landscapes

[27] ‘Wordsworth to Lady Beaumont’, in *The Letters of William and Dorothy Wordsworth, II, The Middle Years*, *Part 1, 1806-1811,* ed. by Earnest de Selincourt and rev. by Mary Moorman (Oxford: Clarendon Press, 1969; repr. 2004), p.115.

and architecture—of the monastic system'.[28] Wordsworth suggests that something ancient in terms of experience is being passed down in these lines, that the human experience in nature comes prior to (and works within) newer cultural references, so in *The Tuft of Primroses* Wordsworth speaks:

> Of nature's pure religion, as in a line
> Uninterrupted it hath travelled down
> From the first man who heard a howling storm,
> Or knew a trouble thought or vain desire,
> (499-502)

In transcribing Nature's utterance, the 'vain injunction of that hour' (536) Wordsworth suggests an under-place that eludes articulate language: 'This substance by which men have clothed, | Humanly cloth'd the ghostliness of things, | In silence and perpetual calm' (539-541). A quality of the Chartreuse that Wordsworth values is its stability in time. The 'Voice' of nature proceeds to allow 'Glory to life and to new-born liberty — | All hail ye mighty passions of the Time' (547). Yet the voice says:

> But spare, if past and present be the wings
> On whose support harmoniously conjoined
> Moves the great Spirit of human knowledge, spare
> This House, these courts of mystery, where a step
> Between the Portals of the shadowy rocks
> Leaves far behind the vanities of life,
> (548-554)

Past and present are 'conjoined' (549) into wings that lift the 'Spirit of human knowledge ' (550). For this reason, the voice asks that 'This House, these courts of mystery' (546) be spared. In lines that recall the tempering voice of the Derwent in the *Prelude*, the 'vanities of life' are contrasted with 'courts of mystery'. One must only step through the 'Portals of the

[28] — *Wordsworth's Monastic Inheritance: Poetry, Place, and the Sense of Community* (Oxford: Oxford University Press, 2018).

shadowy rocks' (553) to enter in. 'Yes', says Wordsworth, 'I was moved and to this hour am moved' (526). There is something continuous over time.

The double appearance of the 'unassuming brook' within and at the broken end of the poem: 'Working between these hills its aimless way | Through meadow, chestnut wood, and olive bowers | And tilth and vineyard | —' (591-3) engenders a sense of continuity. In transcribing Nature's utterance, the 'vain injunction of that hour' (536) Wordsworth suggests an under-place that eludes articulate language: 'This substance by which men have clothed, | Humanly cloth'd the ghostliness of things, | In silence and perpetual calm' (539-541). These lines, then, suggest something that eludes clear description ('ghostliness') and which is continuous ('perpetual').

Flowers and vegetation afford representations of the work and experience of imagining and of attempting to think about the mind's relation to nature. More specifically, vegetative symbols afford a reading that emphasises invariance, due in part to the nature of vegetal things. The philosopher Michael Marder (2013) attempts to account for ways in which plants have their own subjectivity.[29] In detailing how plants have been represented in Western philosophy since Aristotle, he observes that 'profound obscurity' has been the 'marker of their life'(9). I am not intending to linger on the philosophy of plant life, only to draw attention to the ways in which the primrose flower, as deployed in Wordsworth's poem, affords a reading privileging its relation to invariance. Scarry writes that flowers 'are in a continual state of their own autonomous unfolding, bending, reaching, stretching, turning —'. In this sense, she suggests, plants 'provide a model for the sovereign motion of mental images' (161).

[29] Notably: Michael Marder, *Plant Thinking: A Philosophy of the Vegetal World* (NY: Columbia University Press, 2013).

Plants, in their strange cognizing, are something like the work of imagining itself, according to Scarry. In imagining, the flower 'expresses the distinct quality of cognition at work in imagining'(66). In this sense, the flower as an image confers the plant's 'intellect' on the thinking mind: 'In picturing a flower in the brain, the plant's own strange cognition or subcognition is displaying the peculiar nature of our imaginative cognition' (66). The primrose as an image and a symbol hovers on the edge of awareness and, in doing so, affords a relationship to invariance in nature and in the perception of nature. In being imagined, part of its own alien nature informs its affordance of symbolic value. There is an odd sense that in talking about invariance in this way, it is increasingly difficult to be precise. Hovering between perception and apperception is one reason that the flower is effective, because this is also the state in which we find ourselves. By the same token, the difficulty of this boundary challenges attempts to bring this moment into critical discourse. Placing the primrose in relation to invariance in nature, as I suggest does happen in *The Tuft of Primroses*, involves a shift in understanding how symbolism relates to nature.[30]

*Chapter Conclusion*

The primrose is emphasised by critics to be the symbol for the unity of Grasmere Vale as put forward in *Home at Grasmere*. Wordsworth emphasises permanence and survival in the poem, particularly in the passages around the Chartreuse. At the same time, it is clear that the aspects of nature he identifies are subject to destructive change. Moreover, Wordsworth in *The Tuft of Primroses* and in his thinking around this time (as exemplified in his design of the

[30] This is a topic taken up, for example, in the field of *biosemiotics*. See for example, Wendy Wheeler, 'Postscript on Biosemiotics: Reading beyond Words—and Ecocriticism', *New Formations*, 64 (Spring 2008), 137-54 (p.137). Wheeler speculates on the relationship among/between signs in nature and signs in cognition.

Winter Garden) meditates on differing speeds of change in nature and posits an imagined future into which such variously mutating aspects should project.

Wordsworth appears to abandon the symbol of the primrose just as he abandons the poem itself: ‘giving up the poem in mid-sentence, perhaps because his meditations were not heading toward a personally satisfying resolution’ (Butler, p.247). Butler notes, for example, that Wordsworth writes over 350 further lines of *The Tuft of Primroses* after his last mention of the flowers themselves. The symbol of the flower, we are told, is ‘much diminished from what the poet claimed for the entire Vale in the *Prelude* and *Home at Grasmere* [...]’ (247). However, the symbolic value of the flower is found not only (or even primarily) in *opposition* to destructive change and discontinuity to aspects of Grasmere Vale, for it can certainly do nothing in the face of human destructiveness. Rather, its symbolic value is rooted in invariance. The flower is powerful as representative of all those parts of nature and mind which are invariant within change. It brings to a single radiant point, all that which persists beyond what Wordsworth had originally claimed as a ‘termination and a last retreat’ (166). Moreover, because the primrose is a flower — of a certain size and shape, and vegetable habits of growth — it easily affords a reading as a symbol of invariance. The long passages Wordsworth writes inspired by his experiences of the Chartreuse are part of an attempt to bring together change and continuity; the centre of the poem, the primrose, is not the failure of a symbol but a powerful realisation in poetry about what persists and informs meaning.

# Chapter 5. Meaning making and Cognition in *The Ruined Cottage*

## *I. Fittedness*

If humans have evolved to enable sociality and collaboration, in significant part through an ability to 'read' other minds, it is also the case that cognitive capacities play a role in conflict and misunderstanding.[1] Here I focus on how conscious awareness seeks to negotiate its limited access to hidden aspects of mind and material nature in *The Ruined Cottage*, recalling theories behind these ideas and concentrating on their implications for interpreting the poem. This chapter focuses around communication and miscommunication in *The Ruined Cottage* and the extent to which minds in the poem are *fitted* to one another and to their environment. I argue that conscious awareness in the poem must negotiate cognitive and evolutionary constraints in the attempt to make meaning in the world. In this way the chapter examines a latent aspect of suffering in the poem.[2] Moreover, forms of miscommunication that I trace below speak to important ways that the text is read concerning the relationship of imagination to nature in Wordsworth, including those by Geoffrey Hartman (1964), Alan Liu (1986) and Onno Oerlemans (2004).[3] In the 1814 'Preface to *The Excursion*', Wordsworth describes the mind as being 'fitted' to the world and the world 'fitted' to the mind.[4] Previous chapters in his thesis show how invariance mediates change and continuity in Wordsworth, arguably through this kind of fittedness. Yet there is arguably a strong sense in Wordsworth and in *The*

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[1] See: Penny Spikins, 'The Geography of Trust and Betrayal: Moral disputes and Late Pleistocene dispersal', *Open Quaternary*, 1.1 (2015), <http://doi.org/10.5334/oq.ai>, [accessed 26 October 2020] ('Abstract').
[2] Kathryn Hayles *Unthought: The Power of the Cognitive Nonconscious* (Chicago: University of Chicago, 2017).
[3] Geoffrey Hartman, *Wordsworth's Poetry 1787-1814* (New Haven and London: Yale University Press, 1964); Alan Liu, *Wordsworth: The Sense of History* (Stanford: Stanford University Press, 1989); Onno Oerlemans, *Romanticism and the Materiality of Nature* (Toronto: Toronto University Press, 2004).
[4] 'Preface to *The Excursion*', in *Wordsworth's Literary Criticism*, ed.by W.J.B. Owen (London: Routledge, 1974) pp.170-5 (p.173).

*Ruined Cottage* in particular in which mind (both the conscious awareness and the processes underlying it) struggles to communicate with the world in which it subsists and hence a way in which the mind is emphatically not fitted to the world.[5]

The chapter qualifies and questions the fittedness of mind and world as part of a broader necessity with which conscious awareness must contend because cognition both enables and constrains perception. Recalling Kathryn Hayle's (2017) metaphor for imagining consciousness (a vast ship on which the conscious awareness is like a stowaway and the various processes keeping the ship running represent nonconscious cognition) I shift emphasis from a mind-nature dynamic at times framed in the thesis and its interlocutors as inherently beneficent, to the precarious nature of conscious awareness itself when considered alongside cognition and evolution. In turn, the chapter draws out a latent aspect of suffering in the poem.

Coleridge called it the most beautiful poem in the English language and *The Ruined Cottage* originated in the 1790s, spanning a period of revisiting and rewriting up to the publication of the 1814 *Excursion.* As the first book of *The Excursion*, published in 1814, *The Ruined Cottage* was supposed to be part of *The Recluse* but as *The Excursion* moved towards being a work in its own right, it ended up part of the grander project 'in name only' as Kenneth Johnson (1976) observes (316). *The Ruined Cottage* spans both the poem read to Coleridge by William in 1797 at the beginning of their collaboration, after Coleridge had 'bounded down a pathless field' to greet William and Dorothy at Racedown and what would become after successive revisions, the first book of *The Excursion*.[6] Steven Gill (2011) observes that: 'A poem that originated in the anti-war discourse of the 1790s and which was contemporaneous with the *Lyrical Ballads* studies in suffering, stood in 1814 as the opening

[5] William Wordsworth and James Butler, *The Ruined Cottage and The Pedlar* (Cornell: Cornell University Press, 1979). MS.B. unless otherwise stated.
[6] Stephen Gill, *Wordsworth: A Life*, (Oxford: Oxford University Press, 1989) p. 120.

scene-setting of a philosophical work dominated by a poet-surrogate figure'.[7] *The Ruined Cottage* and *The Pedlar* are subjects of a complex history that Mark Reed and James Butler (1979) uncover, building on work including by Ernest de Selincourt, Helen Darbishire (1949) and Jonathan Wordsworth (1969).[8] Gill notes that 'the complexity of it all is...bewildering' (49). Graham Davidson (2014) suggests that 'there are several poems that might be called *The Ruined Cottage*, and every reader has to decide which *Ruined Cottage* they want to inhabit'.[9] The poem was one of the most revisited by Wordsworth and according to Gill, after the *Prelude*, the poem represents 'his most complex and demanding act of revisiting' in his oeuvre (49). Its revision 'spans almost the whole of [the poet's] most creative period' (49).

It is a story of suffering that Wordsworth revisits and critical response focuses on what this suffering, and Wordsworth's response to it, should be taken to mean. In Gill's words: 'The unmerited suffering of Margaret intensifies as she sinks under the loss of her husband, material hardship, break-up of her family, mental collapse, and finally death from malnutrition, exposure, and sickness' (56). Gill's account suggests that Wordsworth was drawn back to the story again and again, not in an attempt to answer the question of why Margaret suffers; he is not 'trying to voice yet again the age-old human demand for an explanation to the problem of suffering'(56). Instead, he is drawn back to the story by what to do with Margaret's suffering: 'What is the proper response to a fate such as Margaret's?'(56)

Two contrasting readings of the poem highlight the suffering at its centre. Alan Liu's (1989) reading argues that the poem essentially fails to respond to suffering. Wordsworth transforms 'the public property of history into mystified icons' (Oerlemans, p.58). On this reading Wordsworth is, in Onno Oerlemans' paraphrasing, 'a kind of Pedlar of the

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[7] Stephen Gill, *Wordsworth's Revisitings* (Oxford: Oxford University Press, 2011). p.30.
[8] *The Poetical Works of William Wordsworth*, ed. Ernest de Selincourt and Helen Darbishire, 5 vols. (Oxford, 1940-9). V, 376-404.
[9] Graham Davidson, 'Wordsworth's Wasteland or The Speargrass Redemption', *Romanticism*, 20.1 (2014), 73-83.

misfortunes of others' (58). Where Wordsworth could and should have given a social and political history of Margaret's suffering, he instead converts it into a lyric experience. The poem is seen to obscure rather than give insight into real human suffering. This position is part of the infamous claim by Liu that 'there is no nature' (Liu, p.104). Oerlemans observes that 'there is no nature, for Liu, not because we cannot overcome individual cognitive limitations, but because we cannot escape cultural and ideological boundaries' (212). Oerlemans' own account focuses instead on establishing the importance of a material register in the poem or 'an important awareness of the physical world that *precedes* imagining it as capital' (58, my emphasis). My reading connects to Oerlemans' to the extent I highlight how cognitive and evolutionary histories also precede imagining. My focus here is on miscommunication in *The Ruined Cottage* but my final chapter brings Oerlemans' material account of the poem into full dialogue with evolutionary and cognitive histories.

I aim to show that miscommunication is part of how the poem communicates suffering and is itself suffered. Hartman's earlier (1964) and very influential reading emphasizes Wordsworth's 'obsession with specific place' (122) in relation to the ruins of the cottage and Margaret's 'spectral hope' for Robert's return (139). For Hartman the poem reveals a fundamental tension or 'subtle knot' in Wordsworth's poetry (138). This knot between nature and the imagination is part of a dialectic and never fully-resolved. Margaret's imagination, in the poem, is bound to a 'spectral hope' (that Robert might return). Her hope is 'disproportionate' to the tenuous traces of Robert which she 'half creates' or imagines. In turn, Hartman says that Wordsworth 'never seizes the extreme pole of the idealist or apocalyptic position'. What Hartman calls the 'spot syndrome' (139), an intense and obsessive ('syndrome') attraction to a specific place that, nevertheless, cannot fulfil the poet's expectations, involves the poet 'localized in nature his intuition of "Powers and Presences" but...forced to go from sight to sight and transcend the bounded image' (122). Hartman writes

that Wordsworth in this poem allows us to 'recognize the interfusion of human and natural which is among his greatest effects' (174). Although the consciousness becomes 'separated' from nature, it is nevertheless interfused by nature.

Hartman's reading suggests that *The Ruined Cottage* builds out the story of Margaret into a 'circle replacing to a degree that of nature, yet seemingly anchored like it in that strangely central ruin' (138). In turn, my reading encourages a focus on the *spot* in the spot syndrome. In reading the 'spots of time' in previous chapters I show how awareness of evolved cognition (empathy, agency attribution and the evolutionary psychology of landscape) shifts critical reading towards ongoing experience and away from an emphasis on specific places and their limitations. By looking again at the way protagonists in *The Ruined Cottage* attempt to communicate with one another and to read each other and nature, this chapter shows how cognitive processes, prior to conscious awareness, inform meaning in the poem. In other words, a key aspect of what is suffered in the poem is the difficulty in accessing reliable information. Ultimately my intervention here does not resolve, or attempt to mediate, the problem of relating imagination to nature that Hartman famously articulates. What I do claim is that reading miscommunication through evolved cognition, in the poem, shows along a number of axes how entangled the conscious mind is with the 'things' of nature and with human relationships. If Wordsworth obsessively returns to spots or what Hartman also refers to as an *omphalos* (a point at which imagination and nature converge) then one reason for this 'gravitation' are nonconscious aspects of reading and misreading connecting (and perhaps disconnecting) mind and world.

Wordsworth in the *Prelude*, in a direct address celebrating Coleridge, cautions against an arbitrary classification of the world, noting how:

> In weakness we create distinctions, then
> Believe our puny boundaries are things
> Which we perceive and not which we have made.
> (1799.II. 252-54)

It is after this qualification that he writes: ‘Hard task to analyse a soul’ (262). He then proceeds with the ‘infant Babe’ passage and takes up this ‘task’ nevertheless (267-310). Yet the qualification to eschew fittedness between ‘our puny boundaries’ and ‘things | Which we perceive’ suggests a wider tendency in Wordsworth to strain towards meaning with ‘words of reason deeply weighted’ in a context where the origins of meaning remain mysterious, where ‘habits’, ‘desires’, and ‘thoughts’, are imagined to ‘Hath no beginning’ (263-67). Timothy Morton (2010) contrasts Wordsworth’s famous lines on fittedness to evolutionary thought presenting the idea of a world where traits are more random than they are ‘fitted’ as such.[10] Beings must negotiate the world with the traits they inherit; ‘Coots don’t have webbed feet, but they seem to do just fine in the water’ (30). Morton argues that all encounters whatsoever, even between objects, take place with what he calls *strange strangers*, in the ontological sense that some aspect of being always remains hidden during encounter (41). Morton writes that: ‘We can never absolutely figure them out. If we could, then all we would have is a ready-made box to put them in, and we would just be looking at the box, not at the strange strangers’ (41). Although Morton is concerned with ontology and his idea extends even to the relations between objects such as rocks it nevertheless affords a useful device for thinking about fittedness. Nonconscious aspects of cognition are indeed hidden below the level of conscious awareness although they continually inform meaning. It is disconcerting to imagine awareness as partly strange to objects in its environment and to itself. As Morton notes, intimacy with objects seems to increase their mystery so that: ‘The more we know them, the stranger they become. Intimacy itself is strange’ (41). In chapter six I go on to examine registers of the sublime that exploit this sense of strangeness along material and neural

[10] Timothy Morton, *The Ecological Thought*, (Cambridge, Mass: Harvard University Press, 2010), p.30.

registers. Here, however, my purpose is to focus closely on the difficulty of seeing, imagining and interpreting relations between mind and world that *The Ruined Cottage* portrays.[11]

Wordsworth certainly portrays the difficulty of seeing, imagining and interpreting the relations between mind and world in the poem. Encounters in the narrative are defined by difficulty. The characters find it hard to read one another. For example, the Pedlar exclaims: 'She seemed not changed | In person or appearance' (438-89). They also find it hard to express or, at a more basic level, simply to know their own thoughts and feelings. The Pedlar complains: 'I cannot *tell* how she pronounced my name' (312). 'I had little power | To give her comfort' (334-54). Similarly, the protagonists find it difficult to construct a link between their existence and that of a surrounding and encroaching nature that eventually takes over completely. 'I wist not what to do', says Margaret (309). The poem, I argue, engages Theory of Mind and empathy in its descriptions of the relations between cottage, garden and protagonists and how these relate to prior interpretations of the text. I focus on the immediate and intimate relations in the poem and how they generate meaning.

Theory of Mind (ToM) represents one area where cognitively-oriented critics have been able to deploy a widely-understood idea into literary studies.[12] In turn, by examining some instances in *The Ruined Cottage* where interpretation of other minds occurs, I show that a key tension that readers have long recognized in Wordsworth is partially enabled through this mechanism. In doing so I suggest a broad shift to contextualising the poem in relation to

[11] Ontological theorists such as Morton suggest that modern sciences construct a world consisting of 'infinite connections and infinitesimal differences' so that 'we can't rigidly specify anything as irrelevant'. Orienting oneself consequently involves a background against which the observer stands out. Multiple scales are at work at the same time, however, and being is embedded in what he terms a 'mesh'. Consequently, it is difficult to specify what is 'foreground' and what is 'background'. Morton refers to an ontological problem relevant to all thinking ('In philosophical language, we're not just losing the "ontological" levels of meaningfulness. We're losing the "ontic," the actual physical level we trusted for so long'). The problem of communication between minds presents, I would suggest, a cognitive and evolutionary scale at which it is difficult to pick out relevant information from noise. ToM exists precisely to overcome an overabundance of perceptual input, filtering down to the information which pertains to the scale of human activity. In doing so, of course, it both enables communication and shapes perception itself.

[12] Alan Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010), p.96.

social cognition as a way of appreciating miscommunication. To recap, ToM is a way in which: 'Human beings are adaptively designed, as highly (and when need be, deviously) social animals, to search for and identify signs of intentionality, emotions, and believe states in others' (Richardson, p. 82). This 'hungry' capacity looks to understand the internal states of others. Richardson deploys ideas from ToM in parallel with Romantic era thinking about what he terms 'the inaccessibility problem' — that because other minds are not visible, 'social agents must make do instead with forming reasonable interpretations based on indirect evidence' (86). Richardson notes that without 'the framework and terminology offered by ToM theory, it would be 'much harder to appreciate and critically describe' the ways in which the inaccessibility problem functions in a text. Lisa Zunshine (2010, 2012), in turn, writes on ToM in novels. Zunshine makes a stronger claim in her monograph that a key or even, the most important, reason that readers read, and novelists write, is because doing so engages ToM to a satisfying degree.[13] At the same time, she has also argued that 'introducing the recent findings of cognitive scientists into literary studies', specifically, ' — our mindreading ability — can furnish us with a series of surprising insights into our interaction with literary texts'.[14] Zunshine emphasizes that readers gain satisfaction from working out what is happening between characters. Richardson emphasizes parallels between modern theories of ToM and Romantic era thought. Appreciating ToM and doing so in relation to Romantic era understandings of 'nonverbal interaction and social cognition' demonstrates a particular way in which texts are rich and complex (96).

The plot at the centre of *The Ruined Cottage* relies on a lack of communication and of action. One unspoken question at the heart of the poem is why Robert and Margaret are

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[13] Lisa Zunshine, *Why We Read Fiction: Theory of Mind and the Novel* (Columbus: Ohio State University Press, 2012).
[14] Lisa Zunshine, 'Theory of Mind and Experimental Representations of Fictional Consciousnesses', in *Introduction to Cognitive Cultural Studies*, ed. by Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010), pp.193-213. (p.194).

unable to communicate, both prior to his departure (she intuits something is very wrong, as she reports to the Pedlar/Armytage figure, who reports to the poet, who reports to us) and afterwards, when Robert's person is absent.[15] In the latter case, the Pedlar's four times calling on Margaret — where he observes her decline — does not result in any practical difference for her. Jonathan Wordsworth highlights a comment by De Quincey, who noted that instead of 'suffering Margaret to loiter at a gate' the Pedlar should have acted to find Robert, and, 'at once have inquired for the station of that particular detachment which had enlisted him. This *must* have been in the neighbourhood. Here he would have obtained all the particulars' and writing to the War Office, the Pedlar could then have connected Margaret to her 'truant'.[16] It is difficult to stand the poem up as a simple 'history' of Margaret's story, and the narrative depends somewhat on a failure to know. Instead of taking practical action, Margaret asks strangers for news, and gazes into the distance: 'evermore her eye | Was busy in the distance' (491-2). It is in not knowing, then, that the poem functions — in a space enabled by a failure of communication, and a failure of action, even though the poem is rich with interpretation and movement.

The reader of *The Ruined Cottage* is at least twice removed from the story of Margaret. The Pedlar intuits Margaret's internal states, but imprecisely, and through attending to nonverbal cues and the physical landscape. The interpretation of other minds in the poem shows how the protagonists construct meaning from the fragmentary evidence available despite the inaccessibility problem. Moreover, in this way, the poem also raises aspects of the landscape into meaning. Geoffrey Hartman memorably identified the 'subtle knot' at the heart of Wordsworth, who 'never seizes the extreme pole of the idealist or apocalyptic position'. Instead, Hartman says that for Wordsworth 'this disproportion argues

[15] Hereafter the 'Pedlar'.
[16] Jonathan Wordsworth, *The Music of Humanity: A Critical Study of Wordsworth's* Ruined Cottage *Incorporating Texts from a Manuscript of 1799-1800* (London: Nelson, 1969), p.85.

*two* vigors or centers of life: of the imagination, which is radically in excess of natural fact; and of nature, which has the power to deceive or attract imagination'.[17]

A poignant case of such mindreading takes place as the Pedlar describes Robert's decline. When the bad times have begun to take hold of Robert, the Pedlar describes how:

> He played with them wild freaks of merriment:
> And 'twas a piteous thing to see the looks
> Of the poor innocent children. 'Every smile,'
> Said Margaret to me here beneath these trees,
> 'Made my heart bleed.'" [...]
> (240-43)

Earlier Robert has been pictured:

> Ill fared it now with Robert, he who dwelt
> In this poor cottage; at his door he stood
> And whistled many a snatch of merry tunes
> That had no mirth in them, or with his knife
> Carved uncouth figures on the heads of sticks.
> (214-17)

Clearly the 'freaks of merriment' (240) are interpreted differently by Margaret, the children, and potentially by the reader as well. The poem does not tell us what Robert himself is thinking, so this must be inferred. The importance of looking — 'twas a piteous thing to *see* the *looks*' (241, my emphasis) — is highlighted. The smiles of the children make Margaret's heart 'bleed' (234).

Here it is evident that the outcome of the children's smiles is to cause Margaret suffering, because she is able to interpret Robert's 'merriment' (240). The interaction is complicated by the children themselves. It is implied both that as 'innocent' (241) they may be unaware of the freakish nature of the 'merriment'. Or, it may also be that they are disguising their knowledge about their father's situation — as Robert plays with them they, in

[17] Geoffrey H. Hartman, *Wordsworth's Poetry 1787-1814,* (New Haven: Yale University Press, 1971), Ebook (ch.4).

turn, play along. Margaret, looking on, can see that the children are partially pretending, and so their smiles communicate a doubling of meaning to her so upsetting that her heart seems to bleed.

In beginning the second part, the poet observes that the Pedlar 'spake with something of a solemn tone' (257):

> But when he ended there was in his face
> Such easy chearfulness, a look so mild
> That for a little time it stole away
> All recollection, [...]
> (257-61).

Again, the tone of speech places it at odds with the 'chearfulness' (259) in his face. The poet is distracted by the Pedlar's expression, even forgetting the story for a moment so that 'it stole away | All recollection' (260-61). The poem returns to the present before the Pedlar again begins. That this present moment is between two recollections of the past, however, is highlighted by the tension between outward signs of the Pedlar's inner state. In turn, the reader is confronted with the problem of how to interpret the poet's attitude relating to this information (before deciding on a position).

The ways in which the Pedlar attempts to read nonverbal information in the poem recalls the notion that interpretation involves parsing signal and noise. The poem presents many instances of non-verbal cues which must be interpreted, because there is a lack of more direct information. For example, the Pedlar describes how, sitting with Margaret (416-26): 'Her eye-lids drooped, her eyes were downward cast' (416); 'She did not look at me' (418); 'Her voice was low | Her body was subdued' (418-19). He turns to how she is looking after the cottage, 'In every act | Pertaining to her house affairs appeared | The careless stillness which a thinking mind | Gives an idle matter —' (419- 422). His gaze returns to her ' — still she sighed, | But yet no motion of the breast was seen, | No heaving of the heart' (422- 24). Later, the Pedlar visits again: 'I found her sad and drooping' (435) although later again he

says, ‘She seemed not changed | In person or appearance’ (438-39). Again he turns to other evidence ,’but her house | Bespoke a sleepy hand of negligence’ (439-440).

In these instances as well, emotions seem to pass from one to another in a form of contagion. In studies of empathy, ‘emotion contagion’, ‘the tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person and, consequently, converge emotionally’ has been demonstrated.[18] In the poem, for example: ‘Her infant babe | Had from its mother caught the trick of grief | And sighed among its playthings’ (448-50). And the Pedlar himself comments: ‘While by the fire | We sate together, sighs came on my ear; | I know not how and hardly whence they came’ (424-6). The sighs are sounds that he hears, but their meaning and origin are left ambiguous. The reader must, in part, follow the Pedlar in seeking cues from the movements of Margaret, and her surroundings. Where information is coming from is left unsaid. Similarly, even where Margaret and the Pedlar attempt to talk to one another, it is markedly unclear about from where the meaning they do communicate originates. In the interaction where the Pedlar first finds that Robert has gone, there is a sense in which although the story is articulated through the protagonists, its meaning and origins are unclear. The Pedlar tells his audience that:

> I wist not what to do
> Or how to speak to her. Poor wretch! at last
> She rose from off her seat — and then — Oh Sir!
> I cannot *tell* how she pronounced my name:
> (309-312)

Whether or not it is Margaret, or the Pedlar who is the ‘Poor wretch!’ is ambiguous. He did not know what to do, or ‘how to speak’, and in turn, he ‘cannot *tell*’ his audience how she

[18] See: Tim Bayne, ‘empathy’, in *The Oxford Companion to Consciousness*, ed. by Tim Bayne, Axel Cleeremans, and Patrick Wilken (Oxford: Oxford University Press, 2010), Oxford Reference, <https://www-oxfordreference-com.ezproxy.lancs.ac.uk/view/10.1093/acref/9780198569510.001.0001/acref-9780198569510-e-125> , accessed November 2020 (para.5);

'pronounced' his name. Following this, and as Margaret continues to speak, although he 'cannot *tell* how' (312):

> A strange surprize and fear came o'er my heart
> And I could make no answer — then she told
> That he had disappeared, just two months gone.
> (317-19)

The Pedlar has intuited that something is wrong ('a strange surprize and fear') before he is told. At the same time he is unable 'to speak', and 'could make no answer'. The 'surprize and fear' seems to come from the Pedlar's intuition that something is badly wrong, coupled with his insight that Margaret must be upset, and it is this that leaves him unable to respond to Margaret. When 'she ended' (a phrase with prescient finality) he still had 'little power | To give her comfort' (334-5). It is only now that the Pedlar begins to be able to say something.

> And when she ended I had little power
> To give her comfort and was glad to take
> Such words of hope from her own mouth as served
> To chear us both — but long we had not talked
> Ere we built up a pile of better thoughts,
> And with a brighter eye she looked around
> As if she had been shedding tears of joy.
> (334-40)

In a recasting of Margaret's generosity earlier in the poem, where passers-by find shelter and refreshment, and at the same time in referencing hunger, the Pedlar is 'glad to take | Such words of hope from her own mouth as served | To chear us both' (335-37). Together they build 'a pile of better thoughts' (338). Through doing so, they manage to engender a 'brighter eye' (339) in Margaret, who 'looked around | As if she had been shedding tears of joy' (339-40). The reader did not know until now that Margaret had been crying — and when it is discovered, the poem has already taken the 'brighter' (339) image of a teary eye and allowed it to stand both for Margaret's sadness, and for a potential reading of 'joy' (340). This way in which they 'built up a pile of better thoughts' (338) is suggestive of a kind of *bricolage*

where the Pedlar is glad to use what is at hand, to build a structure. I mean that uncertainty about where thoughts, and words, come from is combined with an effort to build meaning. Peter Berger has likened religious belief to a 'sacred canopy' erected to protect beings from the anomie of existence, and it is tempting to apply this image here, because the 'pile' (338) they build appears to allow them to continue in conversation, without being overwhelmed.[19]

Yet, again, where the materials are gathered from is quite difficult to say. There is a strong sense in which meaning emerges prior to and beneath language. It is unclear where the 'words of hope' (336) come from — they certainly come 'from her own mouth' (336) but as if detached from any intent. The poem keeps the words away from the reader as well — the Pedlar does not let us know what 'Such words' (336) actually were, only that they managed to build up 'a pile', not of words, but of 'thoughts' (338). In this case, a sense in which the protagonists attempt to glean meaning from their situation also points to nonconscious ways in which communication takes place. Sighs are contagious, and meaning is not always lodged in words so much as in their context, and the ways in which they are deployed.

Stephen Mithen (2006) an archaeologist, argues that proto-language in humans was holistic, with musical vocalizations 'making extensive use of variations in melody and rhythm to express emotion and induce emotional states in others'.[20] The core of Mithen's argument is that a kind of proto-language — characterised as holistic, manipulative, multi-modal, musical, and mimetic (or 'hmmmm') — preceded modern forms of language. On this view, language and music overlap, and aspects of proto-language continue to remain 'as fundamental aspects of human communication', such as 'gesture and body language'(68-9). The 'pre-linguistic mode' that Mithen sees as characteristic among human ancestors would

[19] See: Peter L. Berger and Thomas Luckmann, *The Social Construction of Reality: A Treatise in the Sociology of Knowledge* (London: Penguin, 1966), p. 121; Peter L. Berger, *The Sacred Canopy: Elements of a Sociological Theory of Religion* (New York: Open Road Integrated Media, 2011).
[20] Steven Mithen, *The Singing Neanderthals*: *The Origin of Music, Language, Mind and Body* (London: Phoenix, 2006), p.70.

have been used in relation to nature, so that for 'almost the whole of the six million years of human evolution since the common ancestor, hominins have perceived, classified, interpreted, and made decisions about the natural world in a pre-linguistic mode' (70). Mithen's perspective raises the potential that approaching what Morton termed a 'zero level of living beingness' may at times be to approach a level at which more ancient ways of meaning-making, involved in nonconscious processes in the mind, are at work (90).

The fact that Margaret's character is barely described also serves to heighten the sense in which meaning appears diffused. The poem gives only general information about her. She is first introduced as 'she | Who lived within these walls' (147-8). She is 'good' (150) and 'Many a passenger | Has blessed poor Margaret for her gentle looks' while she offers them refreshment (152-54) and she is generous, 'no one came | But he was welcome, no one went away | But that it seemed she loved him' (155-57). Jonathan Wordsworth assesses her as 'almost uncharacterized'(130). Immediately following these lines, the Pedlar recalls her death in the starkest of terms:

> She is dead,
> The worm is on her cheek, and this poor hut,
> Stripped of its outward garb of household flowers,
> Of rose and jasmine, offers to the wind
> A cold bare wall whose earthly top is tricked
> With weeds and the rank spear-grass. She is dead,
> And nettles rot and adders sun themselves
> Where we have sat together while she nursed
> Her infant at her bosom.
> (157-65)

These lines, coming as part of the Pedlar's initial description of Margaret's character in quite impersonal terms, seem to reduce her further, into a complete lack of individuation — into materiality. Yet, at the same time, because the poem has shown Margaret and the Pedlar seeking to glean meaning from each other, and from their environment at a level beneath language and to use these elements in a kind of *bricolage*, the poem manages to produce a

sense of diffuse meaning. In the same line where Margaret complains that the smiles of her children made her ‘heart bleed’ (234) we realise again that this is a retelling: ‘At this the old Man paused | And looking up to those enormous elms | He said, “ ‘Tis now the hour of deepest noon [...]”’ (243-5). If elms function as a continuity through the story, they also draw attention to the present moment of storytelling, ‘ ‘Tis now’ (243). Before the elms are mentioned again (301-2) the Pedlar pauses and enters a soliloquy. The poem then begins its second part, in the voice of the poet, who eventually requests that the Pedlar resume.

In telling of his next return to the cottage, the Pedlar states: ‘And glad I was when, halting by yon gate | Which leads from the green lane, again I saw | These lofty elm-trees’ (300-2). Different moments seem thus to fuse in the image of trees. For the reader, the trees have come just after the Pedlar has paused, as the eye follows the old man’s gaze upwards to ‘those enormous elms’. Then, in starting once more at the poet’s request, the elms are seen ‘again’. This ‘again’ might refer simply to the fact that the Pedlar, in the time of the story, has already seen these elms before. Yet it also suggests a referencing forward to the present moment. The reader, and the poet are also seeing the elms ‘again’, because the poem has introduced the trees at the very beginning, and we know that the storytelling is taking place beneath them. It is difficult, in this way, to separate out for whom the elms are seen ‘again’. Similarly, ‘this multitude of flies’ (248) that the Pedlar observes in his soliloquy, mirror the ‘insect host which gathered round’ the poet’s face (23) and which ‘joined their murmurs to the tedious noise | Of seeds and bursting gorse which crackled round’ (24-5). It may be that, in reducing communication to a ‘zero’ level, the poem heightens awareness of all the information that the world presents. In this way almost everything in the poem that seems meaningful seems more so.

In a version of the Romantic era shift from a classical perspective in art that ‘received the world as a rectilinear grid’, reading nonconscious inputs suggests new ways in which ‘the

energy of the eye recreates' the world 'as a rounded whole', and in which 'the line of undulating beauty' is replaced by 'the line of complex power'.[21] In imagining how nonconscious aspects of mind function in the poem in the ways suggested above, the reader might be said to stand at the top of a cone. In this figure, at the base as if in the circle of a spotlight, is the full complexity of cognition going into making meaning between protagonists (interpreting other minds, for example). At the top would be the reader's own mind within which this activity is actually taking place. Immediately below, and as the cone begins to open out, would be the imagined poet narrator, and then the poet and the Pedlar, and then the poet, the Pedlar and Margaret, and so on with the relations among the other protagonists and objects. The text thus creates a sense of diffuse mentalizing whilst attached to specific interactions. In a strange sense, then, the poem is both quite specific in tracing communication (at the base of the cone, we can imagine each interaction), and quite vague (at the top, all instances combine to generate a wide field of possibility; what the reader might be said to experience as a whole). Layers of mindreading engender a heightened sense of meaning in the poem.

*II. The Cottage and Garden*

If layers of mindreading create a heightened sense of meaning in the poem, they also impact, I argue, how two of its key symbols should be read: the cottage and its garden. Jonathan Wordsworth points out that nature in the poem is 'inexorable, above all *active*' — 'if Margaret weakens, weeds choke the flowers, flowers block the paths, trees are nibbled by truant sheep'(108-9). Like Eden in *Paradise Lost*, the garden in *The Ruined Cottage* tends to

[21] James A.W. Heffernan, 'Wordsworth, Coleridge, and Turner: The Geometry of the Infinite', *The Bucknell Review*, 29.1 (1984), 49-72 (p.70).

wild. The wilding of the garden in contrast to the dissolution of Margaret and her cottage is one of the key relations in the poem. John Beer notes that, in contrast to Margaret's consistent decline, nature continues to perform 'patient work', so that Margaret's death, the falling down of the cottage, and the wilding of the garden, come to partake 'as part of a larger change'.[22] Yet it is also the case that the poem demonstrates consciousness looking for meaning in relation not only to the silent growing of nature, but the hidden aspects of mind. In recent years, writers and ecocritics have suggested that texts and stories should be *re-wilded*, in a way analogous to the re-wilding of managed landscapes — letting, in some way, the inexorable and active in nature take a prominent role in interpretation.[23] In turn, by surfacing ways in which minds seek to read other minds in *The Ruined Cottage*, a kind of cognitive evolutionary re-wilding takes place. The implications go beyond the relations between the human protagonists to impact one of the central symbols of the poem, and one of its most frequently noted tensions: the ruined cottage, and the tension between consciousness and the 'oblivious tendencies' of the nature in which the cottage exists.

Oerlemans finds that Wordsworth emphasizes the final nature of Margaret's death, and the 'monumental indifference' of the natural world to this fact (60). Beer writes that while Margaret 'spends herself in her craving' for Robert, the 'processes of nature' are nevertheless 'performing their own patient work, so that when she dies her death comes to seem also as part of a larger change, in which her house and garden are already taking their part' (35). In turn, I suggest that the poem offers a textured account of the space between consciousness, and what has been separated from consciousness (which corresponds to the 'material' of the material sublime); this is a space opened up in the text through its

[22] John Beer, *Wordsworth and the Human Heart* (Cambridge: Macmillan, 1976) p. 35.
[23] For example: Danielle Barrios-O'Neill, (2016) *Rewilding Form: Recent Approaches to Complexity in Literary Studies.* Interdisciplinary Literary Studies, 18 (2). pp. 282-290. < https://doi.org/10.5325/intelitestud.18.2.fm>

entanglement with cognition. A texture of this space may be traced through one of the starkest figures in the poem — the walls of the ruined cottage.

Successive readers have identified ways in which these walls seem both to preclude communication, and to stand for some kind of relation to Margaret's own ruin. They also stand, as part of the cottage, in contrast to the garden, and more generally, to the processes of living nature. The earlier manuscript ends by describing Margaret as 'Last tenement of these ruined walls' (528). The first appearance of the cottage is as ruined: 'I found a ruined Cottage, four clay walls | That stared upon each other. — 'Twas a spot!' (30-31). In MS.D the 'clay' walls are instead 'naked' (MS.D.31). Oerlemans remarks of these walls are a 'central marker' of the silence Margaret's absence has left behind, 'a monument which is at once permanent and without any explicit meaning' (59). For Oerlemans, the description of the walls constitutes a lyrical moment, 'because they point to meaning that cannot be delivered' (60). Oerlemans goes on that prior to Wordsworth's altering the conclusion, 'the poem refuses a final reconstruction' of Margaret — 'its lyric moments oppose the hesitating narrative of her life by standing as objects (like the self-staring walls) that can speak only of the void left by her death, and the primacy of things'(60).

Yet if walls that 'stared upon each other' (31) are apparently blank, it has also been observed, for example by Jonathan Wordsworth, that the '*naked*, staring walls' endow the cottage with some sense of being alive (130). It is this sense of life which in part enables the association of Margaret 'so strongly with the place in which she lived that as one reads one thinks of its deterioration as hers' (130). Here it is possible to detect what might be termed a gradation of liveness. Whereas the walls appear in some sense animate — if also desolate — Margaret herself, whilst represented as a real person, is nevertheless 'almost uncharacterized'(130).

Jonathan Wordsworth theorizes that the effect of associating Margaret so strongly with her environment enables her presence to be drawn in stark terms. He theorizes that this is also part of how Wordsworth's poem builds up a sense of suffering as the quality in the poem that persists most strongly — beyond individual lives in the poem, there persists the human capacity to love and to suffer (130). *The Ruined Cottage* describes how 'shoals of artisans | Were from their daily labour turned away' (106-7) and opines:

> — happier far
> Could they have lived as to the little birds
> That peck along the hedges, or the kite
> That makes her dwelling in the mountain rocks.
> (209-11)

These lines seem to align human beings in the poem with 'shoals' (106) and the 'little birds' (210). Morton observes of similar birds that 'peck along' the wayside in 'Old Travelling Man, Animal Tranquillity and Decay, a Sketch' that their activity 'suggests tiny movements, something halfway between tiptoeing and nibbling, and something to do with thinking, which the old man's gait [in that poem] also conveys' (Morton, p. 49). It is difficult to resist 'the slightly creepy conclusion that there is almost no one there' (49). In the lines describing how Margaret waits for Robert, in contrast, things appear which seem illusory:

> For hours she sate, and evermore her eye
> Was busy in the distance, shaping things
> Which made her heart beat quick.
> (491-3)

Wordsworth describes the Pedlar as moving through the landscape saw 'the hills | Grow larger in the darkness' (*The Pedlar,* MS.E.124-25) and it is thus that 'the foundations of his mind were laid' (MS.E.128). The poem describes what appears to the protagonist to be taking place, but with a nuance that this perception is not presented as factual in the sense that hills are not actually growing, and 'things' are not actually taking shape in Margaret's vision.

Yet the perception does lead to an intimacy of response — the Pedlar's intellect is said to be founded on the massing hills, and Margaret's heartbeat is said to 'beat quick' in *The Ruined Cottage* (493) as she imagines shapes 'in the distance' (492). Jonathan Wordsworth makes the point that the imagined world in Wordsworth is valued in part because it corresponds neither to objective reality, nor to a complete fantasy — rather, it expresses a mode of perception where what is imagined lends meaning to what is felt to be real. Hence, the 'impulse' to call on the 'senseless' rocks in the passage on elegy (73-9) is qualified: 'Elegiac poets are justified in their pathetic fallacy not because rocks *can* mourn — the adjective "senseless" is used quite deliberately — but because the impulse to call on them is imaginative' (Jonathan Wordsworth, p.208). This places the imaginative response in the poem in a space between a complete decoupling of mind from world, and a hypostatized objectivity, in a way that recalls Hartman's notion of the 'subtle knot' that 'makes Wordsworth the poet he is'.[24]

Like the cottage walls that have been taken as sign of blankness but which nevertheless set up 'cognitive' levels of reading, the perception of shapes, and forms on the horizon of conscious awareness establishes a register in the poem that is neither imaginative nor objective as such. So far then it might be regarded as a poetic technique. In turn, however, it is a technique rendered with greater meaning in a modern reading if what a number of critics have taken to be Wordsworth's original intuitions (before his intellect came into a fuller relation with Coleridge's philosophizing about the One Life) *actually do* cohere with one of the likely ways by which minds relate to one another and to the world (Jonathan Wordsworth, p.108).

[24] Geoffrey H. Hartman, *Wordsworth's Poetry 1787-1814* (New Haven: Yale, 1964), p.138.

*Chapter Conclusion*

This chapter aims to show how conscious awareness in *The Ruined Cottage* must negotiate the limits of perception and cognition in attempting to make meaning within the world of the poem. As such the chapter engages the idea of *fittedness*. Here the chapter acknowledges Wordsworth's use of the term ('How exquisitely the individual Mind' says Wordsworth in his famous lines, 'Is fitted; and how exquisitely too [...] The external world is fitted to the mind', 1006-1011). Minds in the poem are not always fitted to one another and their environment, however, so much as tangled in a version of what Hartman terms the 'subtle knot' involving imagination and nature. On the contrary, miscommunication drives the poem, between human minds and between minds and objects such as the cottage and garden. The poem is of course about suffering but, just as the characters suffer hardship, they also suffer from the limits of their ability to understand one another and their environment. In perhaps the most powerful image, Margaret imagines shapes in the distance that might be her returning husband. Of course, they are not. Are the shapes imaginary? They are not objectively there but they are nevertheless perceived by Margaret and, in turn, imagined by the reader. Jonathan Wordsworth wonders whether the poetics relating Margaret's decline to that of the cottage, and the life of the garden, are accidental or deliberate despite the 'beautiful' effect they seem to engender for the reader (108). Hartman's account of the 'subtle knot' between imagination and nature alludes to the same problem. Cognition and evolution suggest that this knot might be tangled through automaticity (138). Layers of mindreading create a heightened sense of meaning in the poem, because meaning is imbued with pre-linguistic, nonconscious influences before it is fully-articulated.

In the second part of the chapter I show that the 'oblivious tendencies' of nature which the poem foregrounds and the 'monumental indifference' with which nature seems to

regard Margaret, have their corollaries in the hidden workings of the mind (Oerlemans, p.60). The ruined cottage itself and the tension between conscious awareness and the oblivious nature in which the cottage stands are nuanced by cognitive reading because concomitantly oblivious forces are at work in how minds read one another and their environment. Cognitive reading opens future readers up to the possibility that with greater and more scientifically-derived insight into the mind, more of the subtlety of texture that generations of readers have noted might be explored.

# Chapter 6. A Cognitive and Evolutionary Sublime

## *I. The Idea of the Sublime*

The idea of the sublime in literature goes back at least as far as work attributed to Longinus (*On the Sublime*) popular at the time as a translation, Aristotle's *Poetics* and the broadly contrasting versions put forward by Edmund Burke (1757) in *A Philosophical Enquiry into the Origin of Our Ideas into the Sublime and the Beautiful* and Emmanuel Kant (1790) in *Critique of Judgement*.[1] It also includes a diversity of thinkers such as Joseph Priestley and Humphrey Davy who in particular relate notions of the sublime to natural philosophy, geometry and mathematics.[2] Priestley (1777) for instance in *A Course of Lectures on Oratory and Criticism*, wryly observes that the term 'hath been used in a more vague sense than almost any other term in criticism' (160). Indeed, more recently Alan Richardson (2010) points to the 'ever-growing list of sublimes' in modern literary scholarship including 'Gothic and Romantic, Egotistical and Sympathetic, American and Indian, Racial and Androgynous and still more' (Richardson, p.23).[3] Richardson's *A Neural Sublime* provides a helpful overview of recent thinking on the sublime on which I draw throughout the chapter. In his view scholars are yet to articulate a 'cognitive sublime' and Richardson's book attempts to redress this gap. In turn, an etymology of *sublime* (Jan Cohn & Thomas H. Miles, 1979) through the last seven centuries of English, suggests the importance of boundary conditions

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[1] Edmund Burke and Adam Phillips, *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (Oxford: Oxford University Press, 1990); Immanuel Kant and James Creed Meredith, *The Critique of Judgement* (Oxford: Clarendon Press, 1952).

[2] Joseph Priestley, *A Course of Lectures on Oratory and Criticism. By Joseph Priestley, LL. D. F. R. S.* Printed for J. Johnson, No. 72, St. Paul's Church-Yard, MDCCLXXVII. [1777]. *Eighteenth Century Collections Online*, <link.gale.com/apps/doc/CW0121887625/ECCO?u=unilanc&sid=bookmark-ECCO&xid=4de31cc5&pg=174>. [Accessed 20 Nov. 2021].

[3] As Richardson notes, a useful survey is found in: Kenneth Holmqvist and Jaraslaw Pluciennik, 'A Short Guide to the Theory of the Sublime' *Style* 36.4 (2002): 718-41. See also: Guy Sircello, 'How is a Theory of the Sublime Possible?' *Journal of Aesthetics and Art Criticism* 51.4 (1993).

to its meaning; in other words, the sublime in its various permutations is positioned in between conscious awareness and what lies beyond such awareness.[4] This positioning around the valence of a threshold (*limen,* lintel, threshold) is as important for analysing the sublime as the immediate relationship of the term to any named category in particular lying over the threshold (e.g. in relation to *the brain* in Richardson's account).[5] In this chapter I contrast two leading critics of the sublime from the last two decades: Onno Oerlemans' *material* account of the sublime (2004) and Richardson's *neural* sublime. [6] In doing so I focus back on an aspect of the sublime that emphasizes a boundary or threshold between conscious awareness and what remains inaccessible to that awareness, drawing out a third register which I argue is latent in Wordsworth and which I speculate should be read as a cognitive and evolutionary sublime.

Oerlemans examines the *material sublime* as the experience of material nature fundamentally inaccessible to consciousness. By contrast, Richardson puts forward the *neural sublime* register, highlighting the hidden workings of the brain. As far as I am aware these two registers of the sublime have yet to be directly compared although both critics emphasize how nature (whether in a material aspect or in terms of neural processes subject to natural science) informs permutations of the Romantic sublime and Richardson even alights on the same term, the 'material sublime', originally from Keats' poem 'Epistle to J.H.Reynolds' (Richardson, p.34). Bringing the two notions into further relation in a cognitive reading of Wordsworth is informative because, being a site of interaction, the cognitive evolutionary sublime is conditioned *both* by the workings of the brain that Richardson emphasizes and by inaccessible natural processes emphasized by Oerlemans that, ultimately, inform evolutionary

[4] Jan Cohn and Thomas H. Miles, 'The Sublime: In Alchemy, Aesthetics and Psychoanalysis', *Modern Philology*, 74.3 (1977), 289-304.
[5] Alan Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010).
[6] Onno Oerlemans, *Romanticism and the Materiality of Nature* (Toronto: Toronto University Press, 2004); Alan Richardson, *The Neural Sublime*.

and cognitive histories themselves. A cognitive evolutionary sublime, then, contributes in a modern way to what Priestley in 1777 terms the 'sublime of science' (169). For Priestley, as Sharon Ruston (2013) notes, the accumulation of scientific progress itself offers 'the kind of sublime prospect that is dizzying and magnificent' (Ruston, 148). Priestley writes that: 'The sublime of science consists in general and comprehensive theorems, which, by means of very great and extensive consequences, present an idea of *vastness* to the mind' (169, emphasis original). If Wordsworth at times reveals in his poetry the 'ordinarily secret workings of the brain' as Richardson suggests or, indeed, the inaccessibility of the 'mute insensate things' of nature as Oerlemans' account holds, in sublime moments his poetry also reveals (as many readers observe) the vast impersonal forces of human history and society. Likewise, cognitive and evolutionary histories inform these influences and provide a backdrop to Wordsworthian portrayals of sociality that certainly has 'very great and extensive consequences' (Richardson, p.25) and presents 'an idea of *vastness* to the mind' (Priestley, p. 169). Cognitive and evolutionary invariance thus affords elaborate meaning structures that shift or create new permutations of the sublime rather than simply occupying a single moment of surprise as in Richardson's account of the neural sublime or gesturing towards the fundamental inaccessibility of natural processes, as in Oerlemans.

Accounts of the sublime in Romantic literature centre in particular on Burke and Kant. Richardson observes that there is a gradual change towards a Burkean view of the sublime involving a 'directional shift from the sublime as something toward which we are carried up and away, to the sublime as an abyss or void opening within or beneath us' (28). Burke emphasizes both physiological and neural aspects to the sublime, as Ruston notes. Vanessa Ryan (2001) for example also notes Burke's 'physiologism' and that he emphasizes

'the physiological aspects of experience'. [7] Richardson on the other hand notes that though Burke 'cannot be called a "materialist"' his 'conception of mind shares some crucial elements with the material psychologies that emerged by the end of the eighteenth century'. [8] For example Richardson uses Wordsworth's image of the 'beating mind' ('When all the ground was dark, and the huge clouds | Were edged with twinkling stars, to bed we went | With weary joints and with a beating mind', 1799.I.13-16) to emphasise the poet's awareness of biological and neuroscientific thinking (169) . By contrast, Ruston notes that a Kantian notion of the sublime offers 'a form of transcendence...the Kantian sublime reinforces confidence in one's self and in human capability; it...pitches man against nature and finds man superior' (149). For Kant, the 'sublime exists within the perceiving subject rather than the natural object' (Ruston, p.149). The sublime experience in Kant ultimately resolves in reason because following the initial feelings of being overwhelmed, the conscious, rational mind is able to contain the whole episode. This Kantian sublime is a dynamic through which reason triumphs in the end. Burke imagines that the conscious awareness would be overwhelmed by the sublime experience whereas in Kant it is 'raised, transported, and exalted' (149).

Richardson suggests in his study that 'viewing the sublime almost exclusively through its later, Kantian, version, no one has thought to look for a nontranscendent or even anti-transcendent sublime'.[9] The 'boat stealing' episode, from the 1799 *Prelude* offers an example where a sublime moment does not resolve into reason. In this episode resolution is deferred into further movement and ambiguity. These forms are unlike representations of reason, they 'do not Live | like living men' (1799.I.127) and continue on to 'trouble' (129) the boy's dreams. Similarly, in the boat stealing episode the steady cadence of the rowing, the linear

[7] Vanessa Ryan, 'The Physiological Sublime: Burke's Critique of Reason', *Journal of the History of Ideas* (2001) 62:2, 265–79.
[8] Alan Richardson, *British Romanticism and the Science of the Mind* (Cambridge: Cambridge University Press, 2005), p.18.
[9] Alan Richardson, *The Neural Sublime*, p.18.

progress of the boat across the planar surface of a lake all emphasize order and, especially, a Euclidean train of thought.[10] By contrast, the sublime experience of the rising cliff causes panic and flight and disturbs the young boy's thoughts. Whereas a Kantian sublime might focus on the mathematically numerous stars, it is the intercession of the cliff between the boy and starry sky that drives the sublime episode, rather than vastness of 'nothing but the stars and the grey sky' (1799.I.102).

Criticism of the sublime in Wordsworth certainly involves a momentary or a momentarily sustained awareness of a gap between conscious awareness and what is posited to lie beyond such awareness. Ronald Gaskell (1991) for example writes of the 'epistemic gap' between mind and nature in Wordsworth — a breach between conscious awareness, and what Wordsworth terms the 'mute insensate things' of nature.[11] Elaine Scarry (1999) observes that 'The preference for the sublime in modern thought is a preference for objects that are beyond the radius of our compositional powers'.[12] By contrast, I suggest here that re-approaching the sublime through evolved cognition involves a close-focus on one edge of the epistemic gap; the edge leading out from conscious awareness both into the material world that surrounds consciousness and into the hidden processes that inform conscious awareness itself. Richardson notes the 'paradox of a psychological experience that by definition eludes human knowledge and description' (22). Richardson's study of the sublime recognises Guy Sircello's (1993) work on the sublime.[13] For both, 'sublime discourse could be seen as a cognitive technology for triggering the "*intuition of nothingness*"' found 'in examples of the sublime from Wordsworth to Bodhidharma....to Bataille, each of which suggests the

[10] e.g. Aaron J. Ottinger, 'The Role of Geometry in Wordsworth's "Science of Feelings"' (unpublished doctoral thesis, University of Washington, 2016).
[11] Ronald Gaskell, *Wordsworth's Poem of the Mind: An Essay on* The Prelude, (Edinburgh: Edinburgh University Press, 1991), p.9.
[12] Elaine Scarry, *Dreaming by the Book* (New York: Farrar, Straus and Giroux, 1999). p.4.
[13] Guy Sircello, 'How Is a Theory of the Sublime Possible?', *Journal of Aesthetics and Art Criticism*, 51.4 (Autumn 1993), 541-550.

emptiness of our habitual apprehension of what we take to be a graspable and permanent object world' (Richardson, p. 23).

Yet Wordsworth engages the sublime in a way that aggregates several streams of evidence in a prolonged way. If the psychological experience 'eludes human knowledge and description' it also informs and is informed by such knowledge and descriptive power. Wordsworth's lines, for example, in *The Pedlar* on the Pedlar's history and his interest in 'the purer elements of truth' (*The Pedlar*, MS.E. 242) advance a sense in which the poem aggregates evidence drawn from intuition originating in nonconscious processes as well as from natural philosophy. The drawing together of evidence in Wordsworth is problematic for arguments that would isolate one particular aspect of experience as sublime. In re-focusing away from the epistemic gap and towards the edge, the sublime should be seen as gesturing beyond but also simultaneously gesturing towards the conditions by which 'human knowledge and description' are engaged in an episode. The sublime gestures at a beyond and also simultaneously to the fact that what is beyond is *beyond something*, recalling James A.W. Heffernan's (1984) argument that in Romantic era painting and writing, a sense of indeterminacy is shown to require a determining line in order to be imagined as such in the first place.[14] Priestley also emphasizes the importance of comparison to the sublime claiming that: 'Whenever any object, how great soever, becomes familiar to the mind, and its relation to other objects is no longer attended to, the sublime vanishes' (151). Priestley also observes that '...an idea that doth consist of many parts may appear sublime, if the parts of which it consists be not attended to, but the aggregate of them all be perceived as one idea' (153).

The development of the English term *sublime* does in fact result in part from an attempt to relate determinate and indeterminate. The sublime is an interface and, in relation

[14] James A.W. Heffernan, 'Wordsworth, Coleridge, and Turner: The Geometry of the Infinite', *The Bucknell Review*, 29.1 (1984), 49-72.

to cognition, an interface between hidden mental processes and conscious awareness of experience that is then further elaborated. Jeffrey Steele (2017) for example notes that in the context of a psychoanalytical lexicon, if '"sublimation" involves the appearance of unconscious energies, this process indicates more than the mere "elevation" or "purification" of thought'. Instead it 'places thought in context with unconscious roots stretching back into the body's physical energy'.[15] Steele suggests that Romantic works are structured in order to allow consciousness to step back and examine its points of contact with unconscious sources' (11). A sense of elevation as well as a looping back into the 'body's physical energy' informs the development of the term in English. In a (1977) article on philology and the sublime Cohn and Miles offer a history of the twin English terms *sublime* and *subliminal*.[16] Words relating to fire, violence, and pure essence moved from alchemical connotations to becoming available for use by the developing sciences (294). In the sixteenth century, for example, 'sublime' words 'moved gradually out of the province of alchemy into other developing sciences [...] the nouns *sublimatum, sublimate,* and *sublimy* are all used to mean mercury corrosive sublimate, the product of refining'. Around the middle of the fifteenth century, 'a figurative use appeared with a generalized meaning of lofty with specific applications to theology and rhetoric-aesthetics' (296). Cohn and Miles trace two key sources for *sublime* words that are rooted in Middle English and Anglo-French vocabulary. The first is the use of the words in scientific terminology. The second, 'the connection of *sublimation* with related alchemical terms and operations: fire, violence, and pure essence; these terms and attributes will develop most fully in the metaphorical application of *sublime*' (294). In the 700 years or so over which connotations around the *sublime* and the *subliminal* have developed in English, there is common thread: an interplay between something delimited (a -*limen,* lintel,

[15] Jeffrey Steele, *Unfolding the Mind: The Unconscious in American Romanticism and Literary Theory* (Abingdon: Routledge, 2017), p.101.
[16] Jan Cohn, and Thomas H. Miles, 'The Sublime: In Alchemy, Aesthetics and Psychoanalysis' *Modern Philology,* 74.3 (1977), 289–304.

threshold) and something that lies outside delimitation or below awareness (-sub) (289). The apparent contradiction between the two English words *sublime* and *subliminal* (that which *raises up* [in Kant, *erhebt*], and that which is *below*) also express a more fundamental problem. If there is something unsubstantiated, insubstantial and *indeterminate* beyond a threshold, irrespective of whether it might be *down* (into the workings of consciousness and the mind-brain) or *up* (towards an ideal realm) it nevertheless requires, in order that it might be the subject of a gesture a *limen*, lintel, or threshold.

In the remainder of this chapter I will compare Richardson's and Oerlemans' accounts and put the case for a cognitive and evolutionary register of the sublime that occupies and expands on the edge or threshold of the sublime latent within the word itself. Richardson observes that speakers at neuroscience conferences often begin by demonstrating an illusion to show how hidden mental processes inform and determine the way we perceive the world. Participants typically react in 'awed astonishment' characterised by the sudden intake of breath and exclamations of amazement. This is a '"shock "accompanying the sudden conviction that the brain constructs what the conscious subject sees' (22). Richardson's point is that the 'rhetoric of illusion' is 'pervasive within popular cognitive science and neuroscience', leading him to wonder, in turn whether the experience of such illusion might be 'somehow related to the psychological experience that writers since Longinus have called "the sublime"?'(22). Richardson notes that the idea that 'the brain is at least partly creating the world that the mind perceives', 'will not seem so strange to readers of Wordsworth'(18). He goes on to give the example in the ice skating episode from the 1799 *Prelude*, where the motion of the boy continues on after he has come to an abrupt halt, as his dizziness shows the world as spinning on and on around Wordsworth's solitary figure. Richardson observes that 'Wordsworth produces a sublime sense of seeing the earth itself move on its axis by means of what is clearly a cognitive illusion' (34). As Richardson

observes, this mechanism is ‘well described’ although not explained by Burke who suggests that ‘The senses strongly affected in some one manner, cannot quickly change their tenor...but they continue in their old channel...’ (34). Yet this is not quite what constitutes the neural sublime in Richardson’s view; it is not so much the experience being in subjectivity (that the world is spinning) but the moment when one glimpses, very briefly, ‘the ordinarily secret workings of the brain’ (25). Unlike the Kantian dynamical sublime, ‘the subject is not left marvelling at the power of Reason but rather stunned by the capacity and complexity of the brain’ (28-9). For Richardson the sublime aspect of this moment is partially constituted by its blankness. The conscious awareness only has a sudden glimpse of the massive, darkly moving brain beneath. The details of nonconscious processes remain hidden but are nevertheless intuited to exist. The moments at which the brain both suddenly surfaces and then descends once again make it clear that perception is being informed by hidden forces. Hence: ‘The brain, within the neural sublime mode, reveals its power and its extent in moments when consciousness fails just at the point of some hoped-for revelation’(Richardson, p. 29). Richardson suggests that ‘even as a boy, Wordsworth liked to produce situations, analogous to self-experiments, through which the brain could play its tricks on the mind, causing the senses to swim and the object world to become temporarily unhinged through perceptual illusion’ and that the stopping short on the ice is one such experiment (34). This version of a neural sublime involves three steps: a ‘trick’ is enacted (an illusion is observed, or a landscape continues to spin after the subject stops moving). The conscious subject becomes aware in a sudden moment that her experience is being informed by a massive nonconscious apparatus and third, having had this moment of awareness, the conscious subject realises she cannot access mental processes further, being left with a sense of blank desertion when consciousness ‘fails’(29). Below I suggest that this sense of the

object world becoming unhinged so that it might seem to swim, resound or to form a pattern objectively absent is usefully thought of as extending beyond a specific moment of illusion.

If Richardson identifies a neural register of the sublime in Romantic writing, Oerlemans emphasises the extent to which the material world is inaccessible to that conscious awareness. Oerlemans posits a *material* sublime and examines the particular ways in which Romantic era writers such as Wordsworth explore the strangeness of nature; the ways in which its ultimate materiality lies across from the limitations on human perception and conception (5). Oerlemans traces the first occurrence of the term 'material sublime' from the 'Epistle to J.H.Reynolds' by Keats. The poem meditates on dreams and memories considering that dreamings: 'Would of their colours from the sunset take: From something of material sublime, | Rather than shadow our soul's daytime | In the dark void of night'. (II,67071). In this poem Oerlemans notes, the material sublime 'is an effect, not of representation or of an act of the mind itself, but of the presence of the somatic' (4). Oerlemans suggests that there are 'crucial ways in which nature as material essence was a focus of Romantic attention'(5). His argument brings the relation between Romanticism and environmentalism into focus, 'to explore the form and manner of the strong interest in the material in Romanticism and then begin to explore our own environmental imaginations' (5). His work is concerned with 'the moments when the material is not transcended, but confronted, and when representation perhaps paradoxically defers the physical reality that the writers yearn to represent' (13). The material sublime is material because it is about perception of the physical world and sublime due to 'the experiential discontinuity that exists between self and the world, consciousness and matter' (12). The subject at first becomes aware of the materiality of nature and then becomes aware, in a heightened way, just how inaccessible the material world really is to conscious awareness. Finally, the effort to in some sense communicate with the material world is shown to fail.

Wordsworth does seem to come up against a material sublime in the way Oerlemans describes and he does, famously, seem to emphasize a hidden aspect to experience. However, Wordsworth also lingers on experiential continuity in ways that are irreducible to either a material or a neural register. It is perhaps telling that Richardson also alights on the 'material sublime' from Keats. Richardson observes that whereas a Kantian sublime 'claims to produce an intuition of the supersensible, the Romantic neural sublime...in the manner of perceptual illusions, offers an intuition of what is ordinarily subsensible' (34). Hence bending Keats' 'phrase a little out of context' it is a '"material sublime," not a transcendent one, earthly rather than lofty and physiological rather than spiritual' (34). Oerlemans emphasizes the inaccessibility of the material sublime and Richardson, 'human material embodiment' (Richardson, p. 23). This connects Richardson's account of the neural sublime to another, 'ecological sublime' (Christopher Hitt, 1999) by analogy.[17] Where in an ecological sublime one becomes suddenly overwhelmed by the fact of human embodiment, in the neural sublime 'something closely analogous happens with that part of the body termed the *brain*, which grows strange, awesome, and of titanic proportions in relation to the conscious subject...leaving it with a sense of what Wordsworth calls "possible sublimity"' (35, emphasis original). Richardson's argument has it that the neural sublime consists in the moment when one becomes aware of how nonconscious forces in the brain are causing an illusion.[18] Yet evolved cognition also shows that both cognition and the elaborate cultural complexes built atop it are impacted by evolutionary time. I want to emphasize an aggregate sense in Wordsworth's sublime that should be brought into dialogue with evolutionary history.

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[17] Christopher Hitt, 'Toward an Ecological Sublime,' *New Literary History*, 30.3 (Summer 1999), 603-623.
[18] See my operative definitions; See: Alan M. Leslie, '"ToMM, ToBy, and Agency" Core Architecture and Domain Specificity', in *Mapping the Mind: Domain Specificity in Cognition and Culture*, ed. by Lawrence A. Hirschfeld and Susan A. Gelman (Cambridge: Cambridge University Press, 1994), pp.119-148.

As I suggest in chapter one, Wordsworth is interested in a future characterised by a differential between human experience and science. Roger Sharrock (1962) famously observes that Wordsworth foresaw a future 'in which scientific discoveries will become familiar not in the laboratory but in their application throughout the general framework of social life'.[19] Consequently, 'a third world would arise between the human world and the world of things studied by the scientist; this world would comprise as well as the new machines and the new cities, the new techniques necessary for controlling them' — i.e., behavioural changes.[20] We see such a differential in Pedlar's boyhood. For example, the Pedlar 'While yet he linger'd in the elements | Of science, and among her simplest laws' nevertheless clothes 'the nakedness of austere truth' with the 'hues' and 'forms' of nature, and 'the spirit of her forms' (MS.E.255-61). He merges knowledge of trigonometry with his immediate perception of the world: 'His triangles, they were the stars of Heaven, | The silent stars' (260-61). The hues recall Newton's experimentation with beams of light and heaven and stars recall the cold immutable laws for the heavenly bodies. Where 'hues' and 'triangles' are in proximity (four lines separate) within these valences, the modern reader of Wordsworth also recalls the bust of Newton described in the *Prelude*, with its 'prism and silent face' (1805.III.59). These connotations are made even more apparent in MS.M: 'I have heard him say | That at this time he scann'd the laws of light', and does so 'Amid the roar of torrents, where they send | From hollow clefts up into the clearer air | A cloud of mist which in the shining sun | Varies its rainbow hues' (MS.M 311-16). Wordsworth uses both science and more immediate experience in nature in an aggregate fashion. The 'rainbow hues' (316) of the sun seen through water vapour, explicitly identified with Newton's prism, and his

[19] Roger Sharrock, 'The Chemist and the Poet: Sir Humphry Davy and the Preface to Lyrical Ballads', *Notes and Records of the Royal Society of London (1938-1996)* 17.1 (1962), 57-76 (p.72).
[20] Sharrock, p.72

'prism, and silent face' (*Prelude*.1805. III. 59) are simultaneously scientific and experiential. Wordsworth, describes how:

> The Poets, in their elegies and songs
> Lamenting the departed call the groves,
> They call the hills and streams to mourn
> And senseless rocks, nor idly; for they speak
> In these their invocations with a voice
> Obedient to the strong creative power
> Of human passion.
> (MS.D.73-79)

These lines invoke matter to contribute to meaning. Aspects of nature are called upon, 'groves' (74) 'hills' and 'streams', (75) 'senseless rocks' (76). The 'Poets' do not call upon nature 'idly' (76) because they speak under the sway, 'the strong creative power | Of human passion' (78-79). The hills which 'grow larger in the darkness', like the rising cliff in the boat stealing passage from the 1799 *Prelude* operate across the same site which allows nature's 'mute insensate things' to nevertheless feel and speak. [21] Wordsworth says that the Pedlar in *The Ruined Cottage* 'gave a moral life' even 'to the loose stones that cover the highway' (MS.B.81-82). In *The Pedlar* sections on the Pedlar's early life, the young man both meditates on aspects of nature that are recognizably scientific, and plays these meditations alongside his intuitive responses to the natural world. What is arguably sublime in these instances is not the fact that the mind is playing tricks on awareness of nature, nor realization of the apparent truth that nature lies across an epistemic gap from conscious awareness but the fact that experience continually operates across a lintel or limen that is already latent in concepts of the sublime.

In *The Pedlar*, Wordsworth says of the young boy that 'He [...] saw the hills | Grow larger in the darkness' (MS.E.123-24). It is as he passes through the landscape that 'the

[21] William Wordsworth, 'Three Years She Grew in Sun and Shower', in *Wordsworth's Poetry and Prose: An Authoritative Texts Criticism* (London: Norton, 2014), pp.205-207 (l.18).

foundations of his mind were laid' (128). Further, 'He had perceived the presence and the power | Of greatness, and deep feelings had impressed | Great objects on his mind' (131-133). 'They lay like substances' (135). Later, when Margaret is looking out for the longed-for return of Robert nine years after his disappearance, Wordsworth describes how 'For hours she sate; and evermore her eye | Was busy in the distance, shaping things | That made her heart beat quick' (800-02). Now, the reader is likely aware that hills do not, objectively, approach, and that Margaret, 'shaping things' (800) in the distance is hoping to see things, and perhaps imagining them to be there.

Newton Stallknecht (1958) points out that hills in Wordsworth do not, of course, objectively move. He observes that: 'To be sure in the realms of discourse open to the science of physics or geology, mountains do not "upheave their dusky backs", through seas of mist, but in the realm of objectivity open to the aesthetic experience such is sometimes the case'.[22] In Stallknecht's account, Wordsworth believes that 'Nature, unaided by the human mind, thrusts beauty upon our notice' (86). Here he means avoiding 'division and analysis' (86). In the same way Wordsworth rejects what Maureen McLane terms 'knowledge as mere information as well as knowledge as unfeeling objectification and abstraction of the world'.[23] For Stallknecht, Wordsworth attempts to mediate his interest in mathematics with awareness of subjective experience and its power: 'The interpenetration, instability, and urgency of concrete things and of the eternal and definitive pattern of the forms' (95). Stallknecht's reading famously places Wordsworth in a mystical tradition that emphasizes, on the one hand, experience in the world and, on the other, ideal forms.

In turn, however, there is a temptation to over-emphasise the extent to which these incidents result from deliberate attempts to experiment as Richardson suggests for them, and

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[22] Newton Stallknecht, *Strange Seas of Thought: Studies in William Wordsworth's Philosophy of Man and Nature,* (Bloomington: Indiana University Press, 1958), p.86.
[23] *Romanticism and the Human Sciences: Poetry, Population, and the Discourse of the Species* (Cambridge: Cambridge University Press, 2000), p.5.

to under-estimate the extent to which they afford a structure of meaning to be built atop them, more than informing a brief moment of sublime experience. It is not at all evident how deliberative most of these experiences are. Hills seem to grow larger in the darkness, shapes form at a distance, and the impression that 'Great objects' (133) come to be felt 'like substances' (135) that lie on the mind with a weight, yet these moments seem to impinge on the awareness involuntarily. Stallknecht argues specifically for a connection between Wordsworth and a mystic tradition when he says that what is a 'source of wonder to the mystic' is the 'fact that the world is a *concrete* world and not a mere "plan," a logical skeleton or diagram, the very fact that the world *exists*' (14, emphasis original). The mystic emphasis, on the world as such, aligns this earlier work with that of Oerlemans. Yet the site of interaction remains latent in the text in the ways natural (including those we describe as cognitive and evolutionary) processes *do* impinge on experience and define ongoing meaning. The resonance of these episodes (that in a Burkean sense 'they continue in their old channel') is not contained in the idea that a trick has been played on conscious awareness, of which the thinking subject becomes dimly aware. Instead, such moments form an opportunity for the ongoing making of meaning.[24] Moreover, as I argue below, this opportunity should be brought alongside an awareness of nonconscious processes in the encounter with material nature and the extent to which such processes are recognised.

*II. Registering a Cognitive and Evolutionary Sublime*

A point of contention in criticism of *The Ruined Cottage* reflects a wider debate on the relation between reading and nature, a debate that is critical for assessing the threshold of the

[24] Edmund Burke and Adam Phillips, *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (Oxford: Oxford University Press, 1990).

sublime. For example Alan Liu (1989) (in)famously claims that 'there is no nature', and the work of Jerome McGann (1983) and Marjorie Levinson (1986) tends to deny the importance of nature as ontological (or 'real') as opposed to *nature* as a cultural concept constructed within specific human contexts. More materially-oriented interpretations (such as Oerlemans' account) tend to affirm the influence of an ontic nature as lying beyond and yet also informing culture.[25] In *The Ruined Cottage* there is a tension between material processes in nature and conscious awareness. Yet the action in the poem very obviously does not take place in isolation or away from specific historical events, nor does it happen far from socioeconomic and political concerns. In drawing this chapter to a close, then, I want to suggest that these historical, contextual concerns, should also be read into the cognitive and evolutionary sublime in Wordsworth. This sublime register, I argue, can bring Wordsworth's treatment of distant forces such as war into relation with anthropologies that examine human sociality in the context of cognition and evolution.

The main driver of Margaret's story in the poem is of course Robert's absence and what ostensibly lies behind the story of why Robert has left are issues relating to poverty, famine and the Revolutionary Wars. In this section I reframe relationships and movement in the poem in terms of a speculative story; the tension between more historically-oriented readings and more materially-oriented criticisms should be re-imagined within a broader evolutionary narrative. My point in this final section is to put forward an evolutionary register to sublime experience. Further, I suggest that doing so is an instantiation of 'the sublime of science' that Priestley describes. Priestley writes that science can present 'an idea of *vastness* to the mind' (157,emphasis original). Priestley writes that 'the sciences of natural philosophy and astronomy, exhibit the noblest fields of the sublime that the mind was ever introduced to.

[25] Onno Oerlemans, *Romanticism and the Materiality of Nature* (Toronto: Toronto University Press, 2004); See: Alan Liu, *Wordsworth: The Sense of History* (Stanford: Stanford University Press, 1989), p.38; Marjorie Levinson, *Wordsworth's Great Period Poems* (New York: Cambridge University Press, 1986); Jerome McGann, *The Romantic Ideology* (Chicago: University of Chicago Press, 1983).

Theorems may also be sublime by their relating to great objects' (157). Here, then, I indicate an evolutionary register to the sublime informed by human wayfinding, dispersal and human sociality inferred through the archaeological record.

It is not difficult to imagine that the kind of tragedy contained in *The Ruined Cottage* might have indeed happened. Thomas Malthus (1799) famously published his *Essay on the Principle of Population as It Affects the Future Improvement of Society* and the previous year, Frederick Morton Eden (1798) had published his *State of the Poor.*[26] It is almost certain that Wordsworth would have witnessed scenes similar to the ones he describes and in particular he would have seen people unable to afford bread and living in impoverished cottages.[27] In the background of the poem are the Revolutionary Wars. Successive critics remark that the poem only presents war indirectly. Emile Legouis (1965) notes that the poem paints 'a picture of the unseen evils caused by war; one of those cases of wrecked happiness and unheeded ruin for which it is responsible'. [28] John Beer (1976) observes that the story is based on Wordsworth's 'sense of the impersonal way in which war bears on human beings, particularly the poor'. [29] It is 'the operations of war which are never directly seen in the poem' that 'take away the husband who is Margaret's whole help and stay'(35). Timothy Morton (2010) in turn notes Wordsworth as a significant war poet for the exact reason that war only appears obliquely, rarely directly, in the ways it affects his protagonists.

The 'Things' which cannot be seen in *The Ruined Cottage* are, in part, imagined through the ways the poem describes human sentiment in relation to nature, and in which they cannot be seen because they are distant, impersonal forces. The action of the poem is defined by the movements of its protagonists, which appear driven by such forces as if by the

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[26] James Butler, 'Introduction' in William Wordsworth and James Butler *The Ruined Cottage and The Pedlar* (Cornell: Cornell University Press, 1979), pp.3-35 (p.4).
[27] Butler, p.4.
[28] Emile Legouis, *The Early Life of William Wordsworth, 1770-1798, A Study of* The Prelude (New York: Russel and Russel Inc., 1965),pp.343-4.
[29] John Beer, *Wordsworth and the Human Heart* (London: Macmillan, 1976), p.35.

seasons. The poet walks across the landscape. As the Pedlar recounts his story, his former self orbits Margaret's cottage, returning four times and travelling through landscapes that are filled with information on other life, the weather and seasons. Robert leaves Margaret on a trajectory that never returns him to her. Margaret, for her part, moves about within and around the confines of her home. Jonathan Wordsworth sums up his study by stating that the poem, 'shows in Wordsworth a humanity, an insight into emotions not his own, that is wholly convincing — places him [...] among the very few great English tragic writers' (153). Oerlemans' argument for *The Ruined Cottage* depends on there being a tragedy in which the inimical materiality of nature can be demonstrated. If situations in the poem change, buildings are ruined, gardens tend to wild, and consciousnesses disappear into a monumentally disinterested nature, human sentiment and suffering seem to permute and persist in whoever survives.

Such suffering is a form of sublime experience that a cognitive reading also throws into relief against the vast, impersonal forces of evolution. It is possible to frame human history in a positive light. In criticism, Nancy Easterlin (2010) for example, writes about *human wayfinding* as a mode of cognitive reading.[30] Movements of wayfinding are explorative, involving navigation and the narrative description of new places where opportunities might be maximised. Archaeologists such as Steven Mithen (2006) emphasise a period in evolution where human beings expanded rapidly out across the world, coming to inhabit almost every geography.[31] Doing so required flexibility and expertise in identifying new kinds of flora, fauna and topologies, all presenting threats and opportunities. Mithen advises that ethnobiologists 'should be immediately biased towards expecting underlying

[30] Nancy Easterlin, 'Cognitive Ecocriticism: Human Wayfinding, Sociality, and Literary Interpretation', *Introduction to Cognitive Cultural Studies* ed. by. Lisa Zunshine (Baltimore: Johns Hopkins University Press, 2010).
[31] See: Steven Mithen, 'Ethnobiology and the evolution of the human mind' in *Ethnobiology and the Science of Humankind* ed. by Roy Ellen (Oxford: Blackwell, 2006), pp.55-75.

commonalities' when it comes to the ways in which humans classify the natural world, which will then be manifested culturally in various ways' (59). Cultural diversity is shown to be 'underlain by a relatively limited extent of genetic variation' and this genetic evidence suggests that *Homo sapiens* probably originated in one region and then spread rapidly outward. Another set of theorists concentrate on ways in which cognition impacts human sociality as an enabler of cooperation in groups, and as a shaping force in the relations between groups. Studies of New Age communes, for example, show that those which demonstrated religiosity far outlasted those that did not, suggesting that beliefs and practices inherent to religion may function to promote group fitness.[32]

Why communities made long, arduous journeys remain mysterious. More precisely, it is not clear that journeys were always undertaken for reasons of exploration. For example, Penny Spikins (2015) notes that in the archaeological evidence there remains an 'elusive element to dispersal'.[33] Spikins recognizes 'cultural and cognitive complexity' as an influence and 'the influence of emerging emotional complexity' in human societies (1). In this view, interpersonal conflict between group members drives individuals or small breakaway parties to leave their communities. Evidence includes the striking fact that such dispersals appear to have regularly placed topographical obstacles such as mountain ranges and seas between those moving and those left behind. Spikins concludes that: 'Whilst we view the global dispersal of our species as a symbol of our success part of the motivations at the heart of such movements more probably reflect a darker, if no less strictly collaborative, side to human nature'(9).

On one view, then, humans make their way through a landscape filled with meaning for foraging and hunting and with the added sense that such movement is exploratory. On

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[32] See: David Sloan Wilson, *Darwin's Cathedral: Evolution, Religion and the Nature of Society* (Chicago, Chicago University: 2002).
[33] Penny Spikins, 'The Geography of Trust and Betrayal: Moral disputes and Late Pleistocene dispersal', *Open Quaternary*, 1.1 (2015), <http://doi.org/10.5334/oq.ai>, accessed 26 October 2020 ('Abstract').

another view humans are also forced out across inhospitable terrain by the emotional complexity of their societies, complexity and its resulting centrifugal force made possible by their cognitive makeup. The point at issue, for us as readers, is what the landscape *means* in relation to such hypostatized human activity in the deep past. *The Ruined Cottage* should be placed against such speculative evolutionary backdrops in relating conscious experience to the meanings latent in nature. For example, the Pedlar, in seeking to understand Margaret's situation, looks to the cottage for evidence. Yet when he finds the cottage to be little changed, he turns to the garden which '*was* changed'. The 'foundations' of his mind were laid in correspondence with nature. Yet at the same time, the Pedlar travels through large tracts of nature in *The Ruined Cottage* and it is always unclear what information he gleans from these experiences. In probing Margaret's speech, her nonverbal expression, her house and garden, for insight into her mental state, the Pedlar looks for signals. Margaret, scanning the distance for Robert, imagines shapes there which quicken her heart — mistaking the noise of her own cognition; for a signal about something really happening in the world. In trying to interpret his story, the Pedlar seems to be looking for some kind of meaning but generations of readers have felt his success in gleaning a signal from the wreckage of the cottage is at best uncertain and perhaps catastrophic.

All this is complicated by the experience of the reader who is presented with a field of possible meaning-making. Robert goes out into the world in order to provide for Margaret and their children but does so because he cannot find a way of providing for her at home. And one of the main forces impelling the story (that Margaret was not able to see him off and does not know where he has gone or, if he might be coming back) is driven by Robert's desire to avoid (so Margaret imagines) the trauma of explaining it to her in person. Both the historical conditions and human nature are at play in Robert's leaving of Margaret.

Perhaps it is stating the obvious that personal feelings and global events interact in a poem that is about both. Yet if the poem might be read as about the socio-economic conditions around the time it was written and about Wordsworth's attitudes towards those conditions, it might *also* just as well be read as about an older story of human journeying. As Morton observes, however, modern theory of evolution shows that humans are in the world with what they inherit cognitively, culturally, and environmentally. Read as coming out of this context, *The Ruined Cottage* represents an exploration of what is given and what protagonists can do with those givens.

*Chapter Conclusion*

This chapter extends the reading of *The Ruined Cottage* and puts forward what I suggest as a cognitive and evolutionary register of the sublime. I consider Kantian and Burkean versions of the sublime before focusing on the history of the term itself and the sense that it expresses something beyond conscious awareness. Comparing the material and neural sublime registers put forward by Oerlemans and Richards, respectively, I draw these two apparently different ideas together. Evolved cognition shows that both cognitive (and neural) processes and the elaborate cultural complexes built atop them are informed by evolutionary time; the same force working throughout nature. In turn, I draw out a sense of *aggregate* experience in Wordsworth or, more precisely, the use both of scientific and mathematical ideas and more immediate, more subjective experience. The site of the sublime is where hills 'grow larger in the darkness' or where even loose stones covering a road are given 'a moral life' (MS.B.81-82). Experience continually operates across a lintel or limen conditioned by evolved cognition and it is in reading this experience, as a whole, that a cognitive and evolutionary sublime is brought about.

The second part of the chapter places the historical context of the poem into relation with anthropologies examining sociality in the context of cognition and evolution. At this level I seek to show a cognitive and evolutionary sublime in the apperception of the tragedy at the centre of the poem to evolutionary histories. The poem is a tragedy placing Wordsworth, as Jonathan Wordsworth notes, 'among the few very great English tragic writers' (153). This tragedy unfolds as a result of forces at a distance, combined with the misunderstandings and misreading of the protagonists orbiting its centre (Hartman describes the story of Margaret as a 'circle' anchored, like nature, 'in that strangely central ruin', p.138). I indicate or suggest that placing this movement into a longer story of human motion, including notions such as wayfinding and the 'cultural and cognitive complexity' involved in dispersal events throws suffering in the poem into relief against evolutionary time. In this sense where Richardson sees the sublime in a flash of intuition into the hidden workings of the brain and Oerlemans the sudden awareness of the otherness of material nature, the cognitive and evolutionary sublime is more like Priestley's 'sublime of science', presenting an idea of *vastness* to the mind' (157, emphasis original).

Although the materiality of nature remains ontologically other in the sense that it is beyond conscious awareness in a fundamental way, and the neural bases of experience are similarly inaccessible, nevertheless conscious awareness is informed by both. Up until recently, the attempts to bring humankind 'under a single explanatory umbrella' have been fairly nascent (Stanford, 283). Yet recent work suggests that evolution also occurs at a cultural level. Cultural evolution promises the kind of synthesis Charles Darwin predicted, perhaps jettisoning 'questionable disciplinary distinctions' such as anthropology and psychology that emphasise differences between 'the study of individuals and broader social sciences' and instead 'subsuming' human behaviour under the 'same umbrella as the rest of life' without ignoring cultural variation (Stanford, p.284). Culture is subject to evolution rand

this reinforces what is now recognised as a core aspect of cognitive literary studies, a suspicion of dualism and discipline boundaries.[34]

We should reframe the poem's tragedy within a history informed by evolution and cognition that inheres a larger timeframe. Wordsworth understands human suffering to include both material nature and human nature. In turn, however, evolutionary readings of sociality shift the ground from which these terms might be read. Wordsworth's Pedlar tells the reader that his tale is 'scarcely palpable' (MS.B.294) to 'him who does not think' and that it is 'ill adapted' to 'the grosser sense' (MS.B.293). One of the ways this is true is in its relating suffering to processes which determine the character's lives and which remain both out of focus and yet fundamental to meaning.

[34] For example, Alan Richardson observes how the field is in a state of 'tinkering', see: Alan Richardson, *The Neural Sublime* (Baltimore: Johns Hopkins University Press, 2010), p.xii.

# Thesis Conclusion

Over six chapters this thesis brings Wordsworth's poetry and core poetic concerns into dialogue with cognitive and evolutionary science. The 'Introduction' presents critical context for the thesis including the wider background of the Literature and Science field and the famous 'Two Cultures' of C.P Snow and their various permutations in relating science and literature, before focusing on the specific concerns pertaining to Romantic literature and science. Finally the introduction presents the key intellectual background necessary for bringing evolved cognition into critical discourse.

Chapter one, 'Evolved Cognition: Theory and Practice', presents the theoretical groundwork on which the rest of the thesis builds into specific readings. This chapter introduces *invariance* as a key idea for the thesis, tracing this concept through its origins in the mathematical study of topology, or the geometry of position, to modern psychology and cognitive science. The chapter differentiates my approach from extant, or brings it into dialogue with, cognitive approaches to Wordsworth and readings based on Romantic era science respectively. I present *invariance* as a heuristic allowing critical intervention in Romantic and specifically Wordsworth criticism, demonstrating how invariance operates across scales and disciplines as a 'ground for thought'. [35] The chapter engages with the notion of paradigm shifts to examine closely how cognitive reading relates to ideas of scientific and literary discourse, finally arguing that we do not need to resolve these fundamental questions in order to pose specific queries. The chapter then moves on to Romantic notions of *sympathy*, examining how the evolution of cognition should impact a reading of Wordsworthian sympathy, or intimacy. Acknowledging specific cognitive constraints on perception allows, I argue, intervention in existing critical debates about Romantic sympathy.

[35] Fletcher, *The Topological Imagination* p.178.

Finally, the chapter presents a reading of Wordsworth's 'Resolution and Independence' in order to demonstrate my approach in practice and, specifically, to show how the transformation at the centre of the poem is enabled and informed by evolved cognition.

Chapter two, 'Survival and the Future', presents a mode of cognitive reading in relation to how Wordsworth imagines change and permanence. The chapter observes that the extent to which texts should be considered clear windows onto cognition and psychology or, conversely, the extent to which textuality and poetic design impacts interpretation based on cognitive evidence, is at issue in relating cognitive reading to ideas of history. It argues for a thematic account relating Wordsworth's poetics of survival and the future to the practice of cognitive reading itself. Because Wordsworth's poetics relate to a complex of past and future and the notion of survival, I suggest that future time is a critical context against which cognitive readings relating to change, permanence and survival should be oriented. Ultimately, in place of or alongside a focus on how Wordsworth seeks to return or revisit specific places and times, an attempt which is never completely successful, critical reading should revisit ongoing cognitive processes. The chapter then moves to a reading of the 1799 *Prelude* concentrating on the 'spots of time' and focusing in on the pivotal event of parallax in the 'boat stealing' episode. The section aims to show how cognition both enables and structures key aspects of Wordsworth's imagery. Finally, the chapter observes that what survives in Wordsworth's poetry does so into a future characterised by a 'material revolution' such as the one he famously prophecies in the 'Preface' to *Lyrical Ballads* (p.80). This future offers a crucial context for cognitive reading.

Chapters three and four present readings of *Home at Grasmere* and *The Tuft of Primroses* respectively, using cognitive reading to intervene in reading these poems and to assess their relationship to one another and to Wordsworth's project, *The Recluse.* Chapter three, 'Agency in *Home at Grasmere*', focuses on the poem and interrogates the importance

of a specific place (Grasmere Vale) in relation to a cognitive and evolutionary reading. The chapter argues that a cognitive and evolutionary reading transforms the relationship of the poem to the Vale. Wordsworth was alive to a nature beneath and prior to the symbolic wholeness frequently emphasized by critics in the apparent unity of Grasmere Vale. In turn, the portrayal of agency in the landscape belies any easy sense of boundedness or isolation that the poem seems to advance. Chapter four, 'Invariance in *The Tuft of Primroses*', then examines how Wordsworth's emphasis in *Home at Grasmere* on the 'Unity entire' (MS.B.170) of the Vale is countered by his despondency in the latter poem at the destruction that takes place there while he is away at Coleorton, designing a garden.[36] This affords opportunity to investigate the implications of invariant features in human perception and conception of nature even amidst the expression of radical and destructive change.

Chapter five, 'Meaning Making and Cognition in *The Ruined Cottage*', shifts perspective to examine how conscious awareness must negotiate limitations to perception and cognition in the attempt to make meaning in the world. Forms of miscommunication in the poem speak to key critical themes of suffering and the relationship of imagination to nature. I argue that empathy and Theory of Mind in the poem show that the conscious awareness must suffer miscommunication and that any communication in the poem is effortful. Consequently, evolved cognition is one way that mind and nature are entangled in the poem. Ultimately this chapter does not claim to resolve critical tensions between nature and imagination or between suffering and transcendence that have long been part of response to the poem. What the chapter shows is that evolved cognition is involved in miscommunicating and in how the poem functions. Consequently, in these ways, evolved cognition is part of how the poem communicates suffering and is itself suffered.

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[36] Jessica Fay, 'Prospects of Contemplation: Wordsworth's Winter Garden at Coleorton, 1806-1811', *European Romantic Review* 24.3 (2013), 307-15 (p.7).

Chapter six, 'A Cognitive and Evolutionary Sublime', puts forward a register of the sublime in relation to evolved cognition and extends my reading of *The Ruined Cottage* to themes of movement and migration in evolution. Touching upon key permutations of the sublime in Kant and Burke the chapter argues for a focus on the *limen* or, more specifically, on the location of the *sublime* in relation to what is beyond the conscious awareness. I argue that it is precisely this quality of being a threshold that readers should attend to in relating the sublime to cognition and evolution. In making this claim the chapter compares two recent critics of the sublime, Onno Oerlemans and Alan Richardson. The chapter then speculates that the sociohistorical background to *The Ruined Cottage,* which critics often pit against the importance of nature and imagination in the poem, should be brought into relation with evolutionary history. More specifically, by placing the movement of the protagonists against a long history of human movement including notions of wayfinding and dispersal over millennia, cognitive reading actuates what Priestley called the 'sublime of science'. We see in addition to the already well-observed historical context of the poem, a sudden yawning of time in the cognitive abilities with which people in the poem relate to one another and to time and distance. The chapter shows a register of Wordsworth's sublime that is, finally, an aggregate one, involving both nonconscious histories and scientific forms of knowledge. Ultimately what is sublime here is the effort to express meaning across the lintel of a human cognitive limitation, meaning that always exceeds, as Nancy Yousef observes, any reduction to automaticity. If the movement Wordsworth places at the centre of the poem, centred on the ruin, indexes distant events such as the Revolutionary Wars, it also indexes cultural and cognitive complexity.

The major works featured in this thesis form a constellation around Wordsworth's great unfinished work, *The Recluse* and I would suggest that evolved cognition forms a kind of stratum beneath them. At least, it would be interesting in future work to trace how evolved

cognition might interact with Wordsworth's texts explicitly in relation to his envisaged project. The *Prelude* is of course put forward by Wordsworth as a precursor to *The Recluse* and *Home at Grasmere* is written as a first book in the envisaged poem. *The Tuft of Primroses* is begun with an idea of continuing the work. Meanwhile *The Excursion* was the only named major portion published in Wordsworth's lifetime, with its 'Prospectus' quoting lines from *Home at Grasmere* and announcing its place in Wordsworth's grand plan.[37] Wordsworth never seems to have developed a single system of philosophy that he could put into a philosophical poem, and *The Recluse* is generally regarded as never having been completed, yet the idea nevertheless influenced Wordsworth from the moment it was conceived. The idea of the poem hovered as an imagined outcome.

Wordsworth also, of course, looked back to go forward. Could it also be that his ongoing interest in the origins of his mind (albeit with a focus on poetic creation) and his adumbration and sudden awareness, as Richardson shows, of hidden neural processes informing ongoing experience, also tugged at his creative life? Wordsworth famously tells us that his subject is 'the Mind of Man — | My haunt, and the main region of my song'.[38] Perhaps some form of the 'gravitation and the filial bond of nature' (1799.II.293) helps prevent Wordsworth from reaching escape velocity, not only the returning to past works and memories but related as well to the ongoing influence of what Richardson terms the 'ordinarily secret workings of the brain' (25).

Over the course of the thesis, I seek to bring cognitive reading and the use of evidence from the study of evolved cognition into dialogue with Wordsworth and critical problems in reading the poet. I attempt to articulate how evolved cognition might interact with specific features of Wordsworth's texts and, secondarily, to consider how evolved cognition and

[37] Stephen Gill, *Wordsworth: A Life* (Oxford: Oxford University Press, 1989), pp.144-45.
[38] Preface to *The Excursion*', p.173.

cognitive reading interact with Wordsworth's own poetics. In short, I try to articulate a theory and practice of doing cognitive reading in the context of reading Wordsworth and regarding concrete problems in the poems selected in the thesis. Relating cognitive reading to Wordsworth's poetics and specifically his attention to permanence and survival and to a future for humanity informed by scientific change, I draw out a future facing Wordsworth. Wordsworth sets up a conditional vision of the future, open to the possibility of change ('If the labours of the Men of Science should ever create any material revolution, direct or indirect, in our condition, and in the impressions which we habitually receive, the Poet will sleep then no more than at present...').[39] In concluding, then, I want to suggest that a future facing criticism offers a peculiarly Romantic and indeed Wordsworthian way of reading. If poetry is to be read in relation to science and if Wordsworth attends to human nature and what is permanent and survives in human being, then he would surely be interested in what modern science tells us about the constitution of human nature and its impact upon reading and understanding. Cognitive reading along thematic lines should not stop, however, at offering a description of mechanisms hypostatized to be at work in the relationship between text and mind. Rather, it should inhere the text as such, including historical and personal contexts within which a text is written and which inform the horizon of expectations in which a text might be read. Wordsworth's poetics relate directly to a complex of past and future time and the notion of survival. Future time therefore becomes a critical context against which cognitive readings relating to change, permanence and survival, should be placed, as I argue. Wordsworth concentrates on permanence and endurance and what survives does so into a future the parameters of which condition what *to survive* means at all. When thinking about the interaction of science and literature and the notoriously difficult task of articulating that fraught relation, invariance brings aspects of human cognition into view that are evolved

[39] 'Preface' to *Lyrical Ballads*, p.80.

and that remain relatively stable over time. If our horizon of expectation is informed by historical and cultural context in reading texts, we should also look to another horizon, the futural beyond which new combinations of meaning may be imaginatively combined. The future is both known and unknown, as Romantic thinkers were aware. The *what might will have been* in Emily Rohrbach's memorable turn of phrase, has not yet become.[40] When we do critical reading, we are not at the end of history but persisting into time. We should, alongside Wordsworth, look 'before and after'. [41]

[40] Emily Rohrbach, *Modernity's Mist: British Romanticism and the Poetics of Anticipation* (New York: Fordham University Press, 2015).
[41] William Wordsworth, 'Preface and Appendix to *Lyrical Ballads*', in *Wordsworth's Literary Criticism*, ed. by W. J. B. Owen (London: Routledge, 1974; rpr.2016), pp.68-95.

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