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'THE LAW OF HELP': JOHN RUSKIN'S ECOLOGICAL VISION, 1843-1886

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INTRODUCTION

> Composition means, literally and simply, putting several things together so as to make *one* thing out of them; the nature and goodness of which they all have a share in producing [...] It is the essence of composition that everything should be in a determined place, perform an intended part, and act, in that part advantageously for everything that is connected with it. Composition, understood in this pure sense, is the type, in the arts of mankind, of the Providential government of the world (John Ruskin, *The Elements of Drawing*, 1857).[1]

The reputation of John Ruskin (1819-1900) has rested partly on his contributions to art criticism, but in this description of composition from an 1857 book of drawing instruction can be found the means to understand much more than his view of art. Composition in painting was a typological representation of the organisational forces that Ruskin perceived everywhere in the wider world, in the realms of aesthetics, architecture, nature, and society. The act of 'putting several things together so as to make *one*' expressed his realisation that nature operated according to what would shortly come to be described by others as ecological laws. Ruskin believed that the same underlying compositional rules affected not only art, but 'government' in its widest sense: every aspect of human and non-human existence was, in a state of harmony, governed by a single law of composition, in which mutuality, interaction, and process were central.

Three years after *The Elements of Drawing*, Ruskin returned to the subject of composition in 'The Law of Help', one of the key chapters of the fifth volume of his most famous work of art criticism, *Modern Painters* (1843-60, 5 vols.). Again,

1. All subsequent references to Ruskin's texts will be to *The Library Edition of John Ruskin's Works*, 39 vols., ed. by E. T. Cook and Alexander Wedderburn (London: George Allen, 1903 – 12), given in the form of volume number and page number(s). For example, the quotation above occurs at 15. 161-2.

Ruskin looked initially to painting for a definition of composition, which he described there as simply 'the help of everything in the picture by everything else' (7. 205). Again he claimed a universal function for the law of composition, arguing that 'a pure or holy state of anything, therefore, is that in which all its parts are helpful or consistent' (7. 205). In speaking of 'the highest or organic purities', he expressed a preference for natural over synthetic organisation. By doing so, he formulated a universal organic principle: 'the highest and first law of the universe – and the other name of life is, therefore, "help."', whilst 'the other name of death is "separation"'. Orderly co-operation made up 'the laws of life' whilst division and competition represented 'the laws of death' (7. 205). Ruskin could not have been clearer about his belief in the natural source of creativity, and of the duty of humans to adhere to organic principles in their acts of creation. The crucial movement in the passage from *The Elements of Drawing*, a movement from art to government, and from aesthetics to culture, was emphasised much more explicitly as this statement of 'The Law of Help' unfolded. Divisions between nature and culture, between mechanical and spiritual realms, and between humanity and the inanimate world, were dissolved by a characteristic attention to their shared practices. 'Life' and 'help', described as deeply collaborative acts of creativity, were indistinguishable for Ruskin. 'The Law of Help' was conceived as a dynamic coming-into-being whose foundational template was drawn from divine nature.

The act of drawing 'several' into 'one' which Ruskin described in *The Elements of Drawing* permits one to comprehend his vision of nature, but the fact that he regarded nature, culture, and society as involved in ongoing, overlapping, and parallel acts of composition also helps one to understand that a dynamic order and organisation might be found in Ruskin's own work. I will argue that Ruskin's texts should be re-examined as examples of exactly the kind of laws of composition he describes in *The Elements of Drawing* and 'The Law of Help'. Over the past

forty years, critics have become increasingly convinced that there is an underlying unity to Ruskin's work, but have been far from unanimous about its source. Underpinning this thesis is a conviction that Ruskin's complex, often contradictory, participation in ecology has been wrongly overlooked as a possible source of this unity. One of the most important scientific developments of the nineteenth century might provide the missing context that will facilitate better understanding of the underlying order of the work of this most complex of Victorian writers.

According to Peter Fuller, Ruskin was routinely dismissed by art academics in the 1960s as 'just another forgotten Victorian, an eccentric embedded within the amber of Victorian celibacy', but this situation has long changed.[2] He has been the subject of so much critical reassessment over the past three decades that one Ruskinian during the 1980s wryly noted that 'Ruskin has suffered lately from a superfluity of writers and a deficiency of readers'.[3] Amongst this general upturn in critical fortunes, Ruskin's nature studies have received particular attention, in terms of their importance to his overall career, and their relations with broader cultural contexts. I would strongly endorse this tendency to situate Ruskin's nature writings within Victorian culture; and also to see them not as a separate category of his writing, but as an integral part of his output. To do so is to gain a foothold in understanding the organic totality of his work.

Throughout Ruskin's lifetime, nature – and trees in particular – served as a personal touchstone. His first childhood memory was of 'the twining roots of trees' on Friar's Crag in the Lake District, and towards the close of his career, in an 1887 letter reflecting upon his traumatic mental disintegration, he confided that 'I've got

2. Peter Fuller, 'The Geography of Mother Nature' in *The Iconography of Landscape: essays on the symbolic representation, design and use of past environments*, ed. by Stephen Daniels and Denis Cosgrove (Cambridge: Cambridge University Press, 1988) (pp. 10-29), pp. 13-14.
3. P. D. Anthony, *John Ruskin's Labour: a study of Ruskin's social theory* (Cambridge: Cambridge University Press), p. i.

some very comforting birch trees [...] and cut everything away that worries them' (5. 365, 37. 587). Nature did not always offer comfort, however, and its role in his work was more than merely personal. Its impact on his thinking was rivalled only by religion. From his earliest work, *The Poetry of Architecture* (1837-8), until his autobiography *Praeterita* (1885 -6), it was an enduring element of his writing. Ruskin turned to nature to validate his views on painting and building in key early works like *Modern Painters* and *The Stones of Venice* (1851-3, 3 vols.). His art theories were reliant on sustained references to the 'truth' of nature, whilst his preference for gothic architecture was predicated as much on its naturalness as its piety. Within later texts, including *The Crown of Wild Olive* (1866), *The Queen of the Air* (1869), and *Fors Clavigera* (1871-83, 5 vols.), nature remained a key presence, versatile enough to inform his theories on subjects as diverse as politics, gender, and science. Nature formed the main subject of a trio of natural histories serialised by Ruskin in the 1870s and 1880s, notably the botanical primer, *Proserpina* (1875-86), and also the apocalyptic *The Storm Cloud of the Nineteenth Century* (1882), one of the earliest warnings of man-made climate change. In his social pronouncements, Ruskin's ideal community reflected a model of social order whose roots were organic, and his rage at Victorian culture resulted in large measure from his belief that the despoliation of landscape by industry was concomitant with the degradation of society.

The fact that Ruskin's vision of nature related so profoundly with all areas of his work has led scholars from widely differing fields to contribute to a diversity of critical readings. Of late, Ruskin's natural history has been framed in an astonishing range of contexts, from gender to evangelicalism, and from mythopoesis to chaos theory. In 1999, the publication of a series of articles under the title *Ruskin and Environment* appeared to represent the culmination of a unique period of sustained interest. In this volume, Gail Chitty examines links between nature and the built

environment, and finds in Ruskin's 'heritage values' a consonance with a modern belief that 'preservation of individual historic places and their landscapes is embraced in the conservation of their cultural context'. Jeffrey Richards analyses Ruskin's resistance to the intrusion of railways into sensitive landscapes, whilst J. K. Walton's study of Ruskin's impact on the founders of the National Trust also articulates the view of Chitty and Richards that Ruskin was antagonistic towards modernity. Keith Hanley and David Carroll look productively at Ruskin's view of society and nature, and they too frame his engagements with Victorian industry in terms which suggest that he mistrusted all manifestations of modern 'progress'.[4]

The essays contained within this collection, resulting from sustained collective and individual study by scholars contributing to the Ruskin Programme at Lancaster University, have enriched understanding of how nature operated in relation to the specificities of Ruskin's spiritual, aesthetic, architectural, political, and economic views. They superbly illustrate the links between nature and other discourses in Ruskin's work, but only Carroll begins to address a more basic question: what exactly is it about his work on nature that allowed it to resonate so freely with all other aspects of his career? How could his nature studies have informed at once his religious opinions, his treatises on building, his view of society, and much else besides? In what ways was nature able to ignore (or dissolve) inter-subjective boundaries and mediate between subjects as apparently diverse as fine art and politics? Has something important been overlooked about Ruskin's concept of nature that will permit us to understand why it played such a connecting role in his

4. Gail Chitty, '"A Great Entail": The Historic Environment'; Jeffrey Richards, 'The Role of the Railways' (pp. 123-43); J. K. Walton, 'The National Trust: Preservation or Provision?' (pp. 144-64); Keith Hanley, 'The discourse of Natural Beauty' (pp. 10-37); David Carroll, 'Pollution, Defilement & the Art of Decomposition' (pp. 58-75), all in *Ruskin and Environment: the Storm Cloud of the Nineteenth Century*, ed. by Michael Wheeler (Manchester: Manchester University Press, 1995).

career? Was the reach of nature in his work even greater than this? One of the key claims of this thesis is that the way Ruskin responded to nature profoundly affected his literary practice, shaping the structure of his texts, and guiding the manner in which he addressed all subject enquiries.

I have become convinced that such issues can most effectively be addressed if it is recognised that Ruskin wrote *ecologically*. What this means is not merely that Ruskin wrote *about* ecology – in other words, that he participated in the discourses that were part of the formation of *scientific* ecology – although this will form one plank of the argument that follows. It does not mean either that I wish to focus on the way in which Ruskin's political responses to environmental or conservation issues were informed by ecological considerations, although this would be a perfectly feasible proposition. At an even more fundamental level, I wish to demonstrate that the structure of Ruskin's writings, the way he constructed arguments and discourses, the way he made connections and formed systems of thought, reflected and mirrored the processes and practices of ecology as he described them in 'The Law of Help' and elsewhere.

An ecological understanding of ecosystems does not look to the overriding importance of a single aspect of that system (a particular species, or an environmental feature, for example). Instead, it seeks to discern the manner in which the whole system functions and interrelates within temporal and physical contexts. That ecology was inscribed deeply into Ruskin's acts of writing becomes clear when we observe how his texts articulated an internal organisation in which connection was more important than subordination, relation more crucial than linearity, and in which mutuality was often (but not always) more important than hierarchy. Wherever Ruskin created systems to explain art, society, or architecture, these systems, particularly in the period 1850-1870, they often carried these ecological markers. Rather than being an indicator of inconsistency or a lack of

intellectual quality, Ruskin's inability to maintain fixed positions on subjects, and the incoherence of much of his work in terms of long-term logical development and structure, was indicative of its ecological organisation. Anthony argues that 'Ruskin's subject is always the laws of *organisation*', and suggests that 'his work presents a unity which has not always been recognised'.[5] If my contention is correct, *ecological organisation* provides the root of the unity that many critics perceive, and offers a means to overcome the problems that some critics have encountered in attempting to categorise his work within neat subject categories.

Because Ruskin wrote ecologically, he participated in a science that was coming into being during his lifetime. He was involved in crucial debates in nineteenth century thought that had implications beyond science, and which dealt with how humans should interact with their neighbours and their environment; and how they should think about politics, and their inner selves. Rather than being firmly on the traditionalist side of scientific debate, Ruskin's position was ambivalent, and reflected (rather than resolved) the tensions that arose so powerfully during this period. If I am right, the shift in critical responses to Ruskin and nature that I have sketched has not yet gone far enough. To engage with the range of issues I have outlined so far, however, requires first of all considering the meaning of some of the key terms, like nature and ecology, that operate throughout what will follow.

I. Nature and meaning

> I would rather teach drawing that my pupils may learn to love Nature, than teach the looking at Nature that they might learn to draw. (15. 13).

5. Anthony, p. 12, 9 (my emphasis). In similar vein, J. D. Rosenberg argued in 1963 that 'the whole of Ruskin's opus is an uninterrupted dedication to the Oneness of many' (J. D. Rosenberg, *The Darkening Glass: a Portrait of Ruskin's Genius* (London: Routledge and Kegan Paul, 1963), p. 20.

> *No great school ever yet existed which had not for primal aim the representation of some natural fact as truly as possible* (16. 270).

These axiomatic statements, from *The Elements of Drawing* and *The Two Paths* (1859) respectively, indicated that for Ruskin, nature was the source not only of beauty, but of truths informing every aspect of existence. His first priority was not aesthetics, but the interplay of nature and culture. In the broadest possible sense, this thesis is concerned with the treatment of nature in Ruskin's writing, with the way in which he conceived the operations of the natural world, and with its role in his work. Described by Raymond Williams as 'perhaps the most complex word in the language', the term 'nature' illustrates his argument that words are neither stable, uncontested, nor reducible to authoritative definition. Like 'culture' and 'society', 'nature' revealed 'a history and complexity of meanings; conscious changes, or consciously different uses; innovation, obsolescence, specialization, extension, overlap, [and] transfer'.[6] The meaning of 'nature' was as strongly contested during the nineteenth century as at any other period. Any inquiry into the place of nature in Ruskin's work must therefore reflect its status as a site at which he participated in this interplay and production of meanings.

Williams offered three broad definitions of nature which, despite overlap, he regarded as distinctive:

> (i) the essential quality and character *of* something; (ii) the inherent force which directs either the world or human beings or both; (iii) the material world itself, taken as including or not including human beings.[7]

In a survey of western attitudes to nature from Classical to modern times, Peter

6. Raymond Williams, *Keywords: A Vocabulary of Culture and Society* (London: Fontana Press, 1988), p. 219, 17.
7. *Ibid.*, p. 219.

Coates expands Williams's definition of nature to five categories, again with 'inevitable overlap':

> Nature as a physical place, notably those parts of the world more or less unmodified by people [...]; nature as the collective phenomena of the world or universe, including or excluding humans; nature as an essence, quality and/or principle that informs the workings of the world or universe; nature as an inspiration and guide for people and source of authority governing human affairs; and, finally, nature as the conceptual opposite of culture.[8]

William's sequence is altered, placing the materiality of nature first. Coates's second category, 'the collective phenomena of the world', is close, but not identical, to Williams's first, whilst his third category, the 'essence, quality and/or principle that informs the workings of the world' is more or less congruent with Williams's second item, the 'inherent force' that directs the physical world. By drawing out and expanding the references to humans in Williams's second and third points, Coates has added two final categories, which reflect both his belief that 'there is evidently a vibrant cultural history of nature that belies its deceptive simplicity and ahistorical charm', and his acknowledgement of Williams's contention that 'any full history of the uses of nature would be a history of a large part of human thought'.[9]

Coates's list is useful in beginning to define the broadest possible outline of Ruskin's position. Ruskin's concept of nature was most closely identified with the first and fourth categories, partially identified with the second and third, and largely contrary in important respects to the fifth category. That is to say, Ruskin spoke of nature as an 'essence' or 'collective phenomenon', but was much more likely to draw out other uses of the term. In many texts, particularly his art criticism, he

8. Peter Coates, *Nature: Western Attitudes since Ancient Times* (Cambridge: Polity Press, 1998), p. 3.
9. *Ibid.*, p. 1; Williams, p. 221.

investigated physical nature, frequently invoking rigorous scientific methods and observational techniques, but in a way that permitted him to also pursue a proliferation of readings pertaining to human affairs. One of his primary concerns in *Modern Painters* was to identify the departure from natural truths in the Old Masters, and to argue that 'we are guided, almost forced, by the laws of nature, to do right in art' (6. 143n).

Even at this early stage, though, nature was more important to him than art, and led him to many other subjects. Ruskin's manner of engagement with nature necessarily involved study of culture, society, and consciousness. In the preface to the fifth volume of *Modern Painters*, he argued that the entire project 'declares the perfectness and eternal beauty of the work of God; and tests all work of man by concurrence with, or subjection to that' (7. 9). Because Ruskin believed that human life should follow the values and organisation he saw exemplified in nature, he judged the opposition of nature and culture (implicit in the fifth of Coates's categories) as a manifestation of human failure, rather than an inevitable result of worldly reality. I will be arguing that in many ways Ruskin's entire project could be characterised as an attempt to conflate nature and culture, to obliterate their apparent differences, and to redefine human life after an organic model.

A 'true' society for Ruskin was based on organic principles. He consistently criticised mechanised, utilitarian, and *laissez-faire* Victorian society because he argued that it had not heeded nature, and would fail entirely unless it embraced its inherent organicism. In the past, as we shall see, many Ruskin critics viewed nature as a subsidiary element of his output, or indicative of what might be termed his 'backward glance' – towards eighteenth century science, or to mediaeval pastoralism. In my analysis, it is the model for an organising principle that transcended the order of nature and transformed his vision of intellectual, literary, artistic, architectonic, and social order. Given that addressing such questions

involves dealing with what Williams described as three of the most complex words in the language (nature, culture, and society), the thesis that follows will inevitably involve itself in a range of texts, contexts, and areas of ambiguity. The attendant complexity of this approach is ameliorated by my central contention, that what draws Ruskin's diverse uses of nature together was his specifically *ecological* understanding of the worlds of humanity and nature. In order to begin to do so, however, a more stringent definition of ecology must be sought.

II. Ecology

An ecological model of nature emerged distinctively in the late nineteenth century. It described nature as a complex whole made up of dynamic and interactive parts (flora, fauna, environment, climate), and quickly diversified from scientific theory into environmental and social programmes as its proponents argued that the lessons they had learnt about nature represented a powerful argument for better management of the planet. If the delicate balances they identified as key operatives within the order of nature were to be maintained, this would necessitate regulation of human activity. Ecology cannot be defined purely as science, nor merely as science twinned with activism. It has always also represented a characteristic way of seeing, an attitude to the world that stresses a holistic approach to all phenomena, and which argues for the need to pay attention to the microcosmic and macrocosmic elements of any system. In its concern with systematic organisation, ecology's primary activity was to recognise the vital connectedness of heterogeneous phenomena: the drawing of the 'several' into 'one'.

Williams's call for caution in defining terms like nature and culture is equally applicable to ecology. The place an enquiry most often begins is science, and the German zoologist Ernst Haeckel who was responsible for the genesis of the term in the 1860s.[10] Ecological science recognised that environment was dynamic

and interactive, and over time has established the 'ecosystem' (self-sufficient natural systems) as its central theoretical construct. A standard textbook defines ecology as 'a field of study concerned with the relationship between the environment and living organisms'.[11] Because of this, ecology does not regard any particular species as the defining focus of study, and therefore one of its key distinguishing features is biocentrism.[12] A rejection of anthropocentric (and Cartesian) assumptions about a division between environment and 'man' that were rooted in earlier scientific thought, and in western culture as a whole, marked ecology out as a fellow science to Darwinism. Ecology follows a methodology by which it becomes possible to shift between studies of specific environmental interactions to an understanding of the broader workings of environmental systems. It studies phenomena like ecosystems and habitats at the levels of microcosm and macrocosm (the components of the system, and the system itself), but always has in mind the connections between them.

An examination of ecology that ends with science fails to comprehend the nature of this phenomenon. In seeking a definition of ecology that avoids this trap, Anna Bramwell argues that at the time of its inception, it was not so much a distinct physical science, but an interplay between the life sciences and social sciences for which she coins the term 'ecologism'.[13] Partly characterised by its intensely programmatic nature, it is not purely concerned with abstract, theoretical observation of nature, but locates itself within wider debates about management of resources and society that go beyond the normally-constituted boundaries of

10. Ernst Haeckel, *Generelle Morphologie der Organismen*, 2 vols. (Berlin: Verlag von Georg Reimer, 1866). See also *The Riddle of the Universe at the Close of the Nineteenth Century* (London, 1900) and *God-Nature* (London, 1914).
11. Clifford B. Knight, *Basic Concepts of Ecology* (New York: Macmillan, 1965), vii, 2.
12. See Paul R. Ehrlich, *The Machinery of Nature* (London: Paladin, 1988), p. 10.
13. Anna Bramwell, *Ecology in the 20th Century* (New Haven and London: Yale U.P., 1989), p. 4.

scientific discourse. This, I would argue, was also Ruskin's concern. He has been criticised and applauded for his resistance to materialist science, but what has not been recognised is that his belief that science should be part of culture, that it should not be confined or compartmentalised, reflected a distinctively ecological position. Ruskin refused to sever his scientific work from his views on culture and society, and could not accept that science could exist in gloriously impartial and uninvolved isolation. Science, culture, and politics overlap so profoundly in Ruskin's works that it becomes difficult to regard them as separate in any meaningful sense.

In 1864, two years before ecology became a word, George Perkins Marsh had already summed up its distinct identity. In his *Man and Nature*, now a foundational text of ecology, he stated that in a 'natural' state, environment was defined by mutuality, interdependence, and process:

> Apart from the hostile influence of man, the organic and the inorganic world are [...] bound together by such mutual relations and adaptations as secure [...] a long continuance of the established conditions of each at any given time or place, or at least a very slow and gradual succession of changes in those conditions. But man is everywhere a disturbing agent, wherever he plants his foot, the harmonies of nature are turned to discords.[14]

This interplay of 'mutual relations' was not the 'economy of nature' of the previous century, an economy held in a state of essentially unchanging equilibrium by divine will or design. Marsh's equilibrium had no 'absolute permanence' because it was dynamic, and marked by 'slow and gradual succession of changes'. What was essentially a description of ecosystems studies illustrated the scientific aspect of ecology, but Marsh also saw that a new science of nature required more than

14. George Perkins Marsh, *Man and Nature* (1864), ed. by David Lowenthal (Cambridge, Massachusetts.: Harvard University Press, 1965), p. 36.

objective data-gathering. For Marsh, humankind did not deserve dominion over the earth. Discussing ancient ecological disasters which had arisen from exploitation of once fertile landscapes, he asked what would become a fundamental question for ecologists – how to sensitively manage environment:

> Could this old world, which man has overthrown, be rebuilded [sic], could human cunning rescue its wasted hillsides and its deserted plains from solitude or mere nomade [sic] occupation, from barrenness, from nakedness, and from insalubrity, and restore the ancient fertility and healthfulness?[15]

Even at this very early stage in the development of ecology, its desire to conflate science and culture was being articulated. For a significant number of unorthodox scientists in the years that followed, the apolitical, disengaged stance of mainstream science would be untenable. Ruskin, exploring many of the same ideas and coming to a number of similar conclusions about the organisation of nature and the need for change in human behaviour, was, like Marsh, possessed of ecological instincts before the discipline had come into existence.

To focus on scientific and social interplay within ecology still does not provide an exhaustive account of this phenomenon. Bramwell's use of the term 'ecologism' to indicate an elision between science and politics must be broadened yet further. Ecology, I would argue, has three broad aspects, and offers its proponents the ability to operate not merely at *scientific* and *social* levels, but also at the level of *culture*. It can elaborate a holistic view of environment, but also of human activity, which can include not just the political organisation of society, but its creative practices, and its ways of conceiving knowledge and the mind. Ecology encourages its adherents to alter the conditions of existence, but also to reconfigure their thought processes in ways that follow the model of the ecosystem. A general

15. *Ibid.*, p. 45.

manifestation of this is a tendency amongst such thinkers to eschew notions of linearity and hierarchy in favour of holistic models, and to reject philosophies that are predicated on strict and alienating division of components into discrete parts. However, to describe scientific, social, and 'creative' 'aspects' in this way might misleadingly suggest that they are discrete categories within ecology. The 'aspects' in fact interact at every level, and are in no sense isolated from one another: at the simplest level, the discoveries of ecological science inform the social programmes adopted by activists, whilst the social programmes of politicised ecology influence ecological scientists, who are often activists themselves. The programmatic nature of ecology is bound to its radical desire to erase boundaries between fields. The third 'aspect' of ecology of which I have spoken, which at this stage in the development of definitions, we might rather clumsily and provisionally term its 'ecological vision', modifies and in turn is modified by, the other two 'aspects'. Moreover, the interactions between the three do not remain static, but are themselves in a process of change over time. How then can this broader 'phenomenon', which has up until now generated only a series of awkward descriptive nouns, be described with more clarity?

As a means of doing justice to the complexities of the phenomenon I have so far described, I will describe ecology as a cultural formation in its own right, and as a set of cultural practices operating within that formation. I reject attempts to simplify the status of ecology to that of science *or* philosophy *or* political movement; and wish to avoid placing strict and unconvincing epistemological divisions between these 'aspects'. The inherent connectedness and co-determinacy of the elements of the formation are an essential defining feature of its status *as* a formation. To describe ecology as a cultural formation is to acknowledge its entry as a growing force in human culture during the later half of the nineteenth century. The approach which I am describing also permits one to acknowledge its dynamism.

By seeing ecology as both a *formation* and as the (ongoing) *processes* of cultural formation in which it has been continuously involved over more than one hundred years (and as the results or *products* of these processes) its energy and complexity becomes clear.

Judging ecology as a cultural formation with its own set of practices and products permits one to eschew any notion of a hierarchy within ecology, perhaps with science at its apex. Rather it allows one to envision ecology as a distinctive formation within which there are three points of focus or convergence for formations, ideation, and practices. Their fundamental relationship to one another is not of separation but of connection, and they are defined in part *by* their processes of interaction, creation, and modification. They are not stable, in temporal, spatial, or sectional senses, but subject to change. These processes of change modify not merely the points of focus, but also the entire cultural formation which is composed of and by them.

III. 'All true opinions are living'

I believe that ecology operated in Ruskin's work at all of the levels so far indicated. Although a detailed and productive study of Ruskin's engagements with the social agenda of late nineteenth century ecology – and in particular, what I believe was his very real impact on a range of key ecological thinkers, including Marsh, Prince Peter Kropotkin, Patrick Geddes, and Elisée Reclus – would be both possible and revealing, it is beyond the remit of this thesis. In concentrating on the cultural and scientific aspects of Ruskin's ecology, his environmental reading of nature, and his commitment to an ecological re-ordering of society will nonetheless become clear.

In the first chapter, I will demonstrate that his ecological consciousness radically affected his literary productions at the level of the structure and organisation of his texts. The stories that Ruskin told, and the way he related them,

were inseparable from his understanding of the natural world: art mimics nature in his work to an astonishing degree. When Sir Leslie Stephen, a contemporary and friend of Ruskin, argued shortly after his death that 'in later years his incapacity for consecutive thought became bewildering', he did no more than voice the opinion of many subsequent critics.[17] But is it a mistake to expect from Ruskin the rigorous systematics of Georg Wilhelm Friedrich Hegel, Auguste Comte, or Karl Marx? If so, should we argue that there is an absence of order in his work? Given that he attacked what he saw as slavish adherence to the hidebound rules of composition set up by the Old Masters, and favoured the organic intuition of Turner; rejected the abstract human logic of classicism in architecture for the organic expression found in the Gothic; shunned utilitarian political economy in favour of social and economic models drawn from nature; and sloughed off rigid evangelical doctrine in favour of a looser, inclusive, and often pantheistic vision of spirituality, is it not in fact frankly inconceivable that Ruskin followed systems of enquiry and modes of expression founded on logical sequentiality and synthetic rationality?

In a seminal passage from the 1860 preface to the final volume of *Modern Painters*, Ruskin acknowledged that many had found his work disorganised and wayward – charges that only increased over the following thirty years. Perhaps echoing Cicero, Ruskin responded defiantly to this by arguing that whilst his work was in a state of perpetual change and growth, this was not evidence of weakness:

> These oscillations of temper, and progressions of discovery, extending over a period of seventeen years, ought not to diminish the

17. Leslie Stephen, *Studies of a Biographer* (London, 1902), p. 85. Elsewhere, he argued that 'discursiveness and eccentricity were indicative of a morbid irritability of brain which was to cloud his intellect' (Stephen, 'John Ruskin', *National Review*, 35 (Apr. 1900), 240-55; repr. in *Ruskin: The Critical Heritage*, ed. by J. L. Bradley (London, Boston, and Melbourne: Routledge & Kegan Paul, 1984), p. 421. On Stephen, see Dinah Birch, 'Ruskin's Multiple Writing: *Fors Clavigera*', in *Ruskin and the Dawn of the Modern*, ed. by Birch (Oxford: Oxford University Press, 2000), p. 175.

> reader's confidence in the book. Let him be assured of this, that unless important changes are occurring in his opinions continually, all his life long, not one of those opinions can be on any questionable subject true. All true opinions are living, and show their life by being capable of nourishment; therefore of change (7. 9).[18]

Thought was as 'living' and changeful as the environment that Ruskin so meticulously described in this fifth volume and elsewhere. Held together by mutual relations, by a capacity for dynamic change, interaction and transformation, Ruskin's nature, and Ruskin's mind, were both vitalistic, energetic, and in a state of constant flux. Every element of the environment was described in terms of its connections with other elements, and human knowledge grew as a result of its own dynamic interactions, without ever reaching a point of stasis, stability, or definitiveness. I believe that it is absolutely essential to recognise that Ruskin's texts expressed ecological order in exactly the same manner: no single aspect of his discourse was privileged, because he conceived all ideas to be interrelated; no discourse was static, but was always developing according to its interactions with other discourses; and no individual discourse (art, architecture, politics, religion) could be viewed in isolation from others, but only in relation to the greater totality of ideas in which it resided. Both nature and the mind became essentially growing things in his works.

IV. Aspects of ecology

To examine Ruskin's work in the light of ecology permits one to re-evaluate four aspects of his career that I believe were inextricably linked: knowledge (including the processes of thinking and writing), culture (including aesthetics), science, and

18. Cicero remarked 'no educated man has ever said that a change of opinion is inconsistency' Cicero, *Letters to Atticus, 1-89, D. Letters*, translated by D. R. Shackleton Bailey (Cambridge, Mass.: Harvard University Press), letter 16.

politics. It is possible to show that Ruskin's texts mimicked ecological systems, and to describe his participation in both the emergence of a specifically ecological science and of a social vision based on the lessons of that science. His engagement with all of these areas also reveals a figure whose relations to modernity were ambiguous, rather than straightforwardly oppositional. One of the principal concerns of the second and third chapters will be to show that Ruskin's immense disdain for materialism after 1870 has obscured the degree to which his own scientific attitudes prior to that date had been inscribed with materialist modes of thought. Because ecology is in one sense a materialist science – albeit one with an unusually strong interpenetration with wider culture – critics have not been alert to its profound influence on his work. Ruskin's involvement in ecology permits us to trace his connections not just retrospectively towards eighteenth century, enlightenment thought, but also into Victorian and post-Victorian science, and its attempts to re-imagine human relations with the natural world.

The literature review that follows will analyse the reception of Ruskin's work in order to identify key debates about unity, order and organisation in his work. In particular, I wish to show that some critics have argued for an organic unity in his writings, and that careful re-evaluation of the nature of this organicism will lead to a clearer understanding of the importance of ecology.

The three chapters that make up the main body of this thesis will provide a set of contexts by which to judge the role of ecology in Ruskin's work. The first chapter will make the case for regarding Ruskin's discourses and textuality as participants in, and communicants of, an ecological way of conceptualising the world. I will first of all detail a development from a metaphorical treatment of trees in the first volume of *Modern Painters*, to one in which analogy predominates by the fifth, doing so in order to argue that this highlights an increasingly dynamic vision of organicism and a deepening engagement with ecological thought.

The second chapter will turn to an analysis of Ruskin's scientific development, predominately in the period prior to 1870, rejecting the view that Ruskin's science was inherently conservative, uniformly religious, and entirely anti-materialist. I will argue that he was more thoroughly engaged in modern, materialist, and dynamic models of environment than has been previously been allowed, and examine his endorsement of Charles Lyell, the geologist whose theories did so much to support those of Charles Darwin.[19] I will show the ambivalence of his responses to natural theology and Evangelicalism, and suggest that Ruskin was either sceptical or indifferent to the Evangelical doctrine of the Fall of nature, and that his exuberant celebrations of nature were inimical to its tenets. I will also analyse his attitude to scriptural debates, calling for his inclusion amongst those who were deeply sceptical about biblical literality. Finally, I will argue that prior to 1870, it was possible for Ruskin to maintain a balance between science and culture in his investigations of nature.

In the third chapter, I will build on the studies of the second by asking why Ruskin's previous openness to materialism as a component of natural history hardened into opposition. Whilst it is easy to point to the undoubted impact of Darwin, I will argue that Ruskin's response to evolutionary theory was far from straightforward. Crucially, I believe that Ruskin's antagonism to Darwinism was in response to *The Descent of Man*, rather than *The Origin of Species*.[20] In making this point, I will demonstrate that this led, in Ruskin's later botany, *Proserpina*, to three key features of that work. The first was an erasure of scientific ecology, the second was a growing belief that nature was indeed 'fallen' or degraded, and the

19. Charles Darwin, *The Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (1859), ed. by J. W. Burrow (London: Penguin, 1982).
20. Darwin, T*he Descent of Man, and Selection in Relation to Sex* (London: John Murray, 1871).

third was Ruskin's project to produce a moral mythopoesis of flowers. I will demonstrate that these features were linked in Ruskin's mind by his response to *The Descent of Man*. After Darwin, nature seemed to harbour malefic influences in a way it had never done before for Ruskin. At the same time, his mistrust of all manifestations of materialism (such as ecology) also involved an attempt to counter what Ruskin perceived as Darwin's sexualised account of nature, and to attempt to provide, as an alternative, an asexual taxonomy of flowers based around mythological goddesses. An analysis of these issues reveals how Ruskin's attitudes to materialism, evolutionary theory, ecology, sex and reproduction, culture, and gender, all cohered powerfully in Ruskin's *Systemae Proserpinae*.

The connections between science, society, culture, and literature, will be an ever-present aspect of this study. In *Modern Painters V*, Ruskin commented that 'in our sketch of the structure of mountains it seemed advisable to adopt a classification of their forms, which, though inconsistent with absolute scientific precision, was convenient for order of successive inquiry and gave useful largeness of view' (7. 20). Because one of the central lessons of ecology is the connectedness of all phenomena, it will not be forgotten in the course of this study that the different aspects of ecology, and the differing aspects of the texts studied, are ultimately bound within the same intellectual ecosystem. The motifs of connection and relation will be as enduring here as they were to Ruskin and the nineteenth century science of ecology.

THE CRITICAL LANDSCAPE

There are any number of ways to approach a study of the literature that has accrued over the past 150 years on the subject of Ruskin and nature. I will not offer a review of Ruskin criticism which is chronologically contextualised in terms of shifting cultural attitudes to nature, an approach that has a tendency to divide studies up into neat, orderly (but ultimately rather arbitrary) periods, and to produce generalisations susceptible to inaccuracy and inconsistency. Whilst retaining interest in historical contexts, I will take a focused, thematic approach, concentrating specifically on debates about unity, order, and organisation in Ruskin's writings. The degree to which the question of unity is a recurrent theme in Ruskin criticism is both remarkable and significant, but those critics who believe that such a unity exists have by no means agreed on its nature. Questions of order and organisation will remain the anchor point for the discussion that follows. It will be necessary to invoke religion, romanticism, liberalism, science, and materialism in order to clarify the manner in which critics have conceived this unity. I believe that to do so will provide a clearer picture of the unifying role of organicism within his work, and will make it possible to steer a coherent path through debates and towards an ecological reading of Ruskin.

I. Ruskin and the category problem

The notion of order and unity in Ruskin's works has proved contentious. Therefore, it is helpful to begin with those critics who have argued that Ruskin's works are fundamentally *dis*organised, and that attempts to find unity in them are futile. Kenneth Clark wrote in the 1950s and 1960s, a period when all that was left of Ruskin's once 'towering reputation' was 'a malicious interest in the story of his private life'. In a memorable refrain, Clark laments the fact that whilst in the nineteenth century, 'to read Ruskin was accepted as proof of the possession of a

soul', in the post-war period, 'when his books are bought in a mixed lot, they are simply thrown out, like sprats or dogfish'.[21] Part of the problem for Ruskin scholars of this period in trying to raise the profile of their subject was that his work appeared impossible to categorise. He could not be included easily in recognisable university literature syllabuses, whilst his social writings were often deemed too erratic, and his aesthetics too outmoded, to deserve attention from sociologists, political philosophers, or art historians. Critics of this period bring to mind Ruskin's campaigns against the loss of ancient buildings in Venice after 1850: their shared concern was to preserve for future generations beautiful relics of the past that were in danger of being consigned to oblivion. But whilst Ruskin had argued that it was better to allow old buildings to moulder away than to be restored, his critics believed that only restoration work – and even selective demolition – could save the crumbling edifice of Ruskin's reputation.

This supposed problem might explain the exasperation with which Clark declared in 1964 that 'it was sheer self-indulgence [for Ruskin] to give his opinion on every single topic – natural history, botany, geology, mythology, and public affairs – as well as on matters with which he was more directly concerned'.[22] Clark implied that lack of self-discipline stood in the way of the effective promulgation of Ruskin's key ideas, and that only an exercise in paring down could provide a coherent basis for study. In his Ruskin scholarship, Clark often appeared in the guise of an irascible headmaster chastising his star pupil for ignoring his aesthetics in favour of muddy expeditions outdoors that would lead to nothing. Although he acknowledged that 'the love of nature preceded and dominated his love of art', he

21. *Ruskin Today*, ed. by Kenneth Clark (London: Penguin, 1964), p. xii, xi, xii.

22 *Ibid.*, p. xiii. Clark's listing of subjects seems to give weight to the idea of their separate status. His decision to present Ruskin's work as a series of abridged selections was a reflection both of the difficulty of getting Ruskin published at this time, and of Clark's underlying belief that order could be imposed on Ruskin's work only by editorial *fiat*.

claimed that 'when all is said, our fathers were right in recognizing Ruskin's responsiveness to certain works of art and architecture as his rarest endowment'.[23]

The sheer diversity of Ruskin's writings offered post-war critics the challenge of effectively presenting an 'incoherent' Ruskin to a sceptical literary world. They felt that this was achievable only by restricting him within orderly, labelled categories such as 'art theorist', and by marginalising other aspects of his prodigious output. Concentrating on art, and to some extent social theory, meant sidelining or repudiating other aspects of his work. Quentin Bell and Joan Evans made it clear that there should be no question of dealing with Ruskin's 'capricious', 'untidy' and 'desultory' writings as a 'whole'.[24] Bell argued that the fifth volume of *Modern Painters* lacked 'structure and purpose', and directed readers to turn instead to the more orderly first two volumes. He complained that disorder was an endemic feature of Ruskin's work: his 'whole conception of art lends itself to an untidy treatment', he declared.[25] Rather than being an inherent feature of Ruskin's work, order had to be imposed from without, by acts of abridgement, exclusion, control, and classification that would remedy Ruskin's indiscipline and pass on to critics the task of communicating his core ideas clearly.

For these critics, the most irritating of Ruskin's faults was his decision to 'stray' into science. Less sensitive than Clark, Evans deemed Ruskin's nature studies 'deliberately unscientific', whilst Bell vociferously denounced Ruskin's science, and claimed a more fundamental failing: 'Ruskin brings to these scientific works the same exasperating mixture of charm, arrogance and inconsequence that one finds in his art criticism'.[26] Ruskin's unworthiness as a scientist was tied up

23. *Ibid.*, p. viii.
24. Quentin Bell, *Ruskin* (Edinburgh and London: Oliver and Boyd Ltd, 1963), p. 17, 42,; Joan Evans, *John Ruskin* (London: Jonathan Cape, 1954), p. 356.
25. Bell, p. 84.
26. Evans, p. 356.; Bell, p. 42.

with a belief that he was incapable of dealing with modernity. In 1966, Jerome Buckley complained that 'much of his energy was misspent on a vain repudiation of the machine – which, for better or for worse, had long since established itself as an inescapable force in Victorian society'.[27] Belief that Ruskin was naïvely anti-progressive in artistic, practical, and social matters was extended to his science. J. D. Rosenberg argued that Ruskin was a 'pseudo-scientist' whose nature texts exhibited only 'Ruskin's delight in his own virtuosities of observation and prose', and a failure to understand basic scientific methods. Dismissing Ruskin's reasoned objections in the 1870s to John Tyndall's theories of glacier formation as 'a combination of lifelong study of the Alps and pleasant putterings in his kitchen with toast-crumb moraines and glaciers of blancmange', he argued that it was 'a measure of his increasing intellectual isolation that his master in geology was Saussure, whose *Voyages dans les Alpes* had first appeared in 1779'.[28]

Despite the similarities of Rosenberg's criticisms to those of Clark, Evans, and Bell, he in fact embodied the emergence of an alternative approach. Arguing for the unifying role of 'Ruskin's mind, its wayward genius, its sickness, its essential sanity', Rosenberg described Ruskin's intellectual order as dynamic:

> Many of his works are ill-organized and incomplete fragments of a larger, never-realized design which constantly shifted with the growth of his thought. Some are trivial; yet none is lifeless, for he brought to his most trifling digression the energy and undisciplined abundance of his genius.

The concept of 'fragments' and 'wholeness', of abundant ideas that constantly shift in the process of 'growth', tentatively recognised that Ruskin's epistemology was

27. Jerome Hamilton Buckley, *The Victorian Temper: a Study in Literary Culture* (London: Frank Cass & Co., 1966), p. 141.
28. Rosenberg, p. 4, 181.

based not on an undisciplined failure to observe logical, systematic precepts, but on a desire to follow organic systems of organisation. Rosenberg recognised that 'the wonder of Ruskin is both the disorder and oneness – the triumph of a unified vision'.[29] His critique offered an alternative vision of order, and a model of enquiry that was taken up in the following decades.

II. Finding a focus

The second group of critics I wish to examine are those who have followed Rosenberg's lead, and who believe that unity in Ruskin's work was grounded within aesthetics or spirituality. Their approaches suggest that the sheer number of subjects that Ruskin treated, and the way that his apparently separate discourses spill into one another, means that he cannot be classified or confined according to neat, critical divisions.

What might be termed literary aesthetics forms an obvious focus for some. Robert Hewison's *The Argument of the Eye* (1976) proposes that vision was central to Ruskin's creative processes, and explores the idea that landscape was a major source of Ruskin's inspiration throughout his career. Describing his 'study of Ruskin's visual imagination' as 'not exactly art history, literary criticism, aesthetics, economics, or philosophy' Hewison argues that it is important 'to show how these formal disciplines found their relations within Ruskin's mind' through the act of seeing. Elizabeth Helsinger's *Ruskin and the Art of the Beholder* (1982) examines 'the ties between reading and seeing' in Ruskin's work, and argues that these ties 'go beyond the common discipline that both imposed'. Ruskin 'points to the ways

29. ibid, p. xi. At about the same time, and in understated fashion, Harold Bloom also picked up on this idea when trying to characterise Ruskin's career: 'Ruskin's life, from the revelation of Turner on to his disastrous marriage, was a continuous process of self-discovery, assured and "organic" in its development' (*The Literary Criticism of John Ruskin*, selected, edited, and with an introduction by Harold Bloom (New York: Da Capo Press, 1965), p. xii).

in which visual art can be "read" for symbolic meaning', whilst 'Ruskin the reader is unusually alert to visual or spatial elements in literature' in terms of 'the physical aspects of books [...] but also at the design implicit on verbal style' and 'the recreation of visual experience through description'.[30] Demonstrating convergence between reading and seeing, Helsinger argues that we can find a focus, and hence unity, in Ruskin's literary practice, and in his invocations of landscape and nature.

Since the appearance of George P. Landow's seminal *The Aesthetic and Critical Theories of John Ruskin* (1971), religion has often been cited by critics as a defining source of unity, and a key to understanding every aspect of Ruskin's output. Given the prominence of biblical reference in Ruskin's texts, and the obvious power his evangelical upbringing had over his subsequent development, there is much to be said for such an approach.[31] Landow's sensitive, scholarly account of Ruskin's aesthetic and religious beliefs addressed the neglect of this important context in previous decades. Amongst those who have followed Landow, Michael Wheeler has focused most closely on specifically religious issues, whilst Raymond E. Fitch and David Carroll have been keen to consider the interplay between Ruskin's religious ideas and his vision of nature.[32] C. Stephen Finley's *Nature's Covenant* shares Wheeler's concern with Protestant doctrine, Evangelicalism, typology, allegory, and hermeneutics in Ruskin's work.[33]

30. Robert Hewison, *The Argument of the Eye* (Princeton: Princeton University Press, 1976), p. 7, 13; Elizabeth K. Helsinger, *Ruskin and the Art of the Beholder* (Cambridge, Mass. And London: Harvard University Press, 1982), p. 2, 3. At times Helsinger distances herself from Hewison over specific aspects of their respective arguments and approaches.
31. George P. Landow, *The Aesthetic and Critical Theories of John Ruskin* (Princeton: Princeton University Press, 1971).
32. Michael Wheeler, *Ruskin's God* (Cambridge: Cambridge University Press, 1999) is perhaps the most detailed, and most thoroughly- researched account of Ruskin's religious position to be published since Landow's. See also Michael Wheeler, *Death and the Future Life in* Victorian *Literature and Theology* (Cambridge: Cambridge University Press, 1990).
33. C. Stephen Finley, *Nature's Covenant: Figures of Landscape in Ruskin* (Philadelphia: Pennsylvania State Press, 1992).

Carroll and Fitch are important to this study, because both are concerned with the interplay of nature and spirituality in Ruskin's thought. Carroll perceptively argues that for Ruskin, 'the breaking of nature's covenant by pollution was, from the beginning, a powerful focus for the forces of good and evil arrayed against each other in the latter half of the nineteenth century'. He suggests that the relationship between environment and divinity provides a means to understand Ruskin's epistemology. Ruskin's surface kinship with 'great Victorian systematisers' was offset by practices which undermined his urge to classify, so that his 'system-making and [...] scepticism' combined in a 'volatile mixture', with the result that 'much of the fascination of his writing comes from the way in which he repeatedly puts at risk his own dogmatic categorising'.[34] Carroll demonstrates that the Creation myth acted as the model for a creative process that was characteristic of Ruskin's work:

> Each act of ordering implies vividly for him both the chaos before creation and the cosmos called into being by the imagination brooding, like the Holy Spirit, over the waters on the first day of creation.

His environmentalism, Carroll contends, aimed 'to re-sacralise the world, to recover the idea of the universe as 'a single, symbolic whole'.[35] The ecological overtones of viewing the natural world as a whole made up of mutually-supporting elements is hinted at in his analysis of Ruskin's *Fors Clavigera*, a pivotal late text in terms of discourses of order and disorder:

> Unrestrained by any grand theory, he roams through late nineteenth-century Europe picking out items from his travels or from his bundles

34. Carroll, p. 72, 58.
35. *Ibid.*, p. 58, 61.

> of newspaper cuttings in order to expatiate on anything under the sun [...] with an almost stream-of-consciousness flexibility and elusiveness which conceals [...] a unity and coherence which the reader is challenged to discern.[36]

Carroll recognises that unity cannot be grounded solely in religion, but rather in the interpenetration of divinity and organicism. In the similar way, Fitch is keen to uncover the role of 'organic form as a mythic paradigm of all vital order' in Ruskin's work, and also focuses directly on the inseparability of religion and nature, arguing that 'the compulsive current of his many works is his rising nausea at the prospect of a global slum, a depleted planet'.[37]

Fitch's dual focus on spirituality and environment produces a perceptive reading of organic order in Ruskin's work, in which he argues that Ruskin's later warnings about climate change transcended the single focus of either religion or nature: 'a poison sky became for Ruskin the climactic and inevitable mythopoetic expression of impurity'.[38] Fitch is right to suggest that whilst religion was a key element in the formation of Ruskin's thought, it cannot stand as the sole explanatory feature of Ruskin's work or the single source of its unity. Fitch and Carroll suggest that organicism might provide a universal basis for the underlying order of Ruskin's work, and I will now turn to those critics who have more directly examined the unity of Ruskin's work in this light

III. Towards organic unity

Amongst the mixture of praise and hostility which characterise Victorian reviews of Ruskin's work, two critics paid particular attention to the question of order and

36. *Ibid.*, p. 59.
37. Raymond E. Fitch, *The Poison Sky: Myth and Apocalypse in Ruskin* (Athens and London: Ohio University Press, 1982), p. 325, 1.
38. *Ibid.*, p. 2, 55.

organisation.[39] Charles Waldstein regarded Ruskin as 'the founder of a Phaenomenology of Nature', and recognised that Ruskin's scientific practice involved discourses of dynamic order that moved Ruskin away from Enlightenment physics and towards modern science. Ruskin described clouds, Waldstein argued, 'not to prognosticate fine or fair weather, or to record the causes of its changes, nor to rob the universe of the secret of its unseen fundamental laws of motion, nor to deal with atoms and molecules', but to search the heavens for 'the laws of harmony and of continuousness in the changes of its forms'.[40]

In the introduction to *John Ruskin, Social Reformer* (1898), J. A. Hobson went further by recognising order as a wider feature of Ruskin's work, and the dangers of attempting to systematise Ruskin's thought:

> Though Mr Ruskin [...] would probably disclaim the title of system-maker, as implying too mechanical a conception of his intellectual life, and though his mode of composition seldom leans towards severity of arrangement, yet no great modern thinker exhibits in his writings a more definite and conscious adjustment of ideas, both in the order of their growth and in the maintenance of their relations towards one another.[41]

Hobson perceptively posited an uneasy relationship between system and disorder in Ruskin's work, and argued that Ruskin was not a systematic thinker in the mould of

39. A flavour of the range of positive and negative contemporary responses to Ruskin can be found in *Ruskin: the Critical Heritage*, ed. by J. Lewis Bradley (London, Boston and Melbourne: Routledge & Kegan Paul, 1984); Aubyn Trevor-Battye, 'A Teacher of Nature: the Keynote of Ruskin's Teaching', *The Artist*, 'Special Nature Number' (July 1897), 331-346; and William Martin, *Aspects of Nature in Relation to Individual & Natural Life* (Glasgow: Maclehose, 1887), particularly pp 7-10.
40. Charles Waldstein, *The Work of John Ruskin: its Influence on Modern Thought and Life* (London: Methuen, 1894), p. 65, 66, 31, 79. See also Alice Meynell, *John Ruskin*, Modern English Writers Series (Edinburgh and London: William Blackwood and Sons, 1900), p. 67.
41. J. A. Hobson, *John Ruskin, Social Reformer* (London: James Nisbet & Co., Limited, 1898), p. v.

Marx or Comte, because he resisted their 'mechanical' approach to knowledge, but he maintained that there was still an essential movement towards order in his writing. Although he does not say so explicitly, Hobson seemed to reach towards an understanding of an organic mode of order in his references to 'growth' and mutualistic 'relations' in Ruskin's ideas. Hobson's project to delineate the 'unity and consistency of conscious design in Mr. Ruskin's work, and, at the same time, to furnish a critical estimate of the whole and of the parts' brings ecological order to mind. His perception of an underlying unity led him to attempt to 'draw together from diverse quarters the compact order of his thought' and to find 'a wholeness and a harmony in Mr Ruskin's art of life' which is consistent with such a reading.[42]

Early indications aside, Ruskin's critics showed little interest in the issue of order and unity for quite some time. Jeffrey L. Spear argues that 'by 1910 [Ruskin had] become a name ready for debunking' because his ideas had 'become alien to literary moderns'.[43] A contemporary associate, Frederic Harrison, writing shortly after Ruskin's death, dismissed *Deucalion* and *Proserpina* as peripheral, ill-constructed works, and in doing so reflected a mood of indifference towards Ruskin's nature studies that would last for almost half a century.[44] The futurist Filippo Marinetti was a firm opponent of 'Ruskinism', which he described as a 'morbid nostalgia' for an atavistic and repressive 'natural order':

> With his hatred for the machine, steam and electricity, that maniac of

42. *Ibid.*, vi, viii.
43. Jeffrey Spear, *Dreams of an English Eden: Ruskin and his Tradition in Social Criticism* (New York: Columbia University Press, 1984), p. xi.
44. Frederic Harrison, *John Ruskin* (London: MacMillan & Co., 1902), p. 158. Equally silent on the subject of Ruskin and nature were W. G. Collingwood, *Life and Work of John Ruskin* (London: Methuen & Co., 1893), *Ruskin Relics* (London: Isbister, 1903); Marshall Mather, *John Ruskin: His Life and Teaching* (London and New York: Warne & Co, 1905); George Bernard Shaw, *Ruskin's Politics* (London: Christophers, 1921); and J. H. Whitehouse, *Vindication of Ruskin* (London: George Allen & Unwin, 1950).

> antique simplicity is like a man who, having reached full physical maturity, still wants to sleep in his cradle and feed himself at the breast of his decrepit old nurse.[45]

Somewhat paradoxically, for a Futurist text, Marinetti's image symbolised transgression of natural order, and rendered Ruskin 'unnatural' in his desire for an idyllic 'antique simplicity'. One might say that the tendency that Marinetti represented was a model of separation, rather than of unity. Fuller spoke of a 'modernist flight from the world of nature' in which aesthetic movements 'insisted there was no correspondence between the "Significant Forms" (of art) which give rise to aesthetic experience and *natural* forms'. Against a Ruskinian call for the harmonious fusion of art, nature, and spirituality, modernist aesthetics stressed the centrality of an individualist vision, and led to 'perplexity about the point of contact between art criticism and those disciplines concerned with the study of the natural world'.[46] It was in this intellectual climate that Ruskin had become a peripheral figure by the time that Clark, Evans, and Bell attempted to re-order his work.

IV. Organicism and order

During the 1940s, there was only isolated movement towards understanding the organic context of Ruskin's work. One critic deserves attention for his perceptive focus on the question or order and unity. Derrick Leon described *Proserpina* as a 'charming and sensitive work on botany', and endorsed its defiance towards materialism:

> Ruskin's approach to botany was aesthetic as against utilitarian [...] The first requirement of the scientist is the sense of wonder, without

45. Filippo Marinetti, 'Futurist Speech to the English', given at the Lyceum Club of London, 1910, in *Marinetti: Selected Writings*, ed. by R. W. Flint, trans. by R. W. Flint and Arthur A Coppotelli (New York: Farrar, Strauss and Giroux, 1972), p. 64, 65.
46. Fuller, p. 11, 12, 11.

> which no mastery of instruments or patience of attention can produce more than a sterile knowledge of facts.

Leon recognised that 'a study of the whole of his work, deeply rooted as it was in the humanistic spirit, shows that, no matter how his ideas developed, they never exceeded the contours of organic growth'.[47] Leon's recognition of a natural paradigm operating at a structural level in Ruskin's writing was unusual at this time, and anticipated aspects of Williams's cultural studies of the following decade.

Williams's *Culture and Society* was important, in terms of its contribution to Ruskin criticism, in that it revisited Hobson's insights into the organic-social connections of Ruskin's writing. He argued that it was 'one of the most important facts about English social thinking in the nineteenth century that there grew up, in opposition to a *laissez-faire* society, [an] organic conception, stressing interrelation and interdependence'. The application of organicism to society was, in Williams's view, expressed in *Unto This Last* (1860):

> The question of the wealth of a society could not be settled by attention to production only, but necessarily involved the whole life of a society. A society had to be judged in terms of all its making and using, and in terms of all the human activities and relationships which the methods of manufacture and consumption brought into existence.[48]

When viewed in this way 'the wealth of a society', with its 'activities and relationships' and attention to the changefulness of its 'whole life', comes to resemble an ecosystem. Even though he judged Ruskin anti-socialistic, Williams recognised that organicism provided Ruskin with a model for social 'wholeness'. What made Williams's theory provocative was its implication that Ruskin could not

47. Derrick Leon, *Ruskin, the Great Victorian* (London: Routledge and Kegan Paul, 1949), p. 272, 502, 503.
48. Williams, *Culture and Society* (London: Chatto & Windus, 1958), p. 140, 144.

be dismissed as a mediaevalist hankering after reactionary elements of residual culture. As such, he challenged the modernist tendency to regard Ruskin as atavistic. Despite uneasy relations with left-wing politics, Ruskin opposed utilitarian economics and the mechanisation of resources with a modern (if often incoherent) vision based, I would argue, on an ecological model of organisation.

After Williams, questions concerning order, unity, and organisation appeared much more frequently in Ruskin criticism. Buckley, for example, had no interest in ecology when he spoke of Ruskin and art, yet his words are relevant to this issue:

> Ruskin [...] insisted that "the demand for perfection," for "the perfect finish" rather than "the lovely form," was "always a sign of misunderstanding of the ends of art"; for the great artist, he said, never stopped working till he had "reached his point of failure," and imperfection was "in some sort essential to all we know of life [...] the sign of life in a mortal body, that is to say, of a state of progress and change" (10. 200, 202, 203).[49]

Despite the repeated critical notice taken in the years that followed of Ruskin's view that successful landscape art drew attention to vitality and energy, and to the importance of 'progress and change', the ecological implications of this have never been pursued. Buckley appeared critical when he argued that Ruskin sought 'to introduce into his complex studies of aesthetic form issues extraneous to his subject, digressions which obscured and befuddled his analyses', but he moved away from Bell and Clark by recognising that 'despite the strange confusions of his method', Ruskin 'achieved an essential unity of tone, a deep if chaotic coherence'.[50] It is in fact astonishing just how often the terms 'unity', 'coherence', and 'organicism' occur in reference to Ruskin's work, and equally surprising that so few critics have

49. Buckley, p. 90.

50. *Ibid.*, pp. 148-9, 149.

entertained the idea that the source of this unifying force in his writing might be ecological. One of the reasons for this is that critics have sometimes looked elsewhere for the source of his organicism.

V. Organicism and romanticism

J. C. Sherburne's *John Ruskin, or the Ambiguities of Abundance* (1972) is important in terms of its continuation of the approach set out by Rosenberg, and for its clear statement that unity in Ruskin's work can be traced to organicism. His work implies that to follow Clark and Bell may be understandable but is ultimately flawed:

> The thirty-nine volumes of Ruskin's work seem [...] a chaotic assemblage in which chronology alone supplies the unifying element. After further study, the impression of chaos remains, but it is a chaos of vitality, not of disintegration, or rather of the struggle between the two.[51]

Like Hobson, Leon, Rosenberg, Buckley, Landow and Hewison, Sherburne finds unity in Ruskin's disparate productions:

> Whether Ruskin writes on art, nature, or economics, there are the inevitable digressions and irrelevancies. These are never mere padding. They are alive and often the start of another unfinished book. Their vitality stems not from their immediate context but from their relation to a more general theory or point of view.[52]

More than any earlier critic, Sherburne realised that Ruskin's intellectual activities were 'living' and 'capable of change'. Whilst being crucial in the process by which 'unity' and 'relation' becomes an established notion within Ruskin studies, his work

51. J. C. Sherburne, *John Ruskin, or Ambiguities of Abundance: A study in Social and Economic Criticism* (Cambridge, Mass.: Harvard University Press, 1972), p. 1.
52. *Ibid.*

is frustrating, because whilst he clearly recognised in these statements the vitality of Ruskin's thought, he then set out to argue that Ruskin's natural vision was in fact largely static. This paradoxical movement in Sherburne's work must be confronted.

Sherburne argues that Ruskin adopts both Romantic organicism and 'a much older tradition of Platonists, Aristotelians, and Christian philosophers like Richard Hooker and Jeremy Taylor who view oneness or unity as the attribute of ultimate reality'. Ruskin, he suggests, 'inherits these traditions in a haphazard fashion, selects what he finds useful, and creates his own vocabulary of organicism'.[53] One of the most distinctive – and in terms of this thesis, the most frustrating – features of his approach is his argument that 'Ruskin's Romanticism' was characterised by 'his failure to emphasize the aspect of organic growth':

> Although derivative, Ruskin's organic approach to art, nature, and society has a distinctive bias [...] His organicism is, to a remarkable extent, divested of its dynamic implications and restricted to the surface of things.[54]

Sherburne contends that Ruskin produced an organicism that drew on Romantic ideas, but which was shorn of its dynamic approach to nature. He insists that Ruskin sought 'the best method of portraying the surface of nature' because 'his interest is not in origins, internal structure, or processes of growth but in the present appearance of nature'.[55] I would argue that Ruskin often demonstrated intimate understanding and knowledge of internal structures of organic bodies, and of the dynamic qualities of organisms; and that because of this, his organicism was not peculiarly Romanticist, and certainly not confined to static and surface qualities, but instead distinctively ecological.

53. *Ibid.*, p. 4.
54. *Ibid.*, p. 11, 10.

Whilst plentiful evidence can be gathered to support Sherburne's claim that Ruskin was in later life 'uninterested in the "obscene processes and prurient apparitions" of propagation and condemns scientists whose "dirty curiosity" led them to dissect living creatures to determine their internal structure', there is also evidence that points to contradictory conclusions (17. 60).[56] In this instance, Sherburne uses material from Ruskin's later career to make generalisations about his whole output, whilst elsewhere he uses claims about the first two volumes of *Modern Painters* to generalise about Ruskin's later work. This weakness is conjoined to a tendency to look unremittingly to the late eighteenth and early nineteenth century for the roots of Ruskin's organicism, and to entirely ignore some possible mid-nineteenth century contexts. For example, when Sherburne claims that 'paradoxically, the "biological revolution" never touched the organicist Ruskin', he overlooks the impact of anatomy on Ruskin's understanding of nature, and thus misinterprets his organicism:

> Ruskin resists a materialistic interpretation and points to the moral or spiritual significance of the degrees of vitality found in organisms [...] So Ruskin can declare that "there is not any organic creature but, in its history and habits, will exemplify to us some moral excellence or deficiency." "Of the outward seemings and expressions of plants, there are few but are in some way good and therefore beautiful, as of humility, and modesty, and love of place and things" (4. 146, 156).[57]

Sherburne fails to recognise the significant contribution of materialism to some of Ruskin's nature writings, and is incorrect to argue that he concentrated solely on 'outward seemings'. What Ruskin meant by the 'history' of a plant was its story of

55. *Ibid.*, p. 11, 11-12.
56. *Ibid.*, p 12. Joseph Bizup makes very similar claims in his 'Architecture, Railroads, and Ruskin's Rhetoric of Bodily Form', *Prose Studies* 21 (1), April 1998 (74-94).
57. *Ibid.*, p. 7.

development and growth, a narrative that told of a dynamic existence and an inner, physical life. To accept Sherburne's vision of Ruskin's organicism is to believe that he saw the natural world divested of energy. As I will show throughout the work that follows, this was not the vision offered by Ruskin. Ruskin was interested in depth, surface, and process in nature. Once this is recognised, Ruskin's organicism appears distinctively ecological, whatever the degree of the influence of Romanticism may have been.

VI. Romanticism, nature, and society

Two recent critics have also been particularly unconvinced about the overall merits of reading Ruskin as a latter-day Romantic. Pauline Fletcher argues that Ruskin came to reject Romanticist celebration of alpine sublimity in favour of the social engagement embodied in lowland scenery. Ruskin's studies of landscape art, she argues, directed his attention to rural poverty during the 1850s:

> Ruskin's refusal to see the squalid mountain villages as picturesque adjuncts to scenery introduced a moral dimension into the judgment of landscape [...] The poverty of the mountain people forces itself upon his attention in such a way that he is compelled, reluctantly, to judge the landscape in terms of its usefulness to human life.[58]

Although his target is Fuller, Hanley offers 'a caution against the conflation of Romantic and Victorian periodisations' that has considerable merits, and which can be applied to Sherburne's thesis. Like Fletcher, Hanley points out that Ruskin's disillusionment with the efficacy of sublime art and of his own art criticism as a force for social improvement, can be traced back at least to the mid-1840s. He

58. Pauline Fletcher, *Gardens and Grim Ravines: The Language of Landscape in Victorian Poetry* (Princeton, New Jersey and Guildford: Princeton University Press, 1983), p. 5, 7.

believes that 'the religious discourse on which he had relied' – a discourse that reconciled evangelicalism and romanticism – 'had generally proved insufficient to meet the intellectual and socio-economic challenges of the 1840s and 1850s'. Ruskin's 'turn' to a view of nature suffused with practical human concerns reflected a divorce from the Romantics, for whom 'the Alps often promised to symbolise the sacred, deflecting the gaze from the world of common social experience and offering a site, free of human trace, for timeless and transcendent aspirations'.[59]

The power of the Alpine sublime rested on its non-human scale, on the dwarfing of humanity by an awe-inspiring divine landscape. But as Hanley rightly points out, the 'transcendent aspirations' sought by Romantics were of little value to the poor, or to a landscape facing increasing encroachment from industry, railways, and agriculture. A Romantic vision 'had not only proved an ineffectual slogan for protecting a threatened way of life' but was 'in danger of becoming unconsciously assimilated by the prevalently utilitarian discourse'. Ironically Wordsworth's desire that the Lake District should be open to all was used during the 1870s as an argument for the extension of rail networks into them to accommodate the needs of factory workers, who would otherwise be unable to partake of the grave, educational delights of this 'national property'.[60] Hanley suggests that as Wordsworth's values were being appropriated by a prevalent 'national discourse' Ruskin turned decisively away from him and towards environmentalist discourses.

Whilst these reading of Ruskin's shift to more directly social discourses clearly address the deficiencies of Sherburne's arguments about Romanticism, they also imply that Ruskin continued to read nature anthropocentrically. In this view, Ruskin's turn from the sublime qualities of nature to its utility continued to revolve

59. Hanley, 'In Wordsworth's Shadow: Ruskin and Neo-Romantic Ecologies' in G. Kim Blank and Margot Louis, *Influence and Resistance in Nineteenth Century English Poetry* (London: MacMillan, 1993) (pp. 203-33), p. 207, 223, 203.

60. *Ibid.*, p. 231.

around humankind. Indeed, by suggesting that 'Ruskin's awareness of the moral and social dimensions of rural scenery represents an important early contribution to the sociology of landscape, and a significant departure from an earlier tradition of judging landscape in purely aesthetic terms', Fletcher argues explicitly that Ruskin's later politics turn away from the idea of nature as an independent entity or one which included humanity. If Fletcher is correct, the two became opposed, or nature became a construct of human values. But how far is a polarity based around environment-humanity convincing when applied to Ruskin's work? Fletcher's analysis seems to conflate 'wild nature' and 'pure aesthetics' in a way that does not stand up to scrutiny. A traditional division between wild (sublime) landscape and domestic or human (picturesque) landscape can indeed be traced in Victorian visual and literary culture.[61] However, the idea that lowland, picturesque landscape neatly equated to human landscape, whilst mountains were the site of non-human concerns does not represent an exhaustive account of the way that landscape was conceived in Ruskin's mind. An ecological reading might be capable of dissolving or erasing this kind of polarity, stressing instead the mutual interdependence of all of nature and all of culture.

VII. Dynamic organicism and ecological order

In this closing section I wish to build on the critique of Romantic readings of Ruskin's organicism, and to examine critics who have come closest to understanding his engagement with modern, and specifically ecological, modes of order. To ground Ruskin's vision of nature purely in Romanticism or religion is to ignore the

61. Fletcher, pp. 5-6; see George Levine, 'Ruskin and the Novelists', in *Nature and the Victorian Imagination,* ed. by U. C. Knoeflmacher and G. B. Tennyson (Berkeley, Los Angeles and London: University of California Press, 1977) (pp. 137-52) for a study of the use of sublime landscape in Ruskin, romantic poetry, and art, in contrast to lowland, domestic landscapes in novels by George Eliot and Charles Dickens.

real impact of nineteenth-century science on his work, and to over-simplify his complex and ambivalent relations with it.

Fitch is rightly critical of Sherburne's claims about Ruskin's interest in surface representations of organisms, arguing that Ruskin was much more concerned with dynamic qualities than Sherburne would allow:

> The infinite subtleties and complexities of organic form are not to be caught in art either by niggling mechanical imitation or in any conventions of representation but rather by intimate knowledge of plant aspects coupled with imaginative penetration of the being-there of the particular living form.[62]

Mimetic art fails to capture the essence of plant life because it cannot convey its inner life, its connectedness to the rest of nature, or its dynamism:

> The subtleties of organic form manifest an inherent ordering and unifying that we call life; its relation to the particular form in a plant is to be understood only by entering the lived world, the *Dasein* as it were, of the plant.[63]

The Heideggerian notion of 'being' or 'being-there' invoked by Fitch is crucial in highlighting Ruskin's preoccupation with growth, or the 'inherent ordering and unifying that we call life', as a widely applicable model of creativity. One of my concerns will be to demonstrate that in his earliest work, Ruskin was primarily interested in the surface appearance of plants, but that as his work progressed he drew attention to the appearance of plants as resulting from dynamic processes. Moreover, I will show that dynamic processes of ordering were characteristic not only of Ruskin's vision of nature, but of his own textual practices. That Ruskin

62. Fitch, p. 331. See p. 53 for even more direct criticisms of Sherburne's reading.

63. *Ibid.*, p. 331.

applied this ecological model to all acts of creativity is implied by Fitch, who recognises that his botany tended to proliferate into discourses of connection and growth within society:

> The tree as a study in organic order, coherence, and existential growth suggests crucial analogies with the human social tree in much the same way that certain organic forms, lines, and vital elasticities disclose the true nature of Gothic building.

In arguing that 'the principle of organicity may be taken as the controlling system of Ruskin's work', Fitch endorses Wendell Stacy Johnson's argument that for Ruskin 'every part of nature is a symbolic expression [...] of the organic whole'.[64]

Ranged against Sherburne, then, are a range of critics who perceive Ruskin's organicism to be dynamic, and connected to nineteenth century cultural and scientific phenomena. By rejecting Sherburne's vision of static organicism, the ecology of Ruskin's organic order can be more plainly understood. The cultural geographer Dennis Cosgrove identifies the interpenetration of nature, culture, and science in Ruskin's work:

> In the hands of a writer like John Ruskin the relations between landscape as a way of seeing and the social relations of production become an explicit object of study and the landscape idea was asked to carry the burden of a fully-articulated body of social theory. [65]

Cosgrove suggests that Ruskin moved decisively away from Romantic readings of nature, but escapes the bind of believing that he viewed landscape in a purely utilitarian manner. 'The landscape idea' as 'a way of seeing' arose out of contingent

64. *Ibid.*, p. 331, 54; Wendell Stacy Johnson, 'Style in Ruskin and Ruskin on Style', *Victorian Newsletter* 59 (Spring, 1982), pp. 1-6, 5.
65. Dennis Cosgrove, *Social Formation and Symbolic Landscape* (London & Sydney: Croom Helm, 1984), p. 10.

realities, and reflected 'a range of political, social and moral assumptions' which helped to define 'taste'. In a subtle, post-structuralist reading, Cosgrove does not remove the physical reality of agricultural change, demographics and 'collective material practices' from his thesis, or treat landscape 'in a vacuum, outside the context of a real historical world of productive human relations'. Instead, he argues that 'Ruskin sought to deploy the landscape idea as the key to a moral and social analysis of the human consequences of industrial capitalism and the contradictions of Victorian political economy', and that 'in his works are revealed sharply the critical tensions between modes of thinking about the natural world in the nineteenth century, and over the appropriate place of human life and labour in that world'.[66] By drawing both on the visual aesthetics of Hewison and Helsinger, and on landscape history, Cosgrove's reading does justice to the complexities of Ruskin's position, and contextualises him accurately within debates on art, landscape, and society without rendering them separate.

In its focus on social-environmental connections Gillian Beer's analysis of 'nineteenth century organicism' shares much with Cosgrove:

> Equivalence is claimed between the creative imagination and natural order by means of the model of growth. The most striking transposition of this model is in organicism which from the late eighteenth century on has provided [...] an ideological model for explaining individual development, social relations, the process of a work of art, the process of history, and the relations between diverse types of knowledge within a society.[67]

66. *Ibid.*, p. 1, 2, 241. See also Cosgrove, 'Mappa Mundi, anima mundi: imaginative mapping and environmental representation' in Wheeler (ed.) (pp. 76-101); and *The Iconography of Landscape: essays on the symbolic representation, design and use of past environments,* ed. by Stephen Daniels and Denis Cosgrove (Cambridge, New York & Melbourne: Cambridge University Press, 1988).
67. Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction* (London: Ark Paperbacks, 1985), p.149.

A vision of nature that operated at the level of metaphor had more cultural force than one that merely stressed what was physically possible through the domination of landscape. Organicism 'asserts equivalence between natural and social process, the organic interdependence of all the parts within a whole, as well as the interdependence of a whole and its parts'. A description of organicism, as 'both a holistic and an analytical metaphor' which 'permits exploration of totalities, and of their elements, without denying either, or giving primacy to either' is inseparable from what I have defined as ecology.[68] What Cosgrove describes as 'landscape as a way of seeing', Beer terms organicism, and I call ecological order, all permit one to move away from an analysis based on opposition between nature and culture.

Some of the most important work on Ruskin's nature vision has arisen from studies of his science. Dinah Birch argues that the older Ruskin was at constant war with materialist science. In an exceptional analysis of his response to modernity in his later science, Birch recognises that 'Ruskin sees the natural sciences of his age debased by arrogance, lack of spirituality, envy, egoism and shallowness' in which 'competition and progress had obscured the perception that wisdom lies outside the scope of any single intelligence'.[69] Her reading of the conscious defiance of Ruskin's opposition to materialism after 1870 is a valuable corrective to the view of earlier critics who had summarily dismissed Ruskin's late science. Arguing that Ruskin thought that investigation of phenomena should have 'more to do with the principles of a moral vision than with the practices of observational science', she suggests that he wished to re-establish a science in which 'art, history, and

68. *Ibid.*

69. Dinah Birch, 'Ruskin and the Science of *Proserpina*' in *New Approaches to Ruskin,* ed. by Robert Hewison, (London: Routledge & Kegan Paul, 1981), pp. 142-56, p. 153. I will also turn to Frederick Kirchhoff, 'A Science against Sciences: Ruskin's Floral Mythology' (pp. 246- 258), in Knoeflmacher and Tennyson, a pioneering study of Ruskin's late botany.

mythology have equal place with measured scientific data'.[70] In this sense, Ruskin's science resembled ecology in its preoccupation with the interrelations between the whole and its parts. Ruskin sought to erase boundaries between science and other discourses. The context within which the interplay of scientific, cultural, and social discourses were located in Ruskin's work was the cultural formation of ecology.

Sheila Emerson's attempt to link Ruskin to chaos theory in physics also carries ecological implications. In ways that echo Carroll's point about the interplay between order and disorder in Ruskin's system-making and breaking, Emerson argues that conflict and contradiction in Ruskin's approach were potential strengths:

> No one has ever loathed chaotic deviation more eloquently than Ruskin, but neither has anyone celebrated more powerfully the variety of nature. And no one, not even Darwin, has so vividly evoked the labor [sic] of attending to nature's fluctuant multiplicity. In fact to Ruskin, the capacity to preserve and oversee this multiplicity is an indubitable sign of genius.[71]

Ruskin's attendance to overseeing 'nature's fluctuant multiplicity' was, I would suggest, also a key marker of his ecological modes of ordering. Like Cosgrove, Emerson looks to connect aesthetics, landscape, and science, and in doing so she comes closest of all the critics examined so far to making a link between ecological science and Ruskin's intellectual and textual practice. She argues that the process of ordering in Ruskin's production of manuscripts exemplified his ability to 'preserve and oversee' multiplicity. At another level of Ruskin's work, this process of ordering involved re-creating in written language the visuality of painting. The truth of a 'creative product', as of an organism, resided in its growth. She quotes

70. Birch, p.143. See also Birch, *Ruskin's Myths* (Oxford: Clarendon Press, 1988), pp. 172-88.
71. Sheila Emerson, 'The Authorisation of Form: Ruskin and the Science of Chaos' in *Chaos and Order: complex dynamics in literature and science*, ed. by N. Katherine Hayles (Chicago: Chicago University Press, 1991), pp. 149-66, p. 152.

Ruskin's claim that 'as an artist increases in acuteness of perception, the facts which *become* outward and apparent to him are those which bear upon the growth or make of the thing (6. 232). The truth of representation acts as a window to history precisely because 'it requires the expressiveness of the greatest artists to make others see that the present aspect of a thing, whether in nature or on canvas, expresses its own past'.[72] Emerson is correct to point out Ruskin's argument that 'Form, properly so called, may be considered as a function or exponent either of Growth or of force, inherent or impressed.' and his claim that strict 'laws of formation and of the forces to be resisted' (2. 370-1) operate and are observable in the forms of things.

During the chapters that follow I will be offering further examples of this tendency in Ruskin's work to link form to function and growth, and to correct the impression given by Sherburne and others that Ruskin's concern was with static, surface qualities. A dynamic, ecological model of organicism, I will argue, underpins his vision of nature, art, architecture, society, and individual consciousness to such an extent that evidence of it can be found both in his texts and in the content of those texts. Tracing the reasons for the power of ecology in his work prior to 1870, and for its decline in works after that date, will be the task of the following chapters.

72. *Ibid.*, p. 153.

CHAPTER 1, THE CHANGING FACE OF NATURE AND THE NATURAL FACE OF CHANGE

> By little twigs the most important fabric on the face of the earth was woven [...] Of trees, timber, wood, we see the workmanship daily carried on before us [...] The leaves of the forest are ceaseless toilers; all their existence long they are spinners, and weavers, and miners; and the timber of our largest trees displays the warp and woof of the multiple threads which the ever-working leaves have elaborated (7. 467).

In 1861, Ruskin gave a prestigious lecture at the Royal Institution in London, in order 'to point out the connection between the laws of nature and those of art'. Previous speakers had lectured on weighty philosophical topics, and the audience may have expected him to speak on architecture, Turner, or Pre-Raphaelitism (7. 467). That he chose instead to deliver a lecture, 'On Tree Twigs', the opening of which is given above, and which provided a detailed analysis of the growth of broadleaved trees, might seem to indicate eccentricity, but for Ruskin this had become a subject of unparalleled significance. In the previous year, 'Of Leaf Beauty', the lengthy opening section of *Modern Painters V*, had been devoted to an elaboration of his ideas on tree growth. Arboreal enquiries had appeared in the previous volumes, and more would follow in later works. Despite this, critics have rarely touched upon the role of trees in Ruskin's works. The idea that they might be essential to making sense of the totality of his work has not been considered at all. Even recently, as interest in Ruskin's landscape vision has grown, only Fitch and Birch have explored his botany in detail. Yet the idea of 'multiple threads' industriously woven by the toil of leaves, stems, and roots is, I believe, crucial to understanding his Ruskin's vision of nature, but also his view of the mind, of creativity, and of the order and organisation of all things.

Ruskin's depiction of tree growth in 'Of Leaf Beauty' as an unceasing series

of organic processes was the model of creativity that he described a few chapters later in 'The Law of Help'. He turned to this model whenever he thought of literary, artistic, social, architectural, and spiritual endeavour. Everything ascribed value by Ruskin – texts, paintings, buildings, and societies – could achieve being and meaning only through processes revealed by this model. The 'little twigs' that built a tree offered a template for every creative act, for Ruskin believed that in nature, culture, and society, only co-operative interaction could produce the beautiful and the true. It was this, as well as a botanical lesson, that Ruskin wished his Royal Institution audience to understand. This, rather than economic utility, made wood 'the most important fabric on the face of the earth'. What today are termed ecological modes of organisation were inscribed into all facets of Ruskin's work, from subject matter, to structure, to methodology. This chapter will argue that ecological order permeated not just Ruskin's natural science (the subject of subsequent chapters), but his creative processes, vision of society, and view of knowledge.

For Emerson, who argues that Ruskin's central concern was the organisation of systems, his texts oscillated wildly but meaningfully between order and disorder, so that he 'was able to move back and forth between the natural world, pictures and writing by virtue of inherited convictions that the physical creation and art are both inherently languages, the one of God and the other of men'.[1] Her argument that Ruskin conceived nature, art, and writing in the same terms is cogent: it is possible to show that they shared essentially the same modes of organisation, processes of coming into being, and interactive relations to external contexts. Demonstrating this makes it clear that ecology provided the model for this organisation of creativity. This chapter will demonstrate how the development of an ecological vision played out in texts from the period spanning the publication of *Modern Painters*. I will

1 Emerson, p. 150.

examine the way that ecology acted not just as the focus of many of Ruskin's texts, but also as a shaping and structuring force in his writing. An ecological model came to affect his entire style of investigation. What this meant in practice was writings in which *relation* – multiple connections between 'helpful' discourses – was more important than conclusions in works which were increasingly described as provisional; in which development or process was more characteristic than definitive statement; and in which interaction of ideas was more crucial than ideology. For Ruskin, thinking became organic: opinions that did not grow could never be true. He largely abandoned rigid divisions between matter and spirit; nature and culture; personal and public; and science and art. Although he often erected such divisions, they never remained stable, uncontested points in subsequent enquiries. During the 1850s, there came to be no perimeters to knowledge, few boundaries between subjects, or limits to the connections drawn between them.

The tree writings of *Modern Painters* are a suitable place to begin an enquiry into the growth of ecology in Ruskin's works, despite the fact that they are amongst the least-noticed sections of that work. At the most obvious level, they show changes in the way that Ruskin viewed external nature, but they also reveal changes in his view of how the critic should connect nature and art, and nature and society. The use of metaphor and analogy in 'Of Truth of Vegetation' from the first volume (1843), and 'Of Leaf Beauty' from the final volume (1860) offers a particularly useful entry point to understanding the nature of these changes. I will trace the ways that these shifts in figuration reflected (rather than caused) an increasingly dynamic conceptualisation of nature and creativity. Whilst metaphor told of the singular moment of connection between observer and nature, analogy permitted Ruskin for the first time to reflect a more dynamic vision of nature, and to emulate organic processes by which it was underpinned. To describe narratives of growth through analogy was to unlock the key to all creative acts. During the 1850s, Ruskin turned

to narrative analogy in order to uncover what he believed were profound truths about the underlying order of the world. Ecology became the prime model to explain how things came into being and how they should continue to exist, meaning that he could trace its operations in varied contexts, from art criticism and architectural study, to earth science and social policy. I will draw attention to the way that analogy allowed Ruskin to sustain a comparison between the communitarianism of tree leaves and the competitive social organisation of Britain.

Two texts from the period 1857-60 will form the focus of the shorter second section of this chapter. 'The Work of Iron' (1858) demonstrated acute awareness of ecology in the environment, but also directed his audience's attentions to the place of *Homo sapiens* within nature. Humankind ceased to stand in glorious isolation at the top of a divine hierarchy of Creation, but had become a part of an organic community. 'The Law of Help' from *Modern Painters V*, adverted to at the start of this thesis, deserves further attention because of its defining statement about the role of composition in nature and art. In explaining artistic composition, Ruskin invoked natural and social acts of composition, demonstrating that he saw no boundaries between fields of knowledge. To speak of trees, humans, paintings, and animals as separate became unthinkable at this stage. Faced with the task of composition, each faced the same choice: between the ecological forces of 'life' and the anti-creative logic of 'death'.

1. FROM METAPHOR TO ANALOGY: TOWARDS ECOLOGY IN THE TREE WRITINGS OF *MODERN PAINTERS* (1843)

I. Metaphor and analogy

Metaphor and analogy are not the focus of this enquiry, but the means by which the impact of ecology on *Modern Painters* can be revealed. How and why Ruskin's use of figurative language was bound up in these changes can, however, be explored only once the nature of metaphor and analogy has been established.

The roots of metaphor in Greek rhetoric and poetics are well understood. A more general recognition of the elusiveness of metaphor also dates back to these times. Plato's condemnation of figurative language in Homer articulated his belief that language should perform only the task of straightforwardly conveying reality and morality.[2] Although Aristotle aimed to judge language as a communication tool, and to classify its constituent parts, rather than tracing its metaphysical ontology, he too believed in its moral purpose. His statement that 'metaphor consists in giving the thing a name that belongs to something else' retained something of Plato's distrust for the slipperiness of figures, a sense of usurpation lurking in his description of one noun taking on a descriptive role 'belonging' to another. For Aristotle, metaphor acted at the level of nouns to draw attention to unconsidered connections; or to defamiliarise the object that undergoes the process of metaphor by linking it to a seemingly unrelated object.[3]

Therefore, metaphor can act subversively by failing to clearly define the

2. Plato, *Republic,* trans. by Robin Waterfield (1993) Book X, 605-608, in *Plato: Complete Works*, ed. by John Cooper (New York: Hackett, 1997).
3. Aristotle, *Poetics*, in *The Basic Works of Aristotle*, trans. by Ingram Bywater (New York: Random House, 1941), p. 1457. On metaphor and nouns, see Paul Ricouer, *The Rule of Metaphor: Multi-disciplinary studies of the creation of meaning in language*, trans. by Robert Czerny, Kathleen McLaughlin and John Costello (London: Routledge & Kegan Paul, 1986), p. 16.

relationship between original noun and figurative replacement. As Beer argues, metaphor 'can allow insight without consequences because perceptions are not stabilised and categorised'. By allowing one to 'fleetingly [...] inhabit contradictory experience without moralising it', metaphor may have a volatile effect on its audience.[4] Paul Ricoeur argues that metaphor involves whole discourses, because figuration 'operates at all the strategic levels of language'.[5] Since all words must be defined by comparison with other words, 'there is no non-metaphorical standpoint from which one could look upon metaphor': to describe metaphor as a borrowing of one term for another is itself a metaphorical statement.[6] Drawing on Ferdinand de Saussure's linguistics, Ricoeur argues that if 'metaphor always involves a kind of mistake [...] taking one thing for another by a sort of calculated error', the applications are not confined to nouns, because 'to affect just one word, the metaphor has to disturb a whole network by means of an aberrant attribution'.[7] While Ricoeur reads this 'aberrant attribution' as a transgressive attempt to subvert an authorised set of meanings within a discourse, Beer points out that although metaphor does not restrict itself to single words or images, analogy has a far more ambitious scope. Analogy 'expresses itself by first ranging two patterns of experience alongside each other, seeking their points of identity, and then using one pattern to extend the other', and therefore 'there is [...] always a sense of story – of sequence – in analogy, in a way that there need not be in other forms of metaphor'.[8] Analogy seeks to sustain the comparison which metaphor opens up, and to explore in greater detail the nature of the link that has been made. In metaphor, 'resistance as well as accord must persist', because the nature of the comparison is never fixed

4. Beer, p. 14.
5. Ricoeur, p. 16, 17.
6. *Ibid*, p. 18.
7. *Ibid.*, p. 21.
8. Beer, p. 80.

conceptually or linguistically, but 'in analogy complete resolution is the sought-for-end', even when there is difficulty in achieving this. Beer rightly concludes that analogy has a 'speculative, argumentatively-extended character' which 'ranges it closer to narrative', because it extends the comparisons highlighted by metaphor into an extended analysis which seeks to describe and define a 'truth'.[9] It suggests some degree of process and direction (although this may not be rigidly maintained), while metaphor suggests a single moment in time.

The shift between metaphor in 'Of Truth of Vegetation' to analogy in 'Of Leaf Beauty' exemplified the fundamentally different aims of the two figures: in the former text, metaphor served to defamiliarise by unexpected comparison, acting as a rhetorical tool that undermined the status of the Old Masters. By 1860, analogy answered Ruskin's profound need to relate a series of narratives, and to argue for the connectedness of all things within broader figures of dynamic, co-operative growth.

II. Metaphor

> We have now arrived at the consideration of what was, with the old masters, the subject of most serious and perpetual study. If they do not give us truth here, they cannot have the faculty of truth in them: for foliage is the chief component part of all their pictures (3. 574).
>
> In speaking of trees generally, let it be observed, when I say *all* trees, I mean only those ordinary forest or copse trees of Europe which are the chief subjects of the landscape painter [...] I do not purpose to examine the characteristics of each tree; it will be enough to observe the laws common to all (3. 575).

In 'Of Truth of Vegetation', the use of metaphor was related to the structure of the text, which consisted of two distinct aspects. Ruskin's first task was to describe the

9. *Ibid.*, p. 96.

'laws common to all' of the 'ordinary trees of Europe'. His second was to decide whether particular artists adhered to these laws in their representations. This played out in the text as a recurrent twofold movement: a specific law was described, and then artistic representations were examined at length for evidence of their faithfulness to it. The laws ('branches do not taper but divide', 'boughs [...] diminish where they divide', 'boughs must multiply as they diminish', 'impossibility of the angles of boughs being taken out of them by the wind', 'exceeding intricacy of nature's foliage', 'perfect unity in nature's foliage', and 'universal termination of trees in symmetrical curves') acted as stable, scientific points which structured the discussions of painting (3. 575-594). Ruskin took his tree studies seriously, ensuring that his observations were painstaking and accurate, but rather than becoming the main focus, they remained servants of art. Botany was subordinate to painting, providing only the means to discuss objectively the truths of landscape art. By moving between scientific principles of tree physiognomy and discussions of art, Ruskin maintained the logical methodology that characterised *Modern Painters I.*

Ruskin's aim was not to idealise or sentimentalise nature, but to observe it; to wrench his readers' attention away from what he believed were the falsifying canvases of the Old Masters and to direct them towards real natural forms. Only by doing so could he indict artists celebrated by the Victorian art establishment, but guilty of extracting limited truths from nature and systematically distorting others. He suggested that admirers of the Old Masters misrepresented the symbol (stylised landscape painting) for a reality (nature) which they could no longer recognise, so inured were they to the visual trickery of these artists.

Ruskin therefore drew attention to the ways in which the Old Masters departed from what Cosgrove, in discussing other aspects of Ruskin's work, has termed 'the *ur-phānomen* (the essential pattern and process of the natural world)'.[10]

10. Cosgrove, *Social Formation and Symbolic Landscape*, p. 237.

If, therefore, 'Of Truth of Vegetation' aimed, in Landow's words, 'to bypass ancient models and return to nature herself, to forego studying the Claudean tree and discover the oak, the pine, and the elm', it strove to do so by arresting the reader with startling images – metaphors which identified the pernicious falsehoods of Claude, Poussin, and Salvator.[11] Ruskin repeatedly contended that the subjects of their landscapes looked like *anything but* trees. Those of Gaspar Poussin's 'View Near Albano' resembled 'an ornamental group of elephants' tusks, with feathers tied to the ends of them'. So untrue were these images that 'not the wildest imagination could ever conjure up in it the remotest resemblance to the bough of a tree'. One of Poussin's trees looked like 'the claws of a witch, the talons of an eagle, the horns of a fiend' (3. 577, 577-8). The use of grotesque metaphors defamiliarised widely-admired pictures, focusing attention on the disparity between painted trees and forest scenes, but because, as Beer argues, 'metaphor is a means both of initiating and controlling novelty', Ruskin required increasingly startling images in order to maintain the impetus of his critique.[12]

There is, therefore, a striking range to Ruskin's sardonic figures: the trunk of Poussin's tree in 'La Riccia' described as 'a carrot or a parsnip', the leaves of which 'support themselves as swarming bees do, hanging on by each other' (3. 577); the same artist's 'landscape [...] with the storm' depicting trees with 'India-rubber' branches, fashioned at the ends into 'demoniacal claws'; or the boughs of Claude and Salvator, which presented the appearance, respectively, of 'a very faithful portrait of a large boa constrictor with a handsome tail', and the 'wing-bones of pterodactyles' (3. 584, 589, 578). Ruskin even evoked 'the long tentacula of some complicated marine monster' and 'waving endless threads of bunchy sea-weed'

11. George P. Landow, 'J. D. Harding and John Ruskin on Nature's Infinite Variety, *The Journal of Aesthetics and Art Criticism* 28 (1970), pp. 369-80, p. 371.
12. Beer, p. 96.

when condemning the latter (3. 582). The proliferation of threatening metaphors suggested transgression of organic law. The falsehoods of the Old Masters were thus dangerously chaotic and unsettling. They erred by rejecting natural truth for synthetic, imaginative compositions. By failing to study tree form in the field, the old masters gave primacy to human artifice over natural ingenuity. In Ruskin's mind, such a preference for human design over natural truth articulated a desire to shape and exploit nature, and this issue became more pressing in the decade that followed. As will become apparent when looking at 'The Work of Iron' and 'The Law of Help', Ruskin began to prophesy a breakdown of ecological order in the real world that would be attended with yet more frightening consequences.

It is significant that when Ruskin turned to the tree painting of Turner and Titian, he did not use metaphor at all, because he believed their compositions resembled only real trees. His descriptions therefore read like factual accounts:

> In Turner's Marly [...] we have [...] perfect and ceaseless intricacy, to oppose to Poussin, perfect and unbroken repose to oppose to Hobbima [...] We have in it the admirably drawn stems, instead of the claws of serpents; full, transparent, boundless intricacy [...] instead of perpetual repetition of one mechanical touch (3. 593).

Ruskin drew attention to his use of metaphor to describe falsehood, and non-figurative language to depict 'truth'. Despite his own use of figurative, decorative language, Ruskin claimed to equate 'plain speaking' with truth. The employment of metaphor in 'Of Truth of Vegetation' served Ruskin's purpose at this time, but as his vision of nature expanded, the limitations of metaphor, and the power of analogy to unlock the secrets of ecology, would be revealed.

III. Analogy

> What infinite wonderfulness there is in this vegetation, considered, as indeed it is, [as] the means by which the earth becomes the companion of man – his friend and his teacher! (7. 14)

> Here is perhaps the first question which an intelligent child would think of asking about a tree: "Mamma, how does it make its trunk?" and you may open one botanical work after another, and good ones too, and by sensible men, – you shall not find this child's question fairly put, much less fairly answered (7. 71).

In 'Of Leaf Beauty', Ruskin's earlier focus on art had largely disappeared and, as these passages indicate, what took its place was a botanical enquiry into tree growth, and into the relationship between nature and humanity. Of the ten long chapters that made up 'Of Leaf Beauty', only two offered cursory analyses of painting. The others described how trees developed as organisms, from their earliest days as seedlings through to full maturity, and dealt with aspects of the lives of buds, leaves, stems, and boughs, in order to show exactly how a tree 'made its trunk'. Ruskin's analysis was meticulously accurate, and drew particular attention to the way in which trees adopted various patterns of bud development (opposite, alternate, and spiral) in order to maximise their exposure to light. He demonstrated that the adoption of different patterns of bud development led to the distinctive appearances of specific species of trees. An ash and an oak differ not merely because one has pinnate and the other composite leaves, but because one has opposite buds and the other a fivefold spiralling pattern of buds. He observed that mathematical rules dictate the patterns of bud development, but that this was offset by the effect of environmental agency: the loss of many buds, and the need to sometimes break or bend the rules in order to search out light, meant that no tree was exactly like any other. This interplay between the rigidity of overarching rules and response to

individual circumstance was crucial to Ruskin's concept of creativity, and, as we shall see later, acted as an analogy of the relations between society and individuals.

Neither metaphor nor the twofold structure of 'Of Truth of Vegetation' (its recurrent shift between botany and art, and insistence upon the primacy of the latter) were repeated in 1860. Instead, by relating a tree's development, Ruskin sustained a series of analogies in which tree growth was figured as a model for social, spiritual, economic, and architectural development. Ontogeny met ontology because the lesson he wished his readers to draw from his narrative of tree growth was that all true acts of creativity were based on the example of trees. The metaphors that sustained his art criticism in 1843 gave way to analogy because of an interest in drawing out kinship between the long-term *processes* of all creations, rather than in examining the finished products of art.

The social, architectural, and moral-religious analogies that accompanied the central botanical tale were renderings, in different fields, of the same guiding narrative. Although Ruskin's use of metaphor and analogy in 1843 and 1860 were both designed to uncover falsehoods and highlight truths, the differences between the two works were more revealing than their similarities. In the latter text, Ruskin demanded of his more ambitious enquiries into art and society that they directed attention towards dynamic models of creativity.

IV. Static and Dynamic: the 'infinite variety' of nature

By turning attention to figuration, it becomes clear that the trees of the latter text were far more energetic than those in 'Of Truth of Vegetation'. The earlier work described laws governing the growth of trees, but primarily focused on their appearance at specific moments of representation, rather than on their physical development. Ruskin was aware of the role of growth in taking them to this point, but focused on their appeared at particular moments. His descriptions of trees

offered the sort of still images that he used as visual aids in art lectures. Real trees became like paintings in a work in which visuality was the key to truth. Those of 1860 were thoroughly real trees, existing not within the framing device of art criticism, but within nature. The act of growth had become the prime focus.

The movement between 'Of Truth of Vegetation' and 'Of Leaf Beauty' was a real and significant change, but it was also one of degree. It cannot be described as an abrupt shift from a non-dynamic to a fully dynamic view of nature, but as a development. In *Modern Painters I*, Ruskin understood that the 'laws common to all' of the 'ordinary trees of Europe' were powered by organic processes that permitted them to come into being. His primary interest at this stage was the painting of trees, but his concern to describe tree appearance faithfully rested on an understanding of how they grew. When he demonstrated that branches do not taper, but divide, he described the *result* of a dynamic process, but offered the shortest possible account *of* the process. The act of branching was of less relevance than the result of this branching in untapered stems, for it was against this truth that the efforts of artists could be measured. Because it was unnecessary to speak of growth, he described only its culmination at specific moments, such as in the termination of tree crowns in curves. While he understood that this was a response to environmental agency, the main aim of such enquiries was the provision of accurate data for subsequent art studies. Although growth underpinned laws of tree formation, it was effaced by the focus on art.

In 'Of Leaf Beauty', however, the energy of natural processes became the main focus, just as art investigation was laid to one side. As Fitch observes of these chapters, 'the view is less objective and scientific than in the chapters on earth forms [from the first volume] and richer in social or moral implications'. This, I would argue, was because Ruskin's vision of nature and of society had changed. Fitch perceptively notes that 'Ruskin's altering eye alters the meaning of natural forms' in

order to emphasise 'the internal purposiveness and life struggle of the plant'.[13] Although he quickly passes on from this statement, Fitch offers a valuable insight into the changes that Ruskin's botany had undergone in the 1850s. Ruskin no longer captured trees at single moments for comparison with paintings. Instead, he described the process of growth itself, as played out in the life of a tree, and beyond. Because of the host of accompanying narrative analogies, this was not merely a tale of a tree's life, but of the lives of paintings, buildings, people, and societies, and of their mutual engagements in processes of growth. 'Leaf Beauty' follows the dictum that organicism implies *organisation*, and is a transposition of the lessons of growth. Only narrative and analogy could satisfy the vision created by such realisations. 'Infinite variety', another key feature of Ruskin's discussion of trees in 'Of Truth of Vegetation', indicated that a form of dynamism was at work there, although it differed in important respects from that of 'Of Leaf Beauty'.[14] There are innumerable examples in *Modern Painters I* of Ruskin's concern to foreground a contrast between the mechanically repetitive nature of Claude and Poussin, and the infinitely varied landscapes of nature. He noted, for example, that 'one of the most remarkable characters of natural leafage is the constancy with which, while the leaves are arranged on the spray with exquisite regularity, that regularity is modified in their actual effect', producing 'a thousand strange and differing forms'. The creative interplay between mathematical rule and individual practice was in place even in 1843, and explained the wonderful variety of organic life. Only this could

13. Fitch, p. 329. Fitch's view acts as a valuable corrective to Sherburne's contention that Ruskin's organicism was essentially static.
14. Ruskin's frequent use of the Shakespearean phrase 'infinite variety' mirrors that of Edmund Burke. See, for example Burke, *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful* (1757), ed. by Adam Phillips (Oxford: Oxford University Press, 1990), p. 114, where he argued that 'in the infinite variety of natural combinations we must expect to find the qualities of things the most remote imaginable from each other united in the same object'; and Burke's definition of 'Infinity' (pp. 67-8).

achieve the 'graceful and flexible disorder of innumerable forms' that he finds everywhere in the forest: despite the 'regular and mathematical [...] structure of parts', their individual rendering 'is as various and infinite as any other part of nature' (3. 588). Ruskin argued that 'nature contrives never to repeat herself'; that 'there is indeed in nature variety in all things'; and that 'the truths of nature are one eternal change – one infinite variety' (3. 542, 368, 145). This was so central and universal a truth, that any investigation into landscape art required that 'perhaps the first thing we should look for [...] should be the expression of *infinity*. (3. 386-87).

The notion of 'infinite variety', established in *Modern Painters I*, looked to describe the 'perpetual variation' of natural scenes as observed by the onlooker at a particular moment. As a result, his investigations as a natural historian were subservient to his role as art critic. To gauge correctly the value of a painting meant looking at corresponding scenes in nature, but did not require one to observe their changes over time. Therefore, whilst 'infinite variety' acted powerfully within the rather static context of 'Of Truth of Vegetation, it was not developed in narrative terms. In 'Of Truth of Colour' from earlier in Volume I, Ruskin insisted that 'there is not a leaf in the world which has the *same colour* visible over its whole surface', and that 'there is not one of her shadows, tints, or lines that is not in a state of perpetual variation'. More significantly, he added that 'I do not mean in time, but in space' (3. 294). 'Of Leaf Beauty' recognised that nature's infinite variety could not be understood properly only 'in space', but had to be realised in terms of its changes over time. In *Modern Painters V*, as Helsinger recognises in her analysis of the literary qualities of Ruskin's work, and its differences from Romantic discourses, Ruskin sought to reveal the vitalistic energy behind infinity:

> Ruskin's imaginative description visual detail is not selected and sparing, but multiplied and lavish. The impression of energy is

conveyed through the presentation of visual abundance.[15]

Ruskin's presentation, I would argue, foregrounded not only 'visual abundance' but also the processes by which abundance was produced.

Both the movement from metaphor to analogy and the attendant shift in the dynamic qualities of nature in these two texts suggests that even more fundamental changes occurred during the publication of *Modern Painters*, changes that are worth considering here because in different ways they point to the influence of ecology in their formation. These include changes in the structural organisation of *Modern Painters*; in Ruskin's concept of beauty; in the degree to which he became involved in social matters; and in the way in which his religious views shaped his view of physicality. Exploring these changes will provide a necessary contextualisation of the discussion of the social analogies in 'Of Leaf Beauty' that will follow.

V. System and structure

Ecology viewed nature not only as dynamic, but also, at the most fundamental level, as a dynamic *system*, or a temporal mode of ordering. It is highly significant, therefore, that the structure or systematics of Ruskin's work was transformed during the writing of *Modern Painters* in ways that reflected ecological science. In short, this was a movement from a logical, synthetic system of organisation to one in which organic modes of connection prevailed.

Changes to the structure of *Modern Painters* have been long discussed by Ruskin's critics. Bell decried a decline from the orderly presentation of volumes one and two to the indiscipline of the final three.[16] Fitch, on the other hand, argues that a movement from a 'basically mimetic and naturalistic' aesthetics to 'a more

15. Helsinger, pp. 33-4.
16. Bell, p. 41.

expressive theory of the same aesthetic value', was a positive development. Sherburne posits a movement from rigid organisation of ideas in the first two volumes to an organic conception of knowledge in the following three, but adds no value judgement, while Carroll argues that Ruskin's work after 1860 was powerful precisely because it eschewed rigidity in favour of apparently 'accidental' organisation based on organicism. Leon regarded such changes as 'inevitable', given the timescale of that work, but also argued that they were 'organic'.[17] Whatever their interpretations, all critics seem to agree that *Modern Painters* became less logical and systematic as it developed.

Sherburne and Carroll point out that the lengthy contents pages of the first volume mimic the work of John Locke in their appeal to logical order.[18] Ruskin seemed to place discussions of beauty and art on ordered, objective foundations, and to produce a classification of aesthetics in the manner of Newtonian physics or Linnaean botany. Although Ruskin disagreed with Edmund Burke on a number of key issues, he clearly owed a debt to his *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and the Beautiful*. *Modern Painters I* and *II* certainly expended as much energy as the *Enquiry* on an attempt to define concepts like 'beauty', 'truth', and 'excellence'; and mirrored Burke in their belief that objective knowledge arose from a reliable relationship between knowable object and knowledgeable subject. These volumes represented a late manifestation, but also a subtle but important modification, of an Enlightenment desire to categorise phenomena rationally, and to define order and truth, through systematic enquiry

17. Fitch, p. 40; Sherburne, pp. 10-12; Carroll, p. 59; Leon, p. 272.
18. Sherburne writes that Ruskin's 'elaborate divisions and marginal summaries and his almost Linnaean trust in the virtues of detailed classification give an un-Romantic rigidity and symmetry to his work'. He 'is reminded of the many writers from the Scholastics through John Locke, Jeremy Bentham, and Adam Ferguson who adopt Aristotelian methods of organization', and in particular 'Locke's *Essay Concerning Human Understanding* (1690) which Ruskin quotes frequently' (Sherburne, p. 11); Carroll, pp. 58-60.

into the objective properties of things. For Burke, 'beauty' was located *in* physical properties, such as 'smallness', 'smoothness', and 'gradual variation'.[19] For Ruskin, beauty continued to inhere in objects, but its properties were not merely physical, but also intellectual and moral. Ruskin's aim was to discern not just beauty, but 'Ideas of Beauty' (3. 109).

This systematic enquiry into beauty structured the first volume, split as it was into two Parts, eight Sections, and thirty-eight chapters, each further divided into innumerable numbered and titled sub-sections. So complex was the enquiry that Ruskin proposed in 1843 that it took seven opening chapters to deal with theoretical and methodological questions. After defining 'greatness in art' as that which 'conveys to the mind of the spectator [...] the greatest number of the greatest ideas', he described these five 'greatest ideas' (Ideas of Power, Imitation, Truth, Beauty, and Relation) in some detail (3. 92). Arguing that the final three 'Ideas' were the greatest, he proposed to structure what would follow around their analysis, and to only briefly discuss the more mechanical properties of power and imitation. The second volume included a further Part, divided and subdivided in the same fastidious manner as the first. It did, however, bifurcate immediately from the structure indicated in the first volume, by pursuing an unscheduled (but, for Ruskin, a now essential) enquiry into 'the two faculties of the human mind, which mainly seized such ideas' of truth, beauty, and relation (5. 17-18). Ruskin's modifications of his original plans thus began early on, and continued as he discovered artists previously unfamiliar to him, or encountered theoretical difficulties that had not been apparent in the drafting of his methodology. More fundamentally, however, he began to doubt the whole basis of his system of art criticism: what Buckley describes as Ruskin's 'impetuous contempt for the measured logic and the abstract theorizing of all formal philosophy' emerged during the development of *Modern*

19. Burke, p. 83, pp. 102-7.

Painters, confounding his original intentions, and making that work far more rewarding than it might otherwise have been.[20] Logical coherence was a principal casualty of Ruskin's altering eye, but it is myopic to consider this a failing.[21]

I would argue that the ever-multiplying changes to *Modern Painters* indicated that the organic impulse was at work, not merely in the subject matter, but in the organising principle of that work, something Ruskin acknowledged in the third volume in 1856. Ruskin's attentive readers would have immediately noticed that the lengthy contents pages and sub-headings of the first two volumes had been replaced by a simple series of chapter headings. 'Of Many Things', the sub-title to the third volume, revealed that Ruskin had deliberately relaxed his former rigour. His earlier classificatory zeal was abandoned during the 1850s as he realised that logical, synthetic systematisation did not reflect the order and organisation that he found in the natural world. Logic, he discovered, did not permit his mind to grow.

In the preface to *Modern Painters III*, Ruskin acknowledged the 'not very elaborate structure of the following volumes' (5. 5) in comparison to the preceding two, but began by effacing the significance of these changes, perhaps because he was aware that he faced criticism for inconsistency. Ruskin offered a précis of the work undertaken in the first two volumes, and suggested that the initial enquiry into 'the nature of ideas of Beauty and Relation' undertaken in volume two remained only to be completed in the works that followed. However, this emphasis on continuity of purpose was immediately undermined by a blunt statement that he would not adhere to the structure laid out in the first volume:

20. Buckley, p. 148.
21. See Bell, pp. 41-2 for criticisms of Ruskin's changes of heart. In less condemnatory terms, Philip Mallett observes that 'the five volumes of *Modern Painters* are riven by contradictions' (Mallett, 'John Ruskin and the Victorian landscape', in *Writing and Victorianism*, ed. by J. B. Bullen (New York and London: Longman, 1997), p. 222.

> I do not intend, however, now to pursue the inquiry in a method so laboriously systematic; for the subject may, it seems to me, be more usefully treated by pursuing the different questions which arise out if just as they occur to us, without too great scrupulousness in making connections, or insisting on sequence (5. 18).[22]

This was a liberating abandonment of previous purposes, and of the overarching principles of logic that his system had entailed. Such a conception had become 'laborious' to him, but it also lacked efficacy. To treat the subject 'more usefully' meant ignoring the lure of linear systematics in favour of what seemed from these words to be a rather haphazard organising principle. However, Ruskin's argument that one should study subjects 'just as they occur to us', and without worrying about the nature or order of connections, was not only a rejection of sequential systems, but the embracing of a new conviction. The order in which subjects were studied was of marginal importance. Whatever order was chosen, he implied, all subjects were connected at some level, and existed within an organic system of knowledge. The interactions between ideas were not like those between the components of a mechanism, but those of nature, because they were not stable, but changing; not fixed, but growing; and not isolated, and isolatable, but inextricably bound. Just as all elements of nature interact at some level within ecosystems, Ruskin came to believe that all ideas within the intellectual universe were also mutually dependent.

That this is not a tenuous connection was indicated by Ruskin's remarks in the first chapter of *Modern Painters III*. Having spurned his own system, he rejected the whole process of systematisation:

22. Cook and Wedderburn note Ruskin's abandonment of the original structure, and his growing distrust of systems, and, crucially, they argue that 'there is throughout *Modern Painters* an underlying unity of purpose and consistency of thought, yet if it is to be understood aright, it must be regarded as five different books, the division into which does not entirely correspond [...] with the framework mapped out' in volume I (5. li).

> Much time is wasted by human beings, in general, on establishment of systems; and it often takes more labour to master the intricacies of an artificial connection, than to remember the separate facts which are so carefully connected (5. 18).

Logical systems were described as unnatural, synthetic, laborious, and unhelpful. Ruskin's attack on his former purposes tellingly evoked a natural analogy:

> System-makers, in general, are not of much more use, each in his own domain, than, in that of Pomona, the old women who tie cherries upon sticks, for the more convenient portableness of the same (5. 18).

Not for the last time Ruskin turned to cherries for natural wisdom. His metaphor indicated growing indebtedness to organic models of knowledge and creativity:

> To cultivate well, and choose well, your cherries, is of some importance; but if they can be had in their own wild way of clustering about their crabbed stalk, it is a better connection for them than any other; and if they cannot, then, so that they be not bruised, it makes to a boy of a practical disposition not much difference whether he gets them by handfuls, or in beaded symmetry on the exalted stick (5. 18).

Only the original, organic organisation (the 'clustering about their crabbed stalk' of cherries) was genuinely truthful. All subsequent efforts to take this original apart, to isolate components, and to re-organise them, were flawed from the start. Whether one chose to take 'handfuls' or 'beads' of truth was ultimately irrelevant, once this dismemberment had taken place. No logical system could re-create this original form. How to proceed became in part a personal choice, and in declaring this, Ruskin divested himself of the absolute commitment to objectivity upon which his earlier work had insisted, and re-modelled himself as 'a boy of practical disposition' whose subsequent divisions of trees and mountains would follow organic order,

something he indicated in 'Of Leaf Beauty':

> As in our sketch of the structure of mountains it seemed advisable to adopt a classification of their forms, which, though inconsistent with absolute scientific precision, was convenient for order of successive inquiry, and gave useful largeness of view; so, and with yet stronger reason, in glancing at the first laws of vegetable life, it will be best to follow an arrangement easily remembered and broadly true, however incapable of being carried out into entirely consistent detail (7. 20).

If the personal agency of subject selection was a significant factor in the creation of knowledge, it suggested that there was not so much a single truth, as truth glimpsed from an infinite number of angles. The role of dynamism in this changed conception cannot be ignored, for as Ruskin argued in *Modern Painters III*, knowledge could not be fixed, but altered over time, and in the light of experience:

> I purpose, therefore, henceforward to trouble myself little with sticks or twine, but to arrange my chapters with a view to convenient reference, rather than to any careful division of subjects, and to follow out, in any by-ways that may open, on right hand or left, whatever question it seems useful at any moment to settle (5. 18).

Ruskin rejected the structural framework of logical systems, and relied instead on an open-ended, provisional, and dynamic process of learning. His metaphor revealed that he saw the systematic structure (the sticks and the twine) as external to the living form of knowledge (the living cherries), and ultimately unnecessary to their continuance. At best, this extraneous framework might support, but at worst, it could constrict, distort, or even destroy the living tissue of knowledge. Ruskin's commitment to the 'by-ways' of knowledge became strong because of a conviction that all roads, and all knowledge, like the whole of nature, were connected. The travelling metaphor revealed that the attainment of knowledge was conceived not as

an achievable terminal point, but as an ongoing process or journey.

The processes by which knowledge was attained became at least as crucial as its attainment. Ecology fundamentally challenged the idea that specific components of nature (a single species, for example) could be studied in isolation from external contexts. To study the component was to reveal the whole (and *vice versa*). For Ruskin, 'careful division of subjects' came to represent a vivisectional assault on a body of knowledge that could only be considered entire.[23] Because he came to recognise the limitations of synthetic systems, and the possibilities of organic organisation, Ruskin was willing to overturn many previous convictions and methods in order to attain a dynamic vision of creative processes. When, in the preface to the third volume, Ruskin noted 'one or two changes' to 'the arrangement of the book, which make the text in these volumes not altogether a symmetrical continuation of that in former ones', he declared himself 'not sorry thus to carry out my own principle of the sacrifice of architectural or constructive symmetry to practical service' (5. 12). Like Classical architecture, logical systems were over-reliant on abstract principles of arrangement that distorted the original forms they sought to analyse and classify, in order to reify principles of symmetry and order that did not reflect the natural world. They represented an unacceptable delimitation of possibilities that was inimical to Ruskin's deepening empathy for the unbounded energy and vitality of life. With more relief than regret he informed his readers that his studies would always be in a state of growth: 'having, of late, found my designs always requiring enlargement in process of execution, I will take care, in future, to set no limits whatsoever to any good intention' (5. 13).

As a result, volumes four and five displayed an exuberant sense of freedom

23. Joseph Bizup's discussion of Ruskin's use of imagery that invoked bodily fragmentation relates primarily to architecture and industry, but even so it offers a useful way of looking at the issue of knowledge, although it tends to over-simplify Ruskin's relations with materialism. See Bizup, 74-94.

that set them apart from the constrained schematics of earlier volumes. In volume four, Ruskin ranged freely over unplanned discussions of Turner; and studies of mountain form, tracing in excessive, gorgeously extravagant detail, the materials, forms, and characteristics of mountains. Crucially, as we shall see in the following chapter, this depiction of mountains was of their *formation*, and of their dynamic qualities: the apparently eternal forms of mountains were, Ruskin revealed, always changing, indicating the ecological lesson that decay leads to growth. The erosion of mountains meant the formation of new soil, in cycles of denudation and creation more eternal than the mountains themselves. As he would demonstrate in 'The Work of Iron' two years later, the 'growth' of geological features was a pre-requisite of the creation and nurture of organic life.

Fitch argues that the final two volumes of *Modern Painters* returned to the objective laid out in the first volume of determining the relations between real and painted nature. Even so, he suggests, Ruskin refused to be 'imprisoned in an analytic structure or "intrinsic genre" he had conceived in his twenties' and moved 'farther from confident analytic and descriptive discourse' and towards 'symbolic, mythic, or apocalyptic modes of rhetoric appropriate to more urgent truths'.[24] To some extent, Ruskin retained his original intention to end *Modern Painters* with analysis of Ideas of Beauty and Relation, but his conception of these two ideas had utterly changed. Moreover, as Ruskin's remarks in *Modern Painters III* indicated, only the most skeletal remains of the original framework lingered. Ruskin's concept of what an enquiry into beauty involved had changed, and his definition of beauty was also susceptible to the dynamic processes to which he was drawing attention in the natural world.

24. Fitch, p. 326, 327.

VI. Ideas of Beauty

Close inspection reveals that Ruskin's definition of beauty was as 'capable of nourishment' and 'therefore of change' as his thinking about structure and system (7. 9). He departed from an early appeal to a spiritual, non-sensual, but also non-intellectual notion of beauty, in which it denoted 'higher' moral and religious qualities in aesthetic objects. It continued to do so throughout *Modern Painters*, but also came to bear the imprint of the dynamic, creative, and co-operative qualities of nature, and in so doing, became a celebration of physical being.

'Of Ideas of Beauty', one of the opening chapters of *Modern Painters I*, offered his first definition of the term:

> Any material object which can give us pleasure in the simple contemplation of its outward qualities without any definite exertion of the intellect, I call [...] beautiful (3. 109).

The aesthetician, he counselled, should achieve 'constant obedience, so as to derive pleasure always from that which God originally intended should give him pleasure' (3. 109). Sensuality was as dangerous as intellect to the development of sensitivity to beauty. Only faith and humility could serve such a training.

Ruskin's original definition of beauty did not remain uncontested for long. As soon as Volume II appeared, he introduced the terms Typical and Vital Beauty to his aesthetic terminology, complicating his earlier position considerably:

> By the term Beauty, then, are signified two things. First, that external quality of bodies already so often spoke of, and which, whether it occur in a stone, flower, beast, or in man, is absolutely identical , which, as I have already asserted, may be shown to be in some sort typical of the Divine attributes, and which therefore I shall, for distinction's sake, call Typical Beauty (4. 64).

Even in 1846, Ruskin was beginning to think about what drew together 'stone, flower, beast [and] man', but at this stage he emphasised the divine source of their shared beauty, rather than their ecological connectedness. Typical Beauty drew on the typological tradition of Evangelical hermeneutics in reading sacred texts, applying these techniques to the explication of the *Natura Codex*, or book of nature.

Typical Beauty stood as the high water mark of Ruskin's Evangelicalism in *Modern Painters II*, while Vital Beauty revealed his point of departure from it. This second aspect of beauty, which he defined as 'the appearance of felicitous fulfilment of function in living things, more especially of the joyful and right exertion of perfect life in man', was of equal long-term significance in Ruskin's work (4. 64). For it was here that Ruskin turned his gaze to life energy, to the growth and changefulness of nature, and to how the issue of human work would become increasingly inseparable from everything he had to say about art and nature. Although Ruskin repeatedly sought the typological and allegorical truths of nature, he began to do so in ways that indicated his desire to conjoin, rather than separate, humanity and nature. The dividing impulse of Evangelicalism, its desire to hierarchically separate humans from other species, could not serve Ruskin's desire to celebrate the deeper communions of nature in which humanity could participate.

Helsinger has sensitively drawn attention in Ruskin's work of the 1850s and 1860s to a 'central impression of an enormous energy within the landscape'. As beauty became more expressive of intense, organic energy, it did so because it reflected 'an animating spirit, a living force or power felt in all things'.[25] This 'animating spirit' could not be described using metaphor, but through multiple narrative analogies; and it took Ruskin's understanding of beauty far beyond his original bounds. The 'animating spirit' was concerned with more creativities than those of visual art. Ruskin believed every aspect of life was governed by laws of

25. Helsinger, p. 32.

growth and dynamism that could only be described temporally, and therefore any definition of beauty had to communicate the dynamic, formational qualities of nature. The 'living force or power felt in all things' had its source in nature, but Ruskin believed that as natural beings, humans could use this formational force to create beautiful art and harmonious societies. By the 1850s and 1860s, he was more interested in the beauty of the deed than in the beauty of appearances.

VII. Nature politics

One of the reasons that Ruskin's ecological understanding of natural processes proved so powerful after 1846 was that it supported his growing need to address issues of human activity: art, work, architecture, and the building of societies. As Ruskin addressed these creative practices in 'Of Leaf Beauty', he recommended that their practitioners should follow the organic model of tree growth that he was tracing. Because beauty could tell as much of the act as the artefact, 'Of Leaf Beauty' was useful as a guide to the moral judgement of art, but had much more to say about living a righteous and productive life.

Ruskin's social concerns developed over a great many years prior to *Unto This Last*. Although social issues may have gradually become a more pressing issue, there was no sudden shift from art to society. As Sherburne points out, Ruskin's social vocation was 'not unfamiliar' by 1860, because 'throughout the fifties, he prepares for it by digressions in *Modern Painters* and by lectures ostensibly on art but really on social and economic problems'. It was through art and architecture that Ruskin 'introduces many of the basic principles of his social criticism' that would be more openly employed in later polemics.[26] His social concerns were present in his first work, *The Poetry of Architecture*, but he was only

26. Sherburne, p. 69. Nick Shrimpton shares the same view. See Shrimpton, '"Rust and Dust": Ruskin's Pivotal Work', in *New Approaches to Ruskin*, ed. by Robert Hewison (London: Routledge & Kegan Paul, 1981) (pp. 51-67), p. 51.

able to articulate them effectively once they were conjoined to his ecological vision. After winning fame as an art critic in 1843, he began to see this vocation as limiting, and pursued projects beyond art. The architectural works of the period 1848 to 1854 were one manifestation of this, and permitted him to articulate his emerging social thought in a less direct form. Aware of the limitations of a criticism that was too closely bounded to the field of aesthetics alone, Ruskin had always included science, literature, and history within his work in *Modern Painters*. He did so partly because of a natural discursiveness, but also because it placed cultural enquiries within broader social and cultural contexts. To think of art in isolation from the society in which it had come into being was, for Ruskin, perverse. To throw oneself headlong into the purely aesthetic experience of landscape or art in the end led to an inward gaze, and to an egotistical self-reflexiveness that reduced contact between critic and world. In his early development, Ruskin had been happy to gaze on tumbledown cottages, noting their picturesque qualities; and had gloried in sublime scenes precisely because, in transcending the everyday concerns of humanity, they offered an asocial landscape of personal revelation. As Fletcher and Hanley point out, this Romantic engagement with eighteenth century landscape categories ultimately proved unsustainable to Ruskin, as he began to ponder the lives of the inhabitants of ruined cottages; and as he began to wonder how an art critic bathing himself in the glories of sublimity could hope to change the world.[27]

Writing home from Switzerland in 1845, Ruskin was already voicing disenchantment with the Alpine sublime, and showing a desire to turn his gaze to a social landscape: 'I thought the top of St Gothard very dull and stupid', he complained, 'I want to study goitres and drainage'.[28] Within fifteen years, Ruskin

27. Fletcher, pp. 4-8; Hanley, 'In Wordsworth's Shadow: Ruskin and Neo-Romantic Ecologies', pp. 207-23.
28. *Letters from the Continent*, ed. John Hayman (Toronto: Toronto University Press, 1982), p. 192. On this, see Hanley, 'In Wordsworth's Shadow', pp. 223-4.

had not only turned his attention to everyday human problems, but had begun to constitute a wholesale critique of industrial, *laissez-faire* society. While *Unto This Last* put forward this critique directly and forcefully, 'Of Leaf Beauty' rehearsed some of these ideas, and offered a vision of how society might be revitalised and transformed by the examples of nature. The social analogies of 'Of Leaf Beauty' marked the elision of aesthetics, nature, culture, and society within Ruskin's overarching ecological vision.

VIII. Social analogies

The trees of 'Of Leaf Beauty' represented organic creativity, and the tale of their growth suggested that beauty, truth, and success were dependent on co-operation. The extended tale of tree growth was a description of a moral and social journey, a development in time of self and community. It therefore exemplified what Beer describes as an organicist emphasis in nineteenth-century *Bildungsroman* on 'the full entry of individuality into social bonds' and especially its concern to conclude with 'a chastened acceptance of the reduced scale of the individual within society'.[29] 'Of Leaf Beauty' described not just one individual life, but that of a community. The narratives of many leaf developments within the overall growth of the tree acted to extend the human-natural metaphor beyond the relatively simple description of growth, and into an investigation of social change.

There was of course nothing new about using plant life to study human concerns, as Kirchhoff points out:

> It is in confrontation with adversity that vegetable life undergoes a process analogous to human experience, and it is this analogy in turn that justifies the business of the Natural Historian [...] Nature is meaningful not because it leads man to God but because it leads man

29. Beer, p. 110.

to a better understanding of himself.[30]

Although Kirchhoff speaks of *Proserpina*, his words are highly applicable to 'Of Leaf Beauty', for they describe its leading tendency. Ruskin's aim in analysing the 'strange coincidence [...] between trees and communities of men' was to lead humanity to God *and* a better understanding of themselves (7. 41). If there was nothing original about using plant life as an analogy of human existence, there was also nothing to suggest that doing so automatically evoked ecological models of organisation. That Ruskin did do so will be indicated as I describe the specifics of Ruskin's social analogies, both in terms of how they make links between culture and nature, and in the textual organisation of 'Of Leaf Beauty'.

Towards the end of this tree botany, Ruskin paused to make what sounded like a statement of logical intent:

> And now, having ascertained in its main points the system on which the leaf-workers build, let us see, finally, what results in aspect and appeal to human mind, their building must present (7. 85).

Ruskin's words misleadingly suggested that he was following a sequential path of enquiry, from botany to ethics. In reality, the attempt to discern the 'aspect and appeal to the human mind' had been a constant feature of preceding chapters. Ruskin did not turn logically to this subject in the final chapters, but drew out social and economic analogies continuously as he narrated the story of tree growth.

The social and political context of this botany was in fact established in its Biblically-laden first lines:

> "To dress it and to keep it."
> That, then, was to be our work. Alas! what work have we set

30. Kirchhoff, p. 254.

> ourselves upon instead! How have we ravaged the garden instead of kept it – feeding our war-horses with its flowers, and splintering its trees into spear-shafts! (7. 13).[31]

Humankind had forsaken its divinely-appointed task of care, and had begun to destroy the earth for commercial gain: in Ruskin's intimation of crisis, degradation of nature and of humankind were inextricably connected. At this stage, however, he remained hopeful, voicing an optimistic appeal for society to reform itself along lines indicated by nature. Ruskin's opening was no Evangelical *schadenfreude* at the sight of fallen humanity, but an impatient call to action:

> For what can we conceive of that first Eden which we might not yet win back, if we chose? [...] There may, indeed, have been a Fall of Flowers, as a Fall of Man; but assuredly creatures such as we are can now fancy nothing lovelier than roses and lilies, which would grow for us side by side, leaf overlapping leaf, till the Earth was white and red with them, if we cared to have it so (7. 13).

Against the tenets of Evangelicalism, Ruskin contended that something like an Edenic state was achievable. But to return to Eden meant remembering that it was a garden – that the source of divine truth and guidance was natural (or, at least, a combination of divine nature and human nurture). Ruskin's decision to describe tree growth in such detail reflected a desire to seek out the original, organic truths with which humankind had first been provided. When shown the wisdom of trees, each individual faced moral choices played out in social realms. Only by changing individual behaviour to reflect the needs of the community, could the individual be truly whole and the community nurturing. The needs of individual and society need not be in conflict, but reformation of society had to begin with each individual:

31. Biblical references are to *Genesis,* ii. 15, iii. 24.

> So long as we choose to contend rather with our fellows than with our faults, and make battlefield of our meadows instead of pasture – so long, truly [...] the gates of Eden remain barred close enough, till we have sheathed the sharper flame of our own passions, and broken down the closer gates of our own hearts (7. 14).

Ruskin's social revolution, he hoped, would take place within both self and society, guided at all times by the example offered by the harmonious interactions of leaves. Ruskin described the task of growing a tree as one undertaken by the collective effort of individual leaves in the capturing of sunlight, creation of resources, and transport of these to roots and stems. He directed much attention to the work of these individuals, and it is therefore worth considering his treatment of them, before moving on to his depiction of larger social groupings within the community of leaves.

At the most obvious level, the individual leaves are described in terms that emphasise their inherently social faculties. In Chapter II, 'The Leaf Orders', he described broadleaved trees as 'builders with the shield', and conifers as 'builders with the sword', defining the former as essentially nurturing, and the latter as essentially warlike:

> Builders with the sword [...] have sharp leaves in the shape of swords, and the young buds, instead of being as numerous as the leaves, crouching each under a leaf-shadow, are few in number, and grow fearlessly, each in the midst of a sheaf of swords (7. 23).

Ruskin's division mimicked that between sublime and picturesque landscapes. The coniferous dwellers in 'savage places' were antisocial individualists, or devoted only to narrow clan instincts. Broadleaves, on the other hand, lived 'in pleasant places', and were committed to a broader co-operative social model of care:

> Builders with the shield have expanded leaves, more or less resembling shields, partly in shape, but still more in office; for under their lifted shadow the young bud of the next year is kept from harm. These are the gentlest of the builders.

The shield builders were doubly nurturing, protecting their young buds from harm while 'providing food and shelter for man' (7. 23). The conifers that left their young buds to their own devices and provided 'no food, and imperfect shelter' for humans were not to form the main subject of 'Of Leaf Beauty', although Ruskin maintained that they too offered moral and social guidance, and included one brief chapter on the lessons of the 'resolvedly whole, self-contained' pine (7. 103, 101-14). One of the few critics to analyse this division of trees, Fitch recognises that Ruskin's 'scheme of classification is not simply poetical in the fanciful sense' but 'relational and animating yet at the same time ethical and political' because it is used to 'suggest social orders and a moral preference'.[32] The example of broadleaves would prove the most instructive to Victorian society, Ruskin believed.

In chapter III, Ruskin returned to his analogy of leaf nurture, developing, in anthropomorphic terms, the theme of individual growth:

> Every leaf has assuredly an infant bud to take care of, laid tenderly, as in a cradle, just where the leaf-stalk forms a safe niche between it and the main stem. The child-bud is thus fondly guarded all summer; but its protecting leaf dies in the autumn; and then the boy-bud is put out to rough winter-schooling, by which he is prepared for personal entrance into public life in the spring (7. 25).

The schooling undertaken in the one-year *Bildungsroman* of a leaf's life would lead it to take its place within public life, and to adopt its old guardian's role of protecting 'under the shade of its faithful shields the bud that is to bear its hope

32. Fitch, p. 331.

through winter's shieldless sleep' (7. 35). At first sight, such a reading of a leaf's life as a brief recapitulation of that of all other leaves might seem to offer little scope for individual, purposeful creativity, but this would be a misleading analysis of Ruskin's position on individuality and community.

The leaf, he argued, 'accepts its prepared place' in 'tender continuance of voluntary change', a claim that might appear to indicate that the individual leaf was entirely subsumed to the task of tree building, and had little ability to express its own individual agency (7. 49). However, the growth of a tree was described as 'always visibly the result of a volition on the part of the leaf, meeting an external force or fate, to which it is never passively subjected' (7. 49). Each leaf was, therefore, an independent agent, and chose to direct its energies 'in steady inheritance of resolution to reach forward' and to overcome difficulties for the greater social good (7. 86). Their 'life of endurance, effort, and various success' was not one of drudgery, for it resulted from the independent 'will or aim of those sprays'. Each leaf, by its location in a particular part of the tree, faced different challenges in the struggle to find light, and so had to find individual solutions to these problems. Their choices in these matters permitted them to express their own creativity, without becoming engaged in competition with other leaves. Tree builders co-operated despite hardship: 'the leaf, full of fears and affections, shrinks and seeks, as it obeys', while humans were motivated by greed and competition (7. 85). These leaves, active but never competitive, were not automata controlled by a central authority, but part of a joyful collective effort that began with individual will. What they obeyed was not a hierarchical command structure, but laws of ecological survival that demanded co-operative and mutualistic creative practices, something Ruskin argued in chapter IV:

> For the leaves, as we shall see immediately, are the feeders of the plant. Their own orderly habits of succession must not interfere with

> their main business of finding food. Where the sun and air are, the leaf must go, whether it be out of order or not. So, therefore, in any group, the first consideration with the young leaves is much like that of young bees, how to keep out of each other's way, that every one may at once leave its neighbours as much free-air pasture as possible, and obtain a relative freedom for itself (7. 48).

As Ruskin continued the narrative of the negotiations of leaves in their shared task of feeding the plant and finding 'a relative freedom' for the individual, he turned to familial analogies to explain how this was achieved.

IX. Family life

Immediately following on from the passage from chapter IV, Ruskin described small groupings of leaves on particular branches as a family, the co-operative organisation of which he had detailed at length in chapter three. Within the family, individuals learnt social practice, but the family also existed within a community of branches:

> Every branch has others to meet or to cross, sharing with them, in various advantage, what shade, or sun, or rain is to be had. Hence every single leaf-cluster presents the general aspect of a little family, entirely at unity among themselves, but obliged to get their living by various shifts, concessions, and infringements of the family rules, in order not to invade the privileges of other people in their neighbourhood (7. 48).

The clear imperative of natural resource management and processing powered Ruskin's botanical narrative: the leaves and roots were functional, physical matter existing to gather sunlight and water, but the ways in which they achieved this indicated a co-operative model that could be applied to humanity. Compromise, tolerance, and interaction were key features of this model, and markers of its ecological status. Ruskin pointed out that leaves did not aggressively shade out

those below them. On the contrary, each leaf emerged at a point on the stem that permitted maximum light to pass beneath. The alternate, opposite, and spiral patterns of leaf emergence had come into existence in order to maximise sharing of this primary natural resource. Their beauty, Ruskin argued, arose from the success of such co-operative endeavours. In incredible detail, Ruskin's botanical narrative tracked the physical challenges the families of leaves faced as they sought to fulfil their 'felicitous function'. In the attendant social analogies, Ruskin described how human society might be transformed by application of the leafy values of self-sacrifice and co-operation. Like many radical social thinkers of the 1800s, he faced the problem of reconciling individualism and community. He did so by stressing that just as the leaves of a tree were bound inexorably together, so the interdependencies of humans required that they relinquish competitive modes of organisation: 'in the nation you find every one scrambling for his neighbour's place', unable to understand that competition, not collectivity, destroyed individuality (7. 42).

Describing three buds at the tip of a young stem, Ruskin adopted filial language to explain their solution to the problem of survival:

> Now these three buds, though differently placed, have all one mind [...] Every one would like, if he could, to grow upright, and it is because the midmost one has entirely his own way in this matter, that he is largest. He is an elder brother; his birthright is to grow straight towards the sky (7. 74).

The 'elder brother's environmental advantage gave him the best chance of reaching sufficient light for photosynthesis, but did not lead to competition for resources:

> All the three buds [...] have the same desire;– which is [...] to grow as straight as he can towards bright heaven [...] So far as they can, in

> kindness to each other, and by sufferance of external circumstances, work out that destiny, they will (7. 74).

There was self-sacrifice in this communitarian model: 'the two lateral buds do not stoop aside because they like it, but to let their more favoured brother grow in peace', even though it might mean 'trouble and death' (7. 74, 98). However, there was no subjugation to external compulsion. The co-operative families of leaves within tree generated societies that followed communitarian principles, so that 'the beauty of these buildings of the leaves consists, from the first step of it to the last, in its showing their perfect fellowship' uniting them 'under circumstances of various distress, trial, and pleasure (7. 97-8). Ruskin argued that both 'fellowship' and 'individual pleasure' were essential:

> Without the fellowship, no beauty; without the steady purpose, no beauty; without trouble, and death, no beauty; without individual pleasure, freedom, and caprice, so far as may be consistent with the universal good, no beauty (7. 98).

Not every bud could survive, but their absence helped shape the character of a tree, making its growth less symmetrical and more uneven. As he had observed in 'Of Truth of Vegetation', no two trees, two branches, or two leaves were identical. In 'Of Leaf Beauty' Ruskin traced the way in which this 'infinite variety' of forms came into being, and found in the lives of leaves not uniformity, but uniqueness. Ruskin saw no conflict between the personal needs of leaves and the collective need of the tree. In tracing the willing submission of individuals to 'the universal good', Ruskin moved beyond the family and into society as a whole.

X. A household economy

Alongside family analogies, Ruskin introduced the important notion of a household economy into his social narrative. Ecology invoked this idea as part of its own

definition, the term being a synthesis of ethology (study of animal behaviour in its environment) and *oekonomie*, the Greek concept of 'household management' within a closed system.[33] Ruskin produced an analogy of the 'economic' systems of trees in order to criticise modern economics, and described various processes of natural formation to illustrate different modes of economic organisation. The formation of mineral crystals, for example, was analogous to *laissez-faire* economics:

> The mineral crystals group themselves neither in succession, nor in sympathy; but great and small recklessly strive for place, and deface or distort each other as they gather into opponent asperities. The confused crowd fills the rock cavity, hanging together in a glittering, yet sordid heap, in which nearly every crystal, owing to their vain contention, is imperfect or impure (7. 49).

Such wealth as this was rendered 'sordid' and 'impure', not by the nature of its constituents, but by 'the vain contention' of its formation. No guiding social values could emerge from such a competitive process. 'The order of the leaves', on the other hand, was 'one of soft and subdued concession' to a collective will:

> Patiently each awaits its appointed time, accepts its prepared place, yields its required observance. Under overt oppression of external accident, the group yet follows a law laid down in its own heart; and all the members of it, whether in sickness or health, in strength or languor, combine to carry out this first and last heart law (7. 49-50).

So powerful was this communitarian law that it generated an organic economics:

> It is evident that the more leaves the stalk has to sustain, the more strength it requires. It might appear, therefore, not unadvisable that every leaf should, as it grew, pay a small tax to the stalk for its sustenance [...] Which, accordingly, is just what the leaves do. Each,

33. Bramwell offers a useful account of the derivation of the term. See, in particular, pp 14-16.

> from the moment of his complete majority, pays a stated tax to the stalk; that is to say, collects for it a certain quantity of wood (7. 59).

The natural justice of the community, made up households or families of leaves, operated in Ruskin's mind as an idealised society, in which harmonious social relations were dependent upon an unreflexive sense of place, belonging, and duty. The mature tree constructed in this way was akin to a nation:

> A tree is born without a head. It has got to make its own head. It is born like a little family from which a great nation is to spring; and at a certain time under peculiar external circumstances, this nation [...] gives itself a new political constitution, and sends out branch colonies, which enforce forms of law and life entirely different from those of the parent state. That is the history of the state. It is also the history of a tree (7. 73).

A society that builds 'upwards' from its most humble constituents was hardly one made up of rulers and hierarchy. Ruskin's idea of a nation that provided a constitution for itself, rather than having one imposed, was, in some respects, a little anarchistic. Despite the anti-democratic tone of Ruskin's figuration of brothers who seek fellowship rather than equality, the society in Ruskin's tree narrative was built from below, on organic principles, and empowered by its own creative acts of building. Instead of being a passive society, submitting to the exigencies of natural law, this one strived against external imperatives, and in doing so, came to define itself. The only authority in this society was that of their shared 'heart law'.

XI. Living nature

When Ruskin spoke of 'families' of leaves that acted 'in order not to invade the privileges of other people in their neighbourhood' (7. 48), he described the organic modes of social organisation he wished to promote. It is, however, also worth

noticing the linguistic transition in this passage, in which leaves became 'people', because this reveals another persistent feature of Ruskin's ecological thought. Throughout the chapters, trees were always on the verge of attaining sentience, a fact that permits us to see the degree to which an increasingly biocentric reading of nature was disturbing the kind of fixed, hierarchical classifications of nature that had characterised traditional Christian accounts. What emerges from examination of these issues in 'Of Leaf Beauty' is a clearer picture of the degree to which Ruskin was contemplating a radical revision of ideas about the place of humanity within Creation. If all of nature was connected and mutually dependent, how could human life be regarded as either special or separate? Was it possible for Ruskin to make a decisive break from anthropomorphic readings of nature, and what might be the consequences of so doing?

Ruskin's preoccupation with such questions began in the first chapter of 'Of Leaf Beauty', in which he considered what 'man' could learn from the earth:

> In the conditions which we have traced in its rocks, there could only be seen preparation for his existence [...] but vegetation is to it as an imperfect soul, given to meet the soul of man. The earth in its depths must remain dead and cold, incapable except of slow crystalline change; but at its surface, which human beings look upon and deal with, it ministers to them through a veil of strange intermediate being (7. 14).

What this proposed was not so much a hierarchy of nature, but a continuum. The boundaries between rocks and plants, and between plants and humans, had become permeable. The 'imperfect soul' of vegetation seemed to strive for full consciousness as it fulfilled its divine role of mediation. The 'strange intermediate being' emerged as a synthesis of characteristics from the realms of flora and fauna: it 'breathes, but has no voice; moves, but cannot leave its appointed place; passes

through life without consciousness, to death without bitterness; wears the beauty of youth, without its passion; and declines to the weakness of age, without its regret' (7. 14-15). Its striving energies were not marred by the disadvantages of full consciousness, but its intermediate status meant that Ruskin could highlight similarities between plants and humans. In describing vegetation as 'the unsuffering creature', and a tree as 'a marvellous creation; nay, might we not almost say, a marvellous creature', he took them to the brink of full sentient consciousness, but reined back at the last moment (7. 15, 35). By suggesting that this might be possible at all, he toyed with boundaries that traditionally separated humans, animals, plants, and inorganic matter. Ruskin's revealed desire to confer sentient status on trees disturbed the biological hierarchies that sustained Evangelical and Natural Theological accounts of nature – in which humanity remained unthinkingly at the apex of Creation. Instead, his subtle (proposed, but then deferred or cancelled by that 'might we not almost say') repositioning of vegetation implied a wider re-envisioning of the natural world, in which the connections and shared affinities of humans and other organisms were seen to overshadow their differences.

As Ruskin's leaves sought their 'voluntary place' within a wider community, so Ruskin urged readers to reconfigure their place in nature in more holistic and co-operative ways. The ecological implication, partially accepted by Ruskin here and elsewhere, was that humanity was an integral part of organic life, but perhaps neither necessary nor inexpendable. Amongst the many things that *Homo sapiens* shared with trees, flowers, and even rocks, was a creative impulse that manifested in processes of development and change that took place within the wider communion of nature. If one could emulate ecological organisation when creating works of art or harmonious communities, living nature would become an achievable objective.

The social, spiritual, economic, and architectural analogies derived from the central botanical narrative were treated simultaneously rather than sequentially: even

within a single chapter, Ruskin moved easily between botany, and social, moral, and architectural analogies, but in a way that rejected a guiding systematic logic, other than that provided by the model of growth he was tracing in trees. The kinship between various analogies was thereby rendered organic, rather than abstract or synthetic. They did not exist as discrete subjects, to be treated separately and in turn, but as equal manifestations of the same creative principle. Fitch recognised this when he spoke of the 'prophetic solemnity of tone and thematic breadth' of *Modern Painters V*, a work he regarded as a high point in Ruskin's career:

> Ruskin perceives the main message of Turner's symbolism in terms of his own emergent social prophecy; both are universalized in mythic metaphors at three levels: organic form as a mythic paradigm of all vital order; the mythic-historical scheme of the fall and death of landscape painting and its redemption by Turner; Greek nature myths of cloud, storm, and solar light as a continuity of apocalyptic symbolism.[34]

Fitch's concern with myth need not detain us here. However, his understanding – almost in passing – of the way that 'organic form' acted as 'a mythic paradigm of all vital order' speaks not just of 'Of Leaf Beauty', but of many works of this middle period of Ruskin's career, as his synthesis of materialist ecology and a cultural organicism provided a satisfying explanatory model for creativity itself.

The twofold movement of 'Of Truth of Vegetation' articulated Ruskin's desire to map the truths of nature onto the world of art, to classify the natural world systematically, and to use this classification to judge art. The movement in 'Of Leaf Beauty' towards simultaneous rendering of several narratives marked a rejection of his earlier methodology. In place of logical systematics came organic relationships between discourses, and the strong implication that all creative acts followed the

34. Fitch, p. 324, 325-6.

same patterns of growth, and were linked together at a fundamental level. The mutualistic principles illustrated *within* the various narratives of 'Of Leaf Beauty' were reproduced in the relationship *between* them: time and again, Ruskin urged his readers to see that only co-operative creativity, the model provided by ecological organicism, could in the end produce worthwhile products. By examining two key works from the 1850s, it becomes clear that ecological organisation was not confined to Ruskin's botany or to the closing sections of *Modern Painters*, but came in this decade to dominate his outlook, interests, and methods entirely.

2. 'ORGANIC FORM AS A MYTHIC PARADIGM OF ALL VITAL ORDER'

I. 'The Work of Iron' (1858).

This lecture, delivered in Tunbridge Wells in 1858, exemplified Ruskin's passion for geology, and expressed his coherent vision of environment. It demonstrated his comprehension of ecological principles at work in the environment, but the internal organisation of the text also mimicked an ecosystem. Shrimpton argues that as a transitional text of the 1850s, 'The Work of Iron' sought to tentatively articulate social concerns within the medium of a discussion of art and of nature.[35] Primarily interested in the influence of Carlyle and of the tradition of 'Gotzism' on this lecture, Shrimpton is right to suggest that it marks an elision of science, art, and, nature, but passes over the opportunity to examine the ecological context. Few other critics take much notice of this lecture at all.

Ecology operates by analysing often unseen connections between small phenomena (individual species within a habitat, for example) and larger phenomena (the mutual interactions of these various phenomena, and the habitat itself), doing so in order to foreground their mutual interdependence. I would argue that Ruskin followed the same procedure in this lecture. In a town famed for its therapeutic waters, Ruskin took as a framing detail the rusty water basins of the town's wells, and from this localised particularity, he moved outwards, arguing that the wells were enmeshed within a monumentally broad ecological system. Ruskin proposed to 'think a little over the full significance of that saffron stain' on their surfaces, and, from the clues they offered, to outline 'the functions of Iron, in Nature, Art, and Policy' (16. 376). Even more ambitiously, he wished to demonstrate that the town's inhabitants were just as connected to the overarching organic system symbolised by the rusted wells. As the lecture unfolded, it became clear that nothing stood outside or above nature in Ruskin's mind. The first section of the lecture, on iron in nature,

35. Shrimpton, p. 51.

provided Ruskin's most complete statement of ecological principles, and a perfect example of what I would describe as an ecologically ordered text.

The movement from microcosm to macrocosm (from the framing detail of the rusted wells to the 'functions of iron' in nature, culture, and public life) that I have indicated was not just an indicator of Ruskin's bravura lecturing style. It showed his desire to trace complex connections of cause and effect within the environment, and to overturn complacency by asking his audience to glimpse new ways of perceiving nature and their place within it. In speaking of the wells, Ruskin challenged what he described as their perception that 'rusty iron [must be] spoiled iron'. Counter-intuitively, he insisted that 'it is not a fault in the iron, but a virtue, to be so fond of getting rusted, for in that condition it fulfils its most important functions in the universe', so that 'in a certain sense, and almost a literal one, we may say that iron rusted is Living; but when pure or polished, Dead' (16. 376-7). In his description of the oxidisation process, iron actively inhaled air, revealing itself and oxygen as dynamic substances that participated in physical transformations. By respiring and developing, as we do, iron became part of a communion of living and nearly living organisms and substances that interacted at a foundational level.

Iron and other metals only reached their 'most perfect and useful state' when they had 'breath put into them', a physical, but also spiritual, breath of life from which all else began (16. 376, 377). The dynamic changes which the consummation of oxygen and iron was capable of enacting were multiple and wide-ranging, something that Ruskin outlined as he related the various uses made by nature of iron oxide. As he pointed out, 'the main service of this metal, and of all other metals, to us, is not in making knives, and scissors, and pokers, and pans', but instead 'in making the ground we feed from, and nearly all the substances first needful to our existence' (16. 377). The domestic uses of metals fade into insignificance in this re-ordered vision:

> Sand, lime, clay, and the rest of the earths – potash and soda, and the rest of the alkalies – are all of them metals which have undergone this, so to speak, vital change, and have been rendered fit for the service of man by permanent unity with the purest air which he himself breathes (16. 377).

Arable fields, like the mountains described in *Modern Painters IV*, were not timeless landscapes fixed forever in their present forms, but the result of dynamic processes, of that 'vital change' which powered an ecology of connection and interaction. Just as he would do in 'Of Leaf Beauty', Ruskin reduced the distance between 'nature' and 'man' by pointing out that the processes of soil building on which humans relied were dependent on 'the purest air which he himself breathes' (16. 377).

With relish, Ruskin pointed out to his audience that without the soils that were composed in great measure of long-decayed iron oxide and other derivatives of metal decomposition, the rich browns, purples, and russets in landscapes would be replaced by ashen greys; that iron was a key element in the coloration of an enormous range of rocks and gemstones; and that builder's clay brought iron oxide to the red tiles, ochre bricks, and grey and blue slates of British houses. The infinite possibilities of the ecological exchanges between oxygen and iron extended, in Ruskin's analysis, to affect all flora and fauna, and the visual qualities of landscapes, so that the range of materials for domestic, military, artistic, and architectural use that he described in the second and third sections of the lecture appeared insignificant compared to the natural products he described in the first.

So deeply energised was the organic system that Ruskin celebrated that as his description unfolded, even a pebble at the author's feet gained powers of communication. Interrogated by Ruskin, it spoke of its vital connectedness to all other parts of nature:

> I am not earth—I am earth and air in one; part of that blue heaven

> which you love, and long for, is already in me; it is all my life—without it I should be nothing, and able for nothing; I could not minister to you, nor nourish you—I should be a cruel and helpless thing; but, because there is, according to my need and place in creation, a kind of soul in me, I have become capable of good, and helpful in the circles of vitality" (16. 378).

As in 'Of Leaf Beauty', Ruskin's emphasis on the vital animation of all natural things reduced the distance between humanity and the rest of organic creation. The repeated refrain of 'help' and 'helpful' here should also not be ignored, for it connects neatly with the concerns of the section that follows on 'The Law of Help'. In 'The Work of Iron', helpfulness was responsible for the infinite possibilities afforded by the ecological exchange between oxygen and iron, and it would come to represent for Ruskin the ruling idea of his middle period.

The idea that 'pure or polished' iron could only be truly valuable once it had rusted, once it had reawakened its connection with the organic processes from which it had arisen, implied a metaphor for humankind. In this vision of environment, *Homo sapiens* no longer comfortably occupied the centre of a complacent natural cosmology, but had become a component of something far larger, more connected, and more valuable. The homocentricity of a traditional Evangelical worldview was displaced by a generous biocentrism that saw fewer boundaries between human and animal, animate and inanimate. Only by reaffirming its own organicism, and its connection with the wider (and sacred) community of nature, could nineteenth-century *Homo economicus* hope to achieve salvation.

In 'The Work of Iron' Ruskin provided a coherent account of ecological principles at work within a particular organic system focused on iron. As well as exemplifying the principles of connection, mutualism, interaction, and process that lie at the heart of ecological theory, Ruskin warned his audience of the potential dangers of interfering with such systems. Although the tone of the lecture is

predominantly elegiac, as Ruskin lavishly multiplied the phenomena that owed their existence to the action of iron oxide, his words also cogently reflected alarm and anxiety at changes to European landscape. When he challenged his audience with the question, 'how would you like the world, if all your meadows, instead of grass, grew nothing but iron wire', he reflected fear at what he perceived as the desire of industrial technology to control, arrest, harness, or nullify natural forces in the pursuit of artificial commodities (16. 378). It is with this contemporary context in mind that Ruskin provoked his listeners further by asking them if they would be content 'if the whole earth, instead of its green and glowing sphere, rich with forest and flower, showed nothing but the image of the vast furnace of a ghastly engine'. The desire of industry for command of environment was a failure to understand its organic complexities, and if followed that such a desire would render this world, so painstakingly described by Ruskin in all its intricate connections, 'a globe of black, lifeless, excoriated metal' (16. 378). Perhaps implying that this was precisely the world to which Victorian industrialists aspired, Ruskin warned against seeking for synthetic perfection. The passage withdrew from the audience the world as it still existed, in which iron *did* rust, in which change *was* perpetual. It offered a bleak monochromatic dystopia that might follow the breakdown of ecological order. By then 'restoring' the real world to the audience in a moment of epiphany, Ruskin urged them to accept the lessons of iron:

> [The earth *would* be 'lifeless'] were it not that all the substance of which it is made sucks and breathes the brilliancy of the atmosphere; and, as it breathes, softening from its merciless hardness, it falls into fruitful and beneficent dust; gathering itself again into the earths from which we feed, and the stones with which we build; – into the rocks that frame the mountains, and the sands that bind the sea (16. 378).

In moving onto the role of iron in coloration, he followed the same strategy of

comparison, offering the bleakness of a non-ecological world, followed by a 'restored' world of organic order:

> You have just seen your hills covered with snow, and, perhaps, have enjoyed, at first, the contrast of their fair white with the dark blocks of pine woods; but have you ever considered how you would like them always white – not pure white, but dirty white – the white of thaw, with all the chill of snow in it, but none of its brightness? (16. 379).

This, he pointed out, was 'what the colour of the earth would be without its iron, not here and there only, but in all places, and at all times' (16. 379). Asking his audience to 'follow out that idea till you get it in some detail', he then offered a series of contrasts between an ecological world, and a synthetic, inorganic one:

> Think of your winding walks over the common, as warm to the eye as they are dry to the foot, and imagine them all laid down suddenly with gray cinders. Then pass beyond the common into the country, and pause at the first ploughed field that you see sweeping up the hill-sides in the sun, with its deep brown furrows, and wealth of ridges all a-glow [...] like a mantle of russet velvet – fancy it all changed suddenly into grisly furrows in a field of mud. That is what it would be without iron (16. 379).

For Ruskin, the presentation of what I would describe as ecological science was an absolutely necessary, but not a sufficient goal. His aim in 'The Work of Iron' was not merely the description of an organic system at work, and of the principles that underlay the workings of this system. It was also an attempt to define the value of that system, both in its physical ability to sustain life, and in its power to provide social lessons and aesthetic value to humanity. Questions of value were at the heart of the economic work that Ruskin would undertake in *Unto This Last* and other texts

after 1860, but it perhaps arose first in his work on art and nature. The elision of economics and environment in 'The Work of Iron' showed the mutual development of Ruskin's work in political economy and ecology. In speaking of iron as 'the sunshine and light of landscape', Ruskin was not interested either in mere Romantic wordplay, or in scientific debate, but in conjoining nature and culture, and showing their vital connectedness (16. 379).

Therefore, Ruskin joyfully embraced the co-dependence of humanity within 'the circles of vitality' by invoking the religious symbolism of blood: 'is it not strange,' he asked, 'to find this stern and strong metal mingled so delicately in our human life that we cannot even blush without its help?' (16. 384). By drawing attention to the way that iron mingled with every aspect of existence, Ruskin reversed the move from microcosm to macrocosm that opened 'The Work of Iron'. He reconnected the overarching framework (the larger community of existence generated by the creativity of iron) to the small detail (in this case, human beings). This movement operated at a textual level, so that the structural organisation of the lecture reflected the ecological order he described in the natural world. Just as the microcosmic and macrocosmic levels of the natural system centred on iron connected at all moments and in all places, so the text moved between these levels in order to make its points. Two years later, in 'The Law of Help', Ruskin elaborated his view of ecological organisation in a way that made clear that it stood as an explanation for all acts of creative ordering.

II. 'The Law of Help' (1860)

'The Work of Iron' described not only interdependencies within nature, but also between nature, society, and culture. It is fitting, then, that a key emblem of Ruskin's ecological vision was located in one of his most important chapters on art in *Modern Painters V*. 'The Law of Help' dealt with composition, a subject he had

previously regarded as 'too great and wonderful for me to deal with', but which he now deemed 'the most important part of our subject' (7. 204, 203). This shift in emphasis was revealing: what had become 'most important' were fundamental questions about the nature of creative acts, both in art and society. It is no coincidence that before Ruskin launched into 'The Law of Help', he set up the narrative analogies of 'Of Leaf Beauty', which were themselves also analogies of his major law of composition. The textual adjacency of 'The Law of Help' and 'Of Leaf Beauty' reflected their parallel concerns, and revealed the central importance of nature to his overall vision. 'The Law of Help' defined 'composition' in art, whilst the arboreal chapters described how a tree was involved in a perpetual act of physical composition through the harmonious work of generations of leaves. In the same year, Ruskin's political essays in *The Cornhill Magazine* attempted to define the correct composition of a harmonious society. This was a crucial elision that highlighted the connections between art, society, and nature in Ruskin's work, and permits one to recognise that nature provided the model of composition that underpinned his entire epistemology.

In 'The Law of Help', Ruskin sought the rules of composition in painting, and argued that it 'may be [...] defined as the help of everything in the picture by everything else'. If even one element of a worthwhile composition were to be removed, 'all the rest are helpless and valueless' (7. 205). Just as all elements within a given ecosystem were dependent on the functioning totality, so the totality of a painting was dependent upon the mutual interactions of *its* component parts. The refrain of 'help' and 'helpful' by the pebble in 'The Work of Iron' indicated the growing importance of this notion in Ruskin's mind, and in 'The Law of Help', Ruskin cautioned that 'I wish the reader to dwell a little on this word "Help."' for 'it is a grave one' (7. 205). 'Help', the ruling principle of all creative endeavour, was located, firstly but not exclusively, in the organic world.

Sherburne draws attention to 'the organic basis of Ruskin's view of unity' in 'The Law of Help', noting that Ruskin turned to examples from natural, rather than artistic realms, in order to begin his description of composition.[36] The examples Ruskin cited in the first section of the chapter were all drawn from nature. He described the differing degrees to which different parts of nature were able to compose themselves helpfully. Mirroring his remarks on 'sordid' mineral formation in 'Of Leaf Beauty', Ruskin argued that in 'clouds, or stones, their atoms may cohere to each other, or consist with each other, but they do not help each other'. If there is 'removal of one part', this 'does not injure the rest', but 'in a plant, the taking away of any one part does injure the rest', occasionally to the point of death. The co-dependency of the parts of a plant was even more noticeable in animals:

> We may take away the branch of a tree without much harm to it; but not the animal's limb. Thus, intensity of life is also intensity of helpfulness—completeness of depending of each part on all the rest. The ceasing of this help is what we call corruption; and in proportion to the perfectness of the help, is the dreadfulness of the loss. The more intense the life has been, the more terrible is its corruption (7. 205).

Bizup regards the depiction of the body in 'The Law of Help' as a clear marker of Ruskin's organicism and anti-materialism. Quite rightly, he points out the way that the body acts for Ruskin as a prime model for demonstrating the law of interdependence of things, not least because it represents a 'closed' organic system. This is depicted as at odds, Bizup argues, with the 'open', materialistic organisation of those modern technological systems, like railroads, which Ruskin critiques extensively in his work. Whilst organic bodies are contained and mutualistic in their internal organisation, materialistic systems are not contained, but ever-extending,

36. Sherburne, p. 8.

thwarting the laws of interdependence, and acting 'as a destructive metallic simulacrum that constricts and threatens to supplant the organic body of nature'.[37] Bizup's comparison between Ruskin's depictions of bodily form and of railroad technology permits one to perceive the ecological nature of Ruskin's organicism through the stress on interdependence.

Extending his natural analogy of corruption, Ruskin showed the opposite side of the 'Law of Help':

> The decomposition of a crystal is not necessarily impure at all. The fermentation of a wholesome liquid begins to admit the idea slightly; the decay of leaves yet more; of flowers, more; of animals, with greater painfulness and terribleness in exact proportion to their original vitality; and the foulest of all corruption is that of the body of man (7. 205-6).

Life and death, rather than Turner or the old masters, provided examples by which Ruskin described his crucial law of composition. His concern was not with abstract aesthetic concepts, but with the application of 'The Law of Help' to everyday life.

These underlying social concerns came to the forefront of the discussion in a key passage of the chapter, where Ruskin asked readers to understand 'The Law of Help' by observing a mundane feature of urban life, 'an ounce or two of the blackest slime of a beaten footpath on a rainy day, near a large manufacturing town' (7. 207). Examining its component parts – clay, soot, sand, and water – Ruskin described how nature and humanity compared in their ability to compose from them. Humanity had managed to combine the elements in such a way that they were 'at helpless war with each other, and destroy reciprocally each other's nature and power'. This 'absolute type of impurity' brought shame to humanity, and should lead it to consider an organic model of composition. If nature were permitted to 'follow its

37. Bizup, p. 86.

its own instinct of unity', the result would be quite different:

> Let the clay begin. Ridding itself of all foreign substance, it gradually becomes a white earth, already very beautiful; and fit, with help of congealing fire, to be made into finest porcelain [...] Leave it still quiet [...] and it becomes not only white, but clear; not only clear, but hard; not only clear and hard, but so set that it can deal with light in a wonderful way, and gather out of it the loveliest blue rays only, refusing the rest. We call it then a sapphire (7.207).

If the sand were left in peace, it too 'becomes, first, a white earth', and then a 'clear and hard' substance that 'arranges itself in mysterious, infinitely fine, parallel lines, which have the power of reflecting not merely the blue rays, but the blue, green, purple, and red rays in the greatest beauty in which they can be seen through any hard material whatsoever' (7. 208). The result of this slow, dynamic process would be an opal. The soot would be capable of an even more remarkable transformation. Although 'it cannot make itself white at first', it 'tries harder and harder, and comes out clear at last, and the hardest thing in the world'. From its original blackness, it 'obtains in exchange the power of reflecting all the rays of the sun at once in the vividest blaze that any solid thing can shoot', and becomes a diamond (7. 208). The compositional power represented by crystallisation also freezes the water in Ruskin's elegy of natural power. Linking art, politics, and environment, Ruskin reported that 'for the ounce of slime which we had by political economy of competition, we have by political economy of co-operation, a sapphire, an opal, and a diamond, set in the midst of a star of snow' (7. 208). Only once he completed this *tour de force* of descriptive power does Ruskin turn to artistic applications of 'The Law of Help'.

Ruskin taught that this law was not only a feature of paintings, but also a far-reaching principle in nature and society. In what was in itself an ecological

manoeuvre, his insistence that the same metaphor of co-operation held equally good for art, environment, and community implied that they were connected at a deeper level. Ruskin's narrative strategies were often concerned with directing readerly attention to hidden connections between discourses. By demonstrating that an ounce of footpath dirt was linked to the abiding cultural and political questions of his day, Ruskin implied that the remedy for social ills lay in recognising the need for a model of cohesion and mutuality located in nature:

> A pure or holy state of anything, therefore, is that in which all its parts are helpful or consistent. They may or may not be homogeneous. The highest or organic purities are composed of many elements in an entirely helpful state. The highest and first law of the universe – and the other name of life is, therefore, "help." The other name of death is "separation." Government and co-operation are in all things and eternally the laws of life. Anarchy and competition, eternally, and in all things, the laws of death (7. 207).

This critical statement offers a window into the elision of art, environment, and politics in Ruskin's work, and the central place of ecology in shaping his response to these and other issues. In Sherburne's view, this chapter 'places Ruskin in the tradition of Romantic organicism and reveals his application of the organic metaphor to painting', but as I have already noted Sherburne describes Ruskin's organicism as static. The works discussed in this chapter call into question his claim that 'Ruskin's unwillingness to dwell on the dynamic implications of the organic metaphor reveals itself in the content as well as the form of his thinking'.[38] Surely the power of Ruskin's description of crystallisation in 'The Law of Help', of tree growth in 'Of Leaf Beauty', and of the products of oxidisation in 'The Work of Iron' rely entirely on dynamism? These works presented not only a dynamic vision of

38. Sherburne, p. 11.

environment, but one in which the crucial elements of mutuality and interactivity played an equal role alongside dynamic process. Rather than 'portraying the surface of nature', as Sherburne suggests, Ruskin delved deeply into the structures of organic life forms, and their deeper connections to one another.[39] 'The Law of Help' was far more valuable as an explanation of his view of organic order than as an example of his aesthetic theory. What it revealed was not merely a dynamic organicism, but a specifically ecological one.

Ruskin, I would argue, was preoccupied with asking what would become a central question of twentieth century thought on environment. It was a question perhaps most straightforwardly put by Gregory Bateson, in his celebrated, but unorthodox work, *Mind and Nature* (1978): 'what is the pattern which connects all living creatures?'[40] Apart from the obvious links between these two figures in terms of their shared polymathy, and their similar interest in ensuring that science and culture should continue to communicate with one another, Ruskin's ideas chime with Bateson's in a more than superficial manner, as Fuller has argued in some detail.[41] Although Ruskin, unlike Bateson, worked without the benefit of over a hundred years of ecological research, he grasped the fundamental insight that would bring ecology into existence: the idea of a cosmos of dynamism and connection, rather than one of static hierarchies. Bateson noted that *Mind and Nature* was 'built on the opinion that we are parts of a living world' and written in regret for the fact that 'most of us have lost that sense of unity of biosphere and humanity which would bind and reassure us all with an affirmation of beauty', sentiments echoed by

39. *Ibid.*
40. Gregory Bateson, *Mind and Nature: A Necessary Unity* (London: Wildwood House, 1979), p. 8.
41. In speaking of Bateson, Fuller traced modern interest in ecology directly back to Ruskin, one of the only critics to contemplate such a link to twentieth-century ideas. See Fuller, pp. 12-14.

Fuller.[42]

The idea that unity between culture and nature was absolutely necessary was central to Ruskin, and it is pleasing that he so neatly anticipated Bateson's view that this unity was also, necessarily, the source of beauty. Ruskin would probably have agreed with Bateson's elaboration of his view of organic connections: 'the *pattern which connects is a metapattern*. It is a pattern of patterns. It is that metapattern which defines the vast generalization that, indeed, *it is patterns which connect'*.[43] It was precisely this 'metapattern' to which Ruskin drew attention so coherently in 'The Work of Iron' and 'The Law of Help'.

Making a comparison between a Victorian and a late-twentieth century writer on nature, science, and culture is not to suggest that their views were in all points conterminous. Rather, it indicates my argument that Ruskin belongs at the beginning of the history of modern ecology, even more than he belongs in the final chapters of the story of Christian science, a contention I will continue to make in the more scientific context of the following two chapters. These chapters will be concerned with ecological science, while this chapter has sought to demonstrate that the impact of ecology was felt also in Ruskin's work at the levels of textual structure, organisation, and epistemology. As it emerged in the second half of the nineteenth century as a named science, ecology began to describe nature as a functioning multiplicity of components linked by an endless proliferation of connections, and bound together by their connectedness into a greater organic unity. In field studies, it sought the interactions between different organisms, and between organisms and their surroundings, and established as its key truth that nature was

42. Bateson, p. 17. Fuller supported Bateson's view that a loss of a sense of unity with the biosphere has degraded human ability to contemplate the beauty of the world, arguing that 'our response to nature is depleted and distorted when it is detached from aesthetic consideration' (Fuller, pp. 12-13).

43. Bateson, p. 11.

dynamic. Ruskin's 'highest and first law of the universe' in 'The Law of Help' expressed his comprehension of this model of ecological order and organisation in which heterogeneous parts achieved functional reality only by co-operation. This ecological model acted not only as a scientific system, but as a metaphor for any organic construction of systems, whether natural or human. The dynamism of ecology involved it in narrative, so that it acted as an analogy of any creative act.

Ruskin was incapable of dealing with knowledge in a compartmentalised manner. His more habitual practice was to construct inter-subjective and multivalent discourses made up of parts which 'may or may not be homogeneous', but which always attempted to be 'helpful or consistent'. Ruskin's preoccupation with connection, relation, and process echoed the aim of ecology to perceive and describe the connections between the elements of nature. Art and politics might have seemed to be Ruskin's most obvious concerns in 1860, the year of *Modern Painters V* and *Unto This Last*, but the manner in which he dealt with them showed that each was in some way grounded in studies of nature. That in doing so he constantly focused upon their connections was in itself an ecological manoeuvre. By drawing attention to the ways in which society, art, culture, politics, and nature were bound together, Ruskin constructed a textual world in which it was capable for all opinions to be 'living' and 'capable of change'. The process of connection, and the fact that this process was ongoing and never-ending, was more important than any specific subject matter. For Ruskin, as for Bateson, everything connected.

CHAPTER 2, 'THE LAWS OF ORGANIC ECONOMY': RUSKIN'S CULTURAL SCIENCE[1]

The previous chapter sought to locate the presence of ecology as a guiding element within Ruskin's creative practices and ways of thinking about creativity. This chapter will examine his involvement in the rise of a materialist scientific approach that produced disciplines like Uniformitarianism, evolutionary theory, and ecology. It might be thought that because he was a Christian, and a critic of Darwin, Ruskin had always been opposed to materialism. I would argue this reading is reductive, conflating his earlier and later responses to science in ways that fail to do justice to his complex development. Ruskin's work before 1870 was far more indebted to materialistic methods, and open to its discoveries, than is often acknowledged.

Despite recent insightful work, the view of critics of the 1950s and 1960s still resonates in some recent responses to Ruskin's science. Rosenberg's claim that Ruskin 'attacked the contribution of contemporaries, never quite realizing that his own was not science but play' might now be deemed too dismissive, but articulates an attitude that has not entirely disappeared.[2] Rosenberg implied that as an art critic, Ruskin was unable to grasp the details of professional science, and that his transgressions of the boundaries between science and art became unproductive. Even though the intersection of art and science in Ruskin's work has become a critical preoccupation of late, few have seriously sought to correct Rosenberg's contention that Ruskin was little more than a gifted dabbler in science. Up until the 1970s, the prevailing view amongst critics of Ruskin's science was that he was a gentleman amateur, an inveterate collector who – despite obvious feeling for landscape, and talent for the illustration and observation of nature – was not attuned

1. The title quotation is from Baron Georges Cuvier, *Discourse On The Revolutionary Upheavals On The Surface Of The Globe And On The Changes Which They Have Produced In The Animal Kingdom* (Paris, 1825), pp. 98-99.
2. Rosenberg, p. 180.

to the advancing scientific vision embodied by Darwin.[3]

In the past two decades, this impression has not been sufficiently challenged. Terry Gifford acknowledges Ruskin 'as a contributor to the foundation of ecological thinking', but his description of him as 'a minor link in the tradition linking Wordsworth and Morris' hardly leads one to imagine someone able to absorb the new theories of Victorian science.[4] Bramwell argues that 'Ruskin was too unscientific, too religiously moral in his political prescriptions to qualify as an ecologist', although she concedes that 'his influence on the political ideals of British ecologism can scarcely be overestimated'. For Bramwell, Ruskin's impact was on social, not scientific, aspects of ecologism. Hanley argues that 'Ruskin is distinctly not an ecologist, if that is taken to mean someone for whom human culture is secondary to the dictates of purely physical laws', but his definition is rather reductive: ecology is not purely concerned with physical laws, but, as Bramwell points out, is also about the management of natural systems and human need. Hanley is correct if he means to say that Ruskin never achieved a completely biocentric view, but this does not necessarily mean he was not significantly immersed in ecological discourse.[5]

In the continuing conviction that Ruskin was not particularly competent at science, there appears also to be a residual manifestation of a Victorian belief that his talents in what were perceived as archetypically 'female' areas of nature study (collection, illustration, description, and popularisation) could not equip him for the 'manly' world of vigorous, logical science; just as his training in what was commonly perceived as the 'feminine' field of art criticism made him ineligible,

3. A view summed up by Bloom, who spoke of his 'passion for close observation of nature, for the study of geology and botany, and for incessant sketching and versifying' (Bloom, p. xii).
4. Terry Gifford, 'Conclusion', in Wheeler (ed.) (pp. 187-94), p. 189.
5. Bramwell, p. 96; Hanley, 'The discourse of natural beauty', p. 18.

according to some, to speak of the 'masculine' sphere of politics.[6] Postponing to the next chapter the fruitful debate that can be had on the gender implications of Ruskin's botany, I wish to pursue the core contention that Ruskin was much more aware of scientific debates and methods than such characterisations suggest.

Since the 1970s, some critics have productively challenged the picture of Ruskin created by Rosenberg, Clark, Bell, and Evans. Kirchhoff argues that Ruskin was not ignorant in his later critiques of science, but consciously anti-materialist:

> In their defiance of conventional standards of scientific enquiry, his geology, botany, and ornithology have appeared perversely 'unscientific' to most readers – much as the political economy of *Unto This Last* appeared 'unbusinesslike' to the average Victorian businessman.

Kirchhoff insists that because 'the end of Ruskin's science' was 'neither man's intellectual dominance over the natural world nor his own submission to the dominance of natural law', *Proserpina* was a deliberate 'science against sciences'.[7] Ruskin's defiance arose, not because he did not understand science, but because he believed that materialists had gone too far in excluding human sensibility from their work. Birch also argues that Ruskin's apparent petulance in that work was born of a need to counter the tendency of materialism to erase human values from science:

6. *Saturday Review* articles about the *Cornhill Magazine* essays that would form *Unto This Last* in 1862 proclaimed that 'the world is not going to be preached to death by a mad governess'. See *Saturday Review* editions of August 4th (p. xvii) and November 10th, 1860 (p. xxviii). Dinah Birch, in 'Ruskin's "Womanly Mind"', *Essays in Criticism* 38 (4), October 1988, 308 – 324, and Francis O'Gorman, in chapter 6 of *Late Ruskin: New Contexts* (Aldershot: Ashgate Publishing, 1998), discuss this in detail. Barbara Gates shows that whilst many women were excluded by elite scientific societies, the three fields in which women often excelled – close observation, collection, and illustration – were devalued by men (Barbara T. Gates, *Kindred Nature: Victorian and Edwardian Women Embrace The Living World* (Chicago & London: Chicago University Press, 1998), pp. 61-82).
7. Kirchhoff, pp. 246-7.

> Ruskin [...] hoped to instil the scientific study of the world with a sense of the imaginative truths embodied in its culture. Only the imagination could distinguish between good and evil, health and disease, jealousy and love. Such distinctions were the foundation of art and mythology. It therefore seemed to Ruskin in no sense eccentric to urge that they should also become the basis of science.[8]

Kirchhoff and Birch offer an invaluable corrective to the dismissiveness of an earlier period, and argue that Ruskin was more scientifically knowledgeable than later works like *Proserpina* immediately suggest. Kirchhoff suggests that Ruskin 'removes any pretense [sic] of a significant distinction between scientific and aesthetic perception', while Birch argues that *Proserpina* had 'more to do with the principles of a moral vision than with the practices of observational science'.[9] Both show that Ruskin's later position was one in which he resisted the severance of science and art. Both imply – but do not have space to trace out – a distinction between his early and late science that I would like to draw out in more detail. Birch and Kirchhoff correctly argue that Ruskin's science changed radically after 1870 because of Darwin, but neither explore his earlier scientific work in depth. I would like to contest the hanging implication in much of Ruskin Studies – but not in the work of Birch and Kirchhoff – that Ruskin's conservative anti-materialism after 1870 had always been a characteristic of his work. Prior to this, Ruskin had been much more committed to materialist scientific investigation. He never moved wholeheartedly into a materialist position, nor entirely rejected Christian anthropocentric, science. Nonetheless, he was involved in modern, dynamic conceptualisations of the natural world to a degree that has so far been seriously underestimated. In the end, Ruskin's experience of science, with all its unresolved conflicts between old and new visions of nature, was an analogue of that of much of

8. Birch, 'Ruskin and the Science of *Proserpina*', p. 153.
9. Kirchhoff, p. 250; Birch, 'Ruskin and the Science of Proserpina', p. 143.

Victorian society as a whole.

I would therefore like to interrogate, and to reject, the idea that in his early work, Ruskin unambiguously endorsed an Evangelical view of nature, or that of the Christian sciences of Natural Theology and Catastrophism. Instead, I will propose that his early belief in the possibility of a synthesis of science and human culture permitted him to participate in a developing materialism in ways that made him sceptical of many Christian claims about science and nature. I will look at Ruskin's often sympathetic reception of figures in science like Charles Lyell and Baron Georges Cuvier who were important in the development of a dynamic view of the natural world that would in time support the emergence of evolutionary theory. I will test the claims that Ruskin was an Evangelical or a Natural Theologian in his attitude to nature, by examining his approach in *Modern Painters*. Ruskin's support of the Biblical 'higher criticism' of the 1860s, which critiqued the literality of scripture, will also be an important issue. Finally, I will look at what Ruskin meant by a balance between science and culture, or science and art, and how this fed into his ecological account of nature. In suggesting that by 1860 Ruskin had moved closer to a Darwinian worldview than he would, after 1870, have been prepared to admit, I will set up the enquiry of the following chapter into some of the broader implications of Darwinism on Ruskin's ecological science.

I. Geology

> In the main aim and principle of the book, there is no variation, from its first syllable to its last. It declares the perfectness and eternal beauty of the work of God; and tests all work of man by concurrence with, or subjection to that (7. 9).

Statements like this, from the preface to the fifth volume of *Modern Painters*, have provided critics with apparently incontrovertible evidence of the emphatic religiosity

of Ruskin's studies of nature. What Ruskin's remark obscured, however, was the complexity and contentiousness of the elision of science and religion in his work. By taking such statements at face value, it is easy to be persuaded by the view that Ruskin's religion was seamlessly reflected in his science. At the beginning of 'Of Leaf Beauty', Ruskin voiced a desire that his readers should cherish a natural world 'wonderful in universal adaptation to [their] need, desire, and discipline'. An environment 'thus prepared for us in all ways, and made beautiful, and good for food, and for building, and for instruments of our hands' was offered as evidence of God's desire to provide humanity with sustenance and wisdom (7. 16). This appeared to sustain readings which argue for Ruskin's allegiance to Natural Theology, which since the seventeenth century had sought evidence of God's design in the natural world. Was this Ruskin's position, though, or did his engagements with science often lead him away from traditional religious positions, whether Natural Theological or Evangelical?

Given the focus throughout *Modern Painters* on the divinity of landscape, the religious foundations of Ruskin's science cannot be denied. His experience of early Victorian science seems at first to tell the same story. As an undergraduate at Oxford, and during his membership of the Geological Society during the 1830s and 1840s he associated with the Reverend Buckland, Adam Sedgwick, and other leading Victorian scientists. Such men, it might seem, surely influenced Ruskin to champion the view that nature was a divine cosmos designed specifically for human benefit. Hewison argues that at Christ Church 'it was natural that his geological studies should be guided by Buckland', whilst Michael W. Brooks describes Buckland as Ruskin's 'mentor'. Similarly, Wheeler notes that 'in the 1830s Ruskin's scientific studies had been carried out in the spirit of the Bridgewater Treatises, and under the tutelage of the Revd Dr Buckland', although he is more sensitive than Hewison or Brooks to changes in Ruskin's position

thereafter.[10] There is, however, no hard logic for taking this personal association as indicative of shared practice, and detailed evidence for this claim is never offered. I would argue that one of the best ways to appreciate that Ruskin in fact moved significantly away from Buckland after 1840 is to look at his geological studies.

Most members of the Geological Society in the 1830s were, like Buckland, Natural Theologians, but also supporters of Catastrophism, which argued that the earth had been divinely created six thousand years previously, and that in its short life it had suffered volcanic and seismic activity sufficiently intense to produce the strata of the entire geological record. However, they faced opposition from Uniformitarianists, led by Lyell, who argued that 'as a general rule [...] the kinds of forces acting in the world at the moment were the same kinds of causes that had always existed'.[11] Lyell deduced that the earth was far older and had suffered only intermittent episodes of violent geological activity during a history of slow accumulation of strata by processes of formation and erosion.

According to Roy Porter, eighteenth century clergymen had seen little conflict between faith and the pursuit of Natural History, but by the 1800s, 'churchmen began the trek away from a rationalizing, naturalizing theory' – the Natural Theological pursuit of 'the evidences of Christianity' – and were returning 'to a religion of unrepentant mystery' and 'theological obscurantism'.[12]

10. Hewison, *The Argument of the Eye*, p. 22; Michael W. Brook, *John Ruskin and Victorian Architecture* (London: Thames and Hudson, 1989), p. 13; Wheeler, *Ruskin's God*, p. 182. Patrick Conner provides a challenge to the orthodoxy of Hewison, Brook, and Wheeler on this subject. See Conner, *Savage Ruskin* (London: Macmillan, 1979), pp. 17-20.
11. Geoff Bowker, 'In Defence of Geology: The Origins of Lyell's Uniformitarianism', in *A History of Scientific Thought*, ed. by Michel Serres (Oxford, and Cambridge, Mass.: Blackwell, 1995), p. 484. Lynn Barber notes that the first recognisably Uniformitarianist theory was offered in James Hutton's work, *Theory of the Earth* (London, 1788). See Barber, *The Heyday of Natural History 1820-1870* (London: Cape, 1980), p. 223.
12. Roy Porter, 'Creation and Credence: The Career of Theories of the Earth in Britain, 1660-1820', in *Natural Order: Historical Studies of Scientific Culture*, ed. by Barry Barnes and Steven Shapin (Beverly Hills & London: Sage Publications, 1979) (pp. 97-124), p. 115.

There is a mixture of truth and over-generalization here: Roman Catholics, Calvinists, and Evangelicals certainly mistrusted Natural Theology, but during the first four decades of the nineteenth century, Anglicans like Buckland remained confident that it was possible to accommodate science and religion. Evangelicals preferred 'unrepentant mystery' to science, but Ruskin – brought up in their number – did not seem to share this outlook, as I shall demonstrate subsequently. Nor did he follow Buckland's Catastrophism very closely, even though he persistently called for an alliance between science and religion prior to 1860. Why, then, did Ruskin respond to Lyell, who, Bowker argued, 'saw his foundation work as taking the history of the Earth out of the hands of religious fundamentalists', rather than Buckland, who sought to reconcile faith and natural philosophy?[13]

One of the most well known of Ruskin's letters, to Henry Acland in 1851, included an oft-quoted passage:

> If only the Geologists would let me alone, I could do very well, but those dreadful Hammers! I hear the clink of them at the end of every cadence of the Bible verses.

Ruskin admitted to Acland, who was suffering his own religious crisis, that 'the old Evangelical formulæ' of his former faith was 'being beaten into mere gold leaf, and flutters in weak rags from the letter of its old forms' (36. 115). Unlike other Evangelicals Ruskin was unable to ignore the implications of modern, materialist science. His doubts surfaced long before 1851, and Lyell's theory was one of their principal causes. In a letter of 1843, Ruskin supported 'geological evidence of death extending for an infinite series of ages before man' in ways that suggest major doubts about the Mosaic timescale proposed by Buckland:

13. Bowker, p. 483.

> Lyell has discovered the bones of the mastodon, the most recent of all fossils, in a bed *cut through* by the ancient course of the Niagara, three hundred feet above its present bed, and three miles and a half below the falls; in cutting back from this point, the river by the very lowest calculation must have been occupied 15, 000 years (1. 478).[14]

Ruskin's acceptance of this dating could not be reconciled to scripture. More traditional Catastrophists (and Evangelicals) were still broadly in accord with Bishop James Ussher, who in the seventeenth century had used the Bible to prove that the earth had been created on Sunday 23 October 4004 BC.[15] Others sought to lengthen this span somewhat by re-interpreting scripture. None, however, could contemplate a Uniformitarian timescale. Lyell's researches produced a far longer estimate of earth history that would provide Darwin with evidence that there was sufficient time for evolutionary processes to have occurred.

During the 1830s and 1840s, in the fierce debate within geology (that anticipated the evolutionary debate of the 1860s), Lyell was, according to Bowker, 'seen as something of an extremist by his colleagues and by the generation that followed'.[16] Ruskin's endorsement of Lyell was significant because it indicated a deliberate decision to step outside scriptural orthodoxy. As Cook and Wedderburn argue, Ruskin defined himself as a Lyell scholar in order to distance himself from 'Neptunists' and 'Vulcanists' (sub-groups of Catastrophism) (26. 117n). In reading Lyell, Ruskin encountered many passages that openly challenged an orthodoxy

14. See Sir Charles Lyell, *Principles of Geology: being an attempt to explain the former changes of the Earth's surface, by reference to causes now in action* (1830-33), ed. by James A. Secord (Harmondsworth: Penguin, 1997), Vol. I, ch. xiv.
15. Bishop James Ussher, *The Annals of the Old Testament* (1650, originally published in Latin as *Annales veteris Testamenti, a Prima Mundi Origine deducti, una cum Rerum Asiaticarum Aegypticarum Chronico, a temporis historici principio usque ad Maccabaicorum initia producto*). See vols 8-11 of *The Whole Works of the Most Rev. James Ussher*, ed. by C. R. Elrington and J. H. Todd, 17 vols. (Dublin: Hodges and Smith, 1847-1864).
16. Bowker, p. 484.

founded on scriptural sources. Lyell launched polemics against his opponents in *The Principles of Geology*, often concerning the key question of time:

> Even when [Catastrophists] conceded that the earth had been peopled with animate beings at an earlier period than was at first supposed, they had no conception that the quantity of time bore so great a proportion to the historical era as is now generally conceded. How fatal every error as to the quantity of time must prove to the introduction of rational views concerning the state of things in former ages.[17]

Lyell's description of the views of his opponents in the past tense was inflammatory. In his 1843 letter, Ruskin clearly allied himself with those who wished to 'pay any regard whatsoever to modern science', joining Lyell in calling for 'the introduction of rational views' (1. 478). On the other hand, Ruskin cited Buckland only sketchily, and more rarely with much enthusiasm, a curious enough fact if one accepts Hewison's argument that 'as a young man, Ruskin accepted such explanations' as were offered by Buckland in his contributions to that late manifestation of Natural Theological doctrine, the *Bridgewater Treatises*.[18] Parts of *Modern Painters* sometimes seem broadly supportive of Catastrophism, but the evidence is hardly emphatic, and often points in the opposite direction.

In the first and fourth volumes of *Modern Painters*, Ruskin either ignored or sidestepped the key Catastrophist issues raised by Buckland in the *Bridgewater Treatises*. In response to the geological evidence being put forward by Lyell and others, Buckland argued that the 'days' of the Genesis account of Creation denoted

17. Lyell, p. 29.
18. Hewison, p. 22; Buckland, Treatise VI, 'Treatise on Geology & Mineralogy in Relation to Natural Theology' (1837), 2 vols., in *The Bridgewater Treatises on the power, wisdom and goodness of God as manifested in the Creation,* ed. by William Kirkby (London: William Pickering, 1833-40).

much larger periods of time; and that the 'in the beginning' of Genesis referred to a vast, unspecified period of time. Similarly, the Scottish geologist, Hugh Miller, argued that the 'six days' were the six great geological eras, and that human creation, rather than the creation of the earth, took place 6000 years ago.[19] It was this sort of reasoning that formed the target of some of the 'Higher Criticism' of the 1860s. Charles Goodwin, for example, attacked Buckland and Miller in his contribution to *Essays and Reviews* (1860), pointing out the inconsistencies of their arguments and suggesting that 'if the value of the Bible as a book of religious instruction is to be maintained, it must not be by striving to prove it scientifically exact, at the expense of every sound principle of interpretation, and in defiance of common sense'.[20] The immense controversy caused by 'higher critics' like Goodwin arose because they claimed the Bible was not a literal document, but a moral guide to be interpreted by individuals. Although Ruskin did not mention Goodwin, he became a supporter of other 'higher critics'. As I will show later, in

19. Genesis, I. i; Hugh Miller, *The Testimony of the Rocks, or Geology in its Bearing on the Two Theologies, Natural & Revealed* (Edinburgh: Thomas Constable & Co., 1857). Such attempts to 'patch up' discrepancies of the Bible were not new. As a means of dealing with the troubling geological discoveries, Cuvier argued that the Earth had undergone a series of catastrophes which had caused complete extinctions, followed by a new act of Creation, and that previous Creations had not been revealed to Moses because they were of no concern to humans. See Cuvier, *Recherches sur les ossemens fossiles de quadrupèdes, où l'on rétablit les caractères de plusieurs espèces d'animaux que les révolutions du globe paraissent avoir détruites. Tome Premier, contenant le Discours préliminaire et la géographie minéralogique des environs de Paris* (Paris: Déterville, 1812).
20. Charles Goodwin, 'On the Mosaic Cosmogeny' in *Essays and Reviews* (London: John W. Parker, 1860) (pp. 207-53). The quotation is from the reprinted edition of Goodwin's essay included in *Science and Religion in the Nineteenth Century*, ed. by Tess Cosslett (Cambridge: Cambridge University Press, 1984), pp. 114-5. The inflexibility of scripture had long proved a stumbling block even for the most devout of natural historians. Linnaeus, for example, was recorded to have said, 'I should like to believe that the earth is even older than the Chinese believe it to be, but the Scriptures do not allow this' (quoted in Blunt, Wilfrid, *The Compleat Naturalist: A Life of Linnaeus*, with assistance of William T. Stearn (London: Collins, 1971), p. 179. The pressure to ignore what scripture 'allowed' had by the time of *Essays and Reviews* become much less restrictive.

the 1860s he supported Bishop Colenso who claimed, amidst much acrimony, that the Pentateuch was not to be read literally.[21] If Ruskin was an adherent of Buckland, is it not strange that he sided unambiguously with the higher critics during the 1860s? One might argue that Ruskin's position changed, but this does not accord with the facts. As his remarks on Lyell and geology in the 1843 and 1851 correspondence demonstrated, his doubts pre-dated the public controversies of the 1860s. More straightforward analysis of his public work on geological issues in the 1850s also revealed that he was not an enthusiastic supporter of Buckland.

In the fourth volume of *Modern Painters*, he sidestepped Buckland's theories when he stated, 'what space of time was in reality occupied by the "day" of Genesis, is not, at present, of any importance for us to consider' (6. 116). Although his phrasing remained non-committal, the fact that he did not lend support to Buckland suggested that he was not particularly impressed by his approach. In such moments of indifference towards Buckland's geology and the literalist tenets of Evangelicalism, Ruskin proclaimed independence from the narrowness of their respective visions, and announced his adherence to a view of nature based partly on a personal, but not doctrinal, religion, and partly on materialist science. The geology of *Modern Painters* steered clear of contentious issues of science and religion, but offered a dynamic vision of geological forces closer to both ecology and Uniformitarianism than Catastrophism, but which cannot be read as an absolute rejection of the latter. For Catastrophists, the major formational work had been completed early in the earth's short, turbulent career, and had given way to a phase of slow erosion. Lyell, on the other hand, argued that erosion and formation had always worked hand-in-hand, and continued to do so. Catastrophists imagined that after an initial period of God-given vitality had rapidly created the conditions in

21. Bishop John William Colenso, *The Pentateuch and the Book of Joshua Critically Examined* (London: Longman, Green, Longman, Roberts, and Green, 1862).

which human life could be introduced to a stable earth, whose geological energy was diminishing. Lyell argued that whilst at any moment there may in certain regions have been periods of intense orogeny or seismic activity, the globe as a whole remained in a state of equilibrium, a fact that remained true even in modern times – as demonstrated by the formation of Hawaii, the raising of the Himalayas, or the active Atlantic ridge. Lyell was sceptical about dating the origins of the earth through geological research, because endless patterns of formation and erosion had transformed or erased the traces of the original rocks.[22]

In this context, Ruskin's geology courted both Lyell and Buckland, but in a manner that promoted an ecological understanding of the earth: he concentrated on the erosive phases of present geology, but in ways that conceived the earth as continuously energetic. On the whole, his work in *Modern Painters*, and in the fourth volume in particular, showed geological forces still active within a changing landscape. He argued that the three 'great offices' of mountains were 'to give motion to water', 'to give motion to air', and 'to give change to the ground' (6. 120-1, 124, 125). In doing so, he stressed the dynamism of natural systems. The erosive power of water and wind lay in their ability to deposit rich materials onto the plains:

> The higher mountains suffer their summits to be broken into fragments and to be cast down in sheets of massy rock, full [...] of every substance necessary for the nourishment of plants (6. 125)

As in 'The Work of Iron' two years later, Ruskin sought the interdependencies of nature, and the dynamic changes that powered the everyday workings of nature:

> These fallen fragments are again broken by frost, and ground by torrents, into various conditions of sand and clay – materials which are distributed perpetually by the streams farther and farther from the

22. Bowker, p. 486.

> mountain's base [...] That turbid foaming of the angry water, – that tearing down of bank and rock along the flanks of its fury, – are no disturbances of the kind course of nature; they are beneficent operations of laws necessary to the existence of man (6. 125-6)

The note of Natural Theological orthodoxy in the references to 'a beneficent operation of laws' was a fairly consistent feature of the geological chapters of *Modern Painters IV*. However, the picture of nature that emerged from these studies was one of ecologically co-operative, vitalistic forces. Moreover, Ruskin nowhere stated that formation was not taking place within the mountains, and nor did he attack any key tenets of Uniformitarianism.

Ruskin was silent on Lyell until he wrote *Deucalion*, his major geological work, in 1875. Even though this was written during his anti-materialist period, Ruskin referred to himself as 'his scholar', and cited Lyell throughout, although a rather confusing picture of his attitude to Uniformitarianism emerged in this text. In the *London Review* report of Ruskin's 1863 lecture on the Savoy Alps, reprinted in *Deucalion*, he suggested that the initial raising of the Alps had been a slow and gradual process: '"Sir Charles Lyell" [...] will allow us to do that to any extent, if we only "take our time"' (26. 12-13). Ruskin referred to the fifth chapter of the first volume of Lyell's *Principles of Geology*. The reference to 'taking time' showed his adherence to key Uniformitarian tenets had not been relinquished. Likewise, in a description of the growth of Alps, in which he described a long history ending with 'the rain, torrent, and glacier of human days', he dwelt on a lengthy geological timescale: 'slowly, almost with infinite slowness - the declining and encumbering action takes place' (26. 112). In their footnote to this passage, Cook and Wedderburn related that 'Ruskin in his copy notes here "compare Lyell on the slow raising of coal-mine floor": see ch. xxiv of his *Elements of Geology*', which made the Uniformitarianism of these remarks clear (26. 112n). Ruskin appeared to be

endorsing Lyell's belief in slow change, but a little later in *Deucalion*, he complicated his response, in ways that suggest that he was attempting to build bridges back to traditionalist geology.

A few pages later, Ruskin argued that Lyell's 'great theorem of the constancy and power of existing phenomena' was 'only in measure proved - and in a larger measure disputable; and in the broadest bearings of it entirely false' (26. 117). He produced his own explanation of earth history which was a curious, and perhaps unworkable hybrid of Catastrophism and Uniformitarianism:

> Pardon me if I spend no time in qualifications, references, or apologies, but state clearly to you what Sir Charles Lyell's work itself enables us now to perceive of the truth. There are, broadly, three great demonstrable periods of the Earth's history. That in which it was crystallized; that in which it was sculptured; and that in which it is now being unsculptured, or deformed (26. 117).

Ruskin argued that the earth had experienced a period of formation, but was now in a period of denudation, a theory which represented a partial return to Catastrophism. At the same time, Ruskin's continuing reliance on evidence from Lyell made clear that he had not abandoned the lengthier timescale of Uniformitarianism. How is one to deal with passages like these, in which Ruskin appeared to wish to place himself in two conflicting camps at once?

In answer to this, I would say that Ruskin's response to Lyell in *Deucalion* was a prime example of what I hope to highlight in the following chapter: moments at which Ruskin's more materialist, more open-minded scientific position altered during the 1870s because of the impact of Darwinism. After 1859, the reliance of Darwinism on Uniformitarian evidence led Ruskin to distance himself somewhat from Lyell, and to promote a rather awkward intermediate position between Uniformitarian and Catastrophist geology. The contagion of scientific relation

became an issue during the 1870s: as Ruskin began to see inter-relations between Darwinism and materialist sciences like Uniformitarianism, ecology, and anatomy, he became wary of them all.

It is difficult to underestimate the impact of Charles Lyell on the materialisation of Victorian science and culture, but this was perhaps exactly what Ruskin did prior to 1860. As Gillian Beer argues, 'new organisations of knowledge are particularly vexatious when they shift man from the centre of meaning or set him in a universe not designed to serve his needs'. Lyell's work, which proposed a vastly increased conception of the age of the earth, and relegated the emergence of *Homo sapiens* to relatively recent history, had exactly this kind of disturbing impact. Uniformitarian geology exemplified Beer's description of evolutionary theory as a conceptualisation that 'suggested that man was not fully equipped to understand the history of life on earth and that he might not be central to that history'.[23] Lyell dwarfed the short history of human life with a timescale that to a Victorian readership was unimaginable. By pointing out that 'the greatest difficulty' for those pursuing geological studies was overcoming 'our habitual unconsciousness that our position as observers is essentially unfavourable', Lyell contributed to a sense that there was nothing particularly unique or special about human life.[24] In the face of accumulated Uniformitarian evidence to the contrary, eminent men like Buckland pursued ever more tenuous means of validating the Biblical Creation.[25] It is

23. Beer, p. 19.
24. Lyell, *Principles of Geology*, p. 31.
25. Other theories were added to those of Buckland and Miller. For example, Philip Gosse's *Creation (Omphalos): an attempt to untie the Geological Knot* (London: J. Van Voorst, 1857) contended that fossil evidence had been left by God as a means to test the faith of believers. *Omphalos* was widely ridiculed, and greeted with some hilarity. Louis Agassiz felt sure that a pre-emptive strike against *Origin* in the form of an 1857 *Essay on Classification* would pre-empt the proliferation of evolutionary ideas, but the work received a lukewarm reception (Agassiz, *Essay on Classification*, ed. by Edward Lurie (Cambridge, Mass.: Belknap Press, 1962). On these debates, see Barber, pp. 223- 256.

significant, therefore, that Ruskin began his geological studies as a supporter of Lyell, rather than a defender of Buckland, and that even in his later work, when one might have expected him to condemn Lyell as forcefully as he attacked Darwin, Ruskin remained ambivalent about the geologist's work. For those seeking evidence of the Christian base of Ruskin's science, geology is not a fruitful place to look.

II. The trees of Eden

> [Eve] engages herself in many foolish things – among others, to study why the animals called lions and tigers live on grass and flowers, when, as she says, the sort of teeth they wear would indicate that they were intended to eat each other. That is foolish, because to do that would be to kill each other, and that would introduce what, as I understand it, is called 'death'.[26]

Mark Twain's comic account of Adam and Eve's early days in Eden drew attention to a number of key issues in Victorian science and religion, not least the difficulties of reconciling scripture and observable truth. As we have seen, these difficulties were manifested in geology, but they were far from being confined to that science. As the following two sections will show, Ruskin embraced scientific critiques of biblical accounts with considerable enthusiasm. That he did so by considering exactly the same logical problems that Twain's Eve outlined seriously undermines any attempt to depict him as either an orthodox Evangelical or Natural Theologian.

During a lengthy correspondence in the 1840s with the Reverend Edward Clayton, a former fellow student of Christ Church, Ruskin addressed the subject of the Garden of Eden in ways which demonstrated that he had departed from traditional, Evangelical readings of scripture and used science to argue that there was death in Eden. These startling texts revealed that in 1843, as the first volume of

26. Mark Twain, *The Diary of Adam and Eve and other Adamic Stories* (1893) (London: Hesperus Press, 2002), p. 8.

Modern Painters was reaching completion, Ruskin was deeply sceptical about the status of the Bible as a reliable document of history and nature. Most revealingly of all, Ruskin turned to materialist methodologies drawn from a range of modern sciences in order to argue, against scripture, that there was death in the Garden of Eden prior to the Fall. It was here that Ruskin made reference to Lyell's study of the Niagara Falls, but his critique drew on far more than geology. Before discussing the contents of these letters, however, it is necessary to address some questions regarding the literary status of these epistolary texts. Concerns might be raised that correspondence should not be accorded the same literary weight as published texts, or that one should not found a major component of an argument about Ruskin's science on the basis of letters. A number of responses to such criticisms are possible, and will demonstrate that they are misplaced.

Firstly, the correspondence to which I refer was not a single, brief epistle, but two letters and an accompanying essay, together amounting to more than five thousand words, written over the period of four weeks early in 1843, all articulating the same coherent, materialist analysis. These were not throwaway comments, but the result of sustained thought, and a thorough immersion in materialist science. Secondly, the fact that Ruskin approved the publication of these letters in 1891 as *Letters to a College Friend* considerably complicated their status as 'private' texts. Thirdly, I would point to differences between his public and private pronouncements: Ruskin often permitted himself to voice doubts and anxieties more frankly to his correspondents that to his general readership.[27] Even so, private and

27. Speaking of debate about the *Bridgewater Treatises*, Conner asks, 'did this weaken the Bible-based Evangelical faith in which [Ruskin] had been brought up?' and argues that whilst, 'one would not believe it if one judged merely from the confidently orthodox tone of his published writings in the 1840s [...] his private correspondence tells a very different story' (Conner, p. 19). J. D. Hunt argues that Ruskin consciously decided to suppress some controversial opinions in print (John Dixon Hunt, *The Wider Sea, A Life of John Ruskin* (London: J. M. Dent, 1982), p. 281).

public work need not be seen as in conflict. Ruskin's correspondence offers glimpses of his inner conflicts over issues of science and religion at their most acute moments, and therefore should be accorded considerable weight not as texts which contradict the tenor of his published works, but which have more freedom to express his feelings. There was not a binary opposition in operation. My argument about Ruskin's attitude to materialist science and Christianity would rightly be deemed to be limited if it rested on correspondence alone. However, it is only one component in a series of observations drawn from the range of Ruskin's published and unpublished works, all of which point towards the same conclusions. That his early position in these letters was absolutely consistent with the public position he took in debates over the 'Higher Criticism' of the 1860s is crucial to validating the status of the letters. The views Ruskin put forward in the 1843 correspondence conflicted in considerable measure with his public views only after 1870. Only then did it become necessary to attempt to repudiate the approaches and methods he had pioneered in his 1843 discussion of the Garden of Eden. Finally, other critics have argued for the importance of these 'private' texts. Cook and Wedderburn were convinced that 'the note of aggressive Protestantism' in other correspondence from earlier in the 1840s had disappeared from these letters, and that 'the freer interpretation of Scripture towards which he inclines in the Essay on the Fall' evinced 'his gradual emancipation from some of the bonds of his early creed'. They argue convincingly that this placed Ruskin as a pioneer of the German 'higher criticism' that would emerge in the 1860s (1. liii). Conner regards these letters as a 'significant' departure for 'the doubt-racked Ruskin' who 'came down against the literal Biblical version accepted by his parents in favour of the heretical viewpoint based on geological evidence'.[28] Spear argues that these early correspondences showed that Ruskin felt the Bible should be 'constantly reinterpreted in the light of

28. Conner, p. 19.

scientific discoveries'.[29] Like Cook, Wedderburn, Conner, and Spear, I would argue that these letters and essays are extremely important. Having addressed possible objections to their use, I would like to turn to a detailed appraisal of their contents.

In *Letters to a College Friend*, letters 16 and 17, from January 1843, and the accompanying essay, 'Was There Death Before Adam Fell, In Other Parts Of Creation', Ruskin proceeded with remorseless logic to question the reliability of *Genesis* as a guide to Edenic nature. The initial impetus seemed to have been a sermon of Clayton's, sent to Ruskin, but not included with the published correspondence, which apparently introduced the theme of the Fall and organic life. Ruskin's critique of Clayton's claims was based around an investigation of the trees and animals in Eden, which according to the Bible were immortal prior to the Fall. Arguing from organic principles, Ruskin suggested that what was described as a tree in the biblical account of Eden could not have been immortal if it was anything like a modern tree. Beginning by asking 'what is your notion of a *tree*?', Ruskin's own description revealed attachment to materialistic, rather than poetic or Romantic, methodology:

> You will most likely have a conception of a thing with leaves on it, and bringing forth flowers in its season [...] Now what do you mean by a leaf and flower? You mean by the first, an instrument for depriving carbonic acid of its oxygen, and giving carbon to the plant [...] You mean by the second, a part of the plant which has in it organs of fructification (1. 475).

In seeking the key properties of organisms, Ruskin dismissed the 'colours, and forms, and appearances' of leaves as irrelevant to their photosynthetic function, which he described as 'the essence of a leaf'. Likewise the varied appearance of

29. Spear, p. 45.

flowers was a side issue when one considered that they have 'nothing essential' except their reproductive properties (1. 475). The straightforwardly functional basis of this approach articulated a rigidly materialist methodology. Aesthetic aspects of plant life were dismissed in favour of a morphological dissection and an account of functional process. A key feature of nineteenth-century materialist science was its emphasis on dynamic process, something Ruskin highlighted in the following paragraph, when he argued that leaves and flowers functioned to produce new life:

> You imply, therefore, growth – change of state – and preparation for a succeeding existence. Therefore, when you say 'a tree,' you mean a growing, changing, and preparing thing (1. 476).

Flowers and fruit were designed to prepare for the growth of another tree, which would replace the parent, so that 'every bud and blossom of the parent tree implies and necessitates its destruction'. Ruskin quickly linked reproduction and death:

> When you say a preparing thing, a fructifying thing, you mean a dying thing [...] Whenever you speak of a tree, you speak of death. That which has not in it the beginning and germ of death, is not a tree (1. 476).

Having calmly recognised the importance of death in natural systems, Ruskin's robust logic proceeded towards the following uncomfortable choice:

> If there were trees in the Garden of Eden there was death; or, if there was not death, they could not have had leaves, nor flowers, nor any of those organs of growth or germination which now constitute the essence of a tree. People will look very grave at you, indeed, if you hint that there were no flowers in the Garden, and yet the very meaning of the word flower is—something to supply death (1. 476).

Ruskin's commitment to rigorous scientific enquiry called scripture into question,

and in Spear's perceptive phrase, 'tacitly concedes the logical priority of science to revelation'.[30] Ruskin argued that if one were to interpret an Edenic tree as 'something which had neither leaves nor flowers, nor any organs of a tree, you may give up your trust in [*Genesis*] at once' because 'you can never tell, if there be such latitude of interpretation, what anything means throughout the book'. If an Edenic tree had leaves and flowers their function must, he insisted, imply mortality. Clearly uncomfortable, he concluded that 'either Scripture is wholly to be distrusted, as meaning one thing when it says another—or there was death in Eden' (1. 476).

III. The animals of Eden

The 1843 letters and essay did not rely on a description of flowers alone, but included a series of arguments, drawn from a range of sciences, each of which acted to reinforce his critique of Biblical literality, and undermine the notion that he comfortably followed Evangelicalism or Natural Theology. In the next section of his first letter, Ruskin turned to the question of the animals of Eden, and in so doing, revealed that he had drawn on the anatomical researches of Cuvier. Ruskin asked Clayton another rhetorical question:

> What do you understand by the term "lion"? Surely an animal with claws and sharp teeth. If it have not claws and teeth it is not a lion, it is some other animal—a different animal from any that we have any notion of, but not a lion. If it have claws and teeth, do you suppose God gave it claws and teeth for nothing?' (1. 476).

Despite the clearly uncomfortable implications for his correspondent of this argument, Ruskin focused remorselessly on functionality:

> The gift of an instrument supposes the appointment to a function.

30. *Ibid.*

> The claw is to catch with, the teeth are to tear with, and there is a particular juice in the stomach to digest meat with. Now to suppose that these were given without intention of being used, is the same thing as to suppose that your tongue was given to you without your being intended to talk or taste with it (1. 476).

His recognition of the functional mutuality of claws, teeth, and stomach, suggested that Ruskin might have read Cuvier's major anatomical work, *The Animal Kingdom* at this time. He owned an 1840 edition of that work, although it is not clear when he obtained it, and also borrowed a copy of Agassiz's palaeontological anatomy, *Poissons Fossiles* in 1843.[31] In another of his major works, Cuvier made clear that internal connections between organs and structures of the body were crucial to understanding the organisation of organic life:

> The form of a tooth leads to the form of the condyle, that of the scapula to that of the nails [...] Similarly, the nails, the scapula, the condyle, the femur, each separately reveal the tooth or each other; and by beginning from each of them the thoughtful professor of the laws of organic economy can reconstruct the entire animal.[32]

All of an animal's anatomical features supported its functional needs: it was impossible for an animal to have a herbivore's teeth and a carnivore's stomach, for example. In recognising the functional mutuality of a lion's claws, teeth, and

31. Baron Cuvier, *The Animal Kingdom, Arranged After its Organisation Forming a Natural History of animals, and an Introduction to Comparative Anatomy*, new edition, with considerable additions by W. B. Carpenter and J. O. Westwood (London: W. H. Allen, 1884). It is certain only that Ruskin had consulted this work by the time he wrote the first volume of *The Stones of Venice* (1851), for in his discussion there of sculpted dolphins, he quoted, in French, from an 1840 edition of that work (9. 276). It is therefore plausible, but unverifiable, that Ruskin had the volume at the time of writing about Eden in 1843. For Ruskin's study of Agassiz at this time, see 1. 457.
32. Cuvier, *Discourse On The Revolutionary Upheavals On The Surface Of The Globe*, pp. 98-99.

stomach, Ruskin had applied Cuvierian methods to his dissection of *Genesis*.

It does not, however, seem to have been contemplated that Ruskin was deeply influenced by Cuvier's approach. Only Cook and Wedderburn, in their habitually encyclopaedic fashion, make mention of his references to Cuvier.[33] No critic has considered the importance of Cuvier's emphasis on temporality, function, form, development, and mutuality to Ruskin's scientific development, an unfortunate oversight given what I believe was his deep impact on Ruskin. How and why this placed Ruskin within modern trends in science can be appreciated by turning as briefly as possible to an analysis of the impact of Cuvier's anatomy; and of how this was in part a development, but more significantly a departure, from the eighteenth century model of natural philosophy represented by Linnaeus, whose Natural History was grounded in order, progress, and classification.

IV. Defining the natural world: Linnaeus, Cuvier, and Ruskin

As Donald Worster notes, 'Linnaeus had an unusually intense passion for the delights of arrangement' and 'knew how to put every piece of nature in its precise place', so that 'all living nature could be organised into neat rows of shelves and boxes.[34] Linnaeus revolutionised eighteenth century science by offering a means to

33. Ruskin's references to Cuvier were numerous. In his 'Rudimentary Series' of art education drawings, Ruskin listed 'some plates from Cuvier's *Animal Kingdom*' (21. xxxix), and prints from Cuvier's works appeared frequently in the Ruskin Art Collection and in educational material (21. 92, 163, 228, 320; 22. 12). Ruskin's warnings later in his career about the morbidity of anatomy and vivisection might suggest that Cuvier might well have become a figure of vilification, but this was not the case. In fact, his approval of Cuvier increased over time – perhaps as Cuvier's image as a traditional, Christian scientist who resisted the first manifestations of Lamarckian evolutionism grew more comforting. He referred to Cuvier in his ornithology, and, in 1878, cheerfully wrote to Henry Acland requesting 'all sixteen volumes of Cuvier in translation' to aid him in this and botany (22. 249, 25. 175, 25. xxvii-xxviii, 53). Ruskin's later geology also invoked 'this wise natural history of Cuvier's' (26. 296, 310), a statement that indicated his support for Cuvier never wavered.

34. Donald Worster, *Nature's Economy: A History of Ecological Ideas* (Cambridge: Cambridge University Press, 1990), p.32.

order and analyse the natural world. Linnaeus used plant sexuality to erect a nomenclatural system through which organisms could be scientifically analysed. His botany looked for strict relations of difference and identity (the absence and presence of particular properties in an organism), and was built upon quantitative evaluation, as Gary Gutting notes:

> The primary instrument of knowledge becomes the analysis of resemblances, not their mere recognition [...] Its primary role is no longer to draw things together on the basis of their resemblances but to separate them on the basis of their differences.[35]

Linnaean analysis admitted only a limited field of quantitative evidence as valid, mostly involving the visible characteristics of an organism. The scent, sounds, and tastes of organisms were rendered largely irrelevant to their categorisation (just as they were in Ruskin's account of leaves and flowers). By restricting what was perceived as valid data, Linnaeus rendered natural phenomena manageable. Linnaeus analysed similarity and difference in order to base taxonomic units on the formal *structure* of organisms. Structural analysis meant investigation of the form, number, spatial arrangement, and relative magnitudes of various physiological features within an organism. Thus, a plant might be categorised according to the *shape* of leaves or anthers, the *number* of petals or stamens, the *relative position* of calyx and sepals, or the *size* of seeds and fruits. Because, in William Coleman's précis of Linnaean logic, 'God has given each creature its own seed and had directed each to reproduce only its own kind', it was clear that there must be a 'taxonomic importance of the reproductive parts' that could provide a key to plant essences that would explain their taxonomic primacy:

35. Gary Gutting, *Michel Foucault's Archaeology of Scientific Reason* (Cambridge and Melbourne: Cambridge University Press, 1989), p. 147.

> The essence of vegetables [consists] in the fructification [...]
> The essence of fructification [consists] in the flower and fruit.
> The essence of the fruit consists in the seed.
> The essence of the seed consists in the *antherae* and *stigma.*[36]

Given this language of 'essences', one might attempt to link Ruskin's letter on the trees of Eden to this Linnaean logic, but this was not really the case. The essence of fructification for Ruskin was not structural, as it was for Linnaeus, but functional, as Cuvier insisted. The internal relations of plant organs, in Linnaeus's descending schema, was mathematical, logical – and therefore, in that sense, materialistic – but more significantly, the emphasis on outward form, rather than on growth or function, viewed nature as hierarchical and static. A Linnaean description of a plant presumed that daily changes to organisms were irrelevant to their unchanging structural features. The fact that dead herbarium species were the staple study material of Linnaean practitioners showed that development and process were unnecessary to their approach. As Foucault contended, for Linnaeus 'time is always extrinsic to the essential reality of a living thing and has no role in determining its nature', whilst 'a genuinely evolutionary view of nature conceives time as a principle of development for living beings in their internal organization'.[37] Ruskin's description of the functional, dynamic qualities of trees points to his departure from Linnaeus, and his immersion in the alternative vision of Cuvier. Cuvier demanded recognition of the role of temporality and interaction in natural systems. Hewison's argument that Ruskin's adherence to 'the principle of direct observation and resistance to speculation leads to an attitude to nature that

36. William Coleman, *Georges Cuvier, Zoologist: A Study in the History of Evolution Theory* (Cambridge, Mass.: Harvard University Press, 1964), p. 20, 21; Carl Linnaeus, *The Elements of Botany*, trans. H. Rose (London, 1775), p. 99.
37. Michel Foucault, *The Order of Things: an Archaeology of the Human Sciences* , trans. from the French (London: Tavistock, 1970), p. 159.

rests upon externals', and to a methodology in which 'all you need to know can be discovered by simply using your own eyes' is surely an insufficient account of Ruskin's practice, not just in his letters on Eden, but throughout his work. Likewise, this is another area in which Sherburne's argument that Ruskin followed a 'static organicism' and attended only to surface qualities is clearly flawed.[38] What these critics fail to consider is that Ruskin's undoubted preference for human vision as the prime observational tool, and his repeated distaste in later writings for microscopy and other technological aids to vision, did not necessarily means that he was not interested in the connections that lay beneath externalities. When one observes his actual practice, not just in his early letters, but in 'Of Leaf Beauty', 'The Work of Iron', and 'The Law of Help', it is clear that he habitually looked beneath the surface of organisms. Even in later, anti-materialist works like *Proserpina*, Ruskin included four chapters on internal plant anatomy (25. 320-337, 483-512).[39]

What set Ruskin apart from eighteenth-century, Linnaean natural philosophy, and within the same broad camp that began with Cuvier and extended through to scientists like Darwin, Lyell, and Haeckel, was his preference for function over structure, and of inter-relation over hierarchy, in his investigations of nature. The first part of the title of Cuvier's seminal 1802 work reveals the functional focus of his work: *The Animal Kingdom, Arranged After its Organisation* implied that Linnaeus's structural categories would no longer serve scientific veracity, and that only analysis of functional organisation could furnish the means to understand organic life. In this work, first available to an English readership in 1816, Cuvier's revolution in thinking offered a way forward to a science that had become increasingly aware of the limitations in Linnaean techniques. Cuvier argued that

38. Hewison, p. 21; Sherburne, p.10.
39. He described the first two of these chapters as 'somewhat difficult and extremely tiresome', but presumably believed they were essential (25. 338). Throughout these chapters, Ruskin turned to microscopy, whilst warning against over-reliance on this technology (25. 484).

'Natural History' differed from 'General Physics' (which 'examines, abstractedly, each of the properties of those moveable and extended beings which we call bodies') and from chemistry ('a science almost wholly experimental') because both of these disciplines, unlike Natural History, consisted 'in isolating bodies, reducing them to their utmost simplicity' in order to calculate, experiment upon, and observe their properties 'for the purpose of establishing a body of doctrine, and, if possible, of referring the whole to one single law'. This could also act as a reasonable description, in fact, of Linnaeus's attempts to regularise the life sciences by adopting the examination of abstract properties characteristic of the 'hard sciences'. Natural History, as conceived by Cuvier, was 'confined to objects which do not allow of rigorous calculation, or of precise measurement'. Although Natural History 'should, in strictness, employ the same modes of procedure as the general sciences', it was generally 'very seldom' the case that the subjects of Natural History were 'so little complex as to permit of it'.[40] For Linnaeus, the distinction between physical and life sciences was not acute, as both rested upon the same quantitative methodologies. Cuvier rejected the call to privilege quantitative over qualitative measurement, and recognised that plants and animals were both too variable and too complex to be studied in the same way as particles and atoms. He centred the legitimacy of Natural History on an anatomical procedure that could – he believed – offer a more valid, rational, and rigorous analysis of organisms than a Linnaean approach.

For Cuvier, the most crucial distinction between physical and life sciences was the fact that the latter studied organisms that existed within a web of relations, from which they could not be extrapolated. The physicist could isolate atoms from surrounding matter without falsification, but the Natural Historian was unable 'to subtract successively from each condition, and so reduce the problem to its elements; but he must take it entire, with all its conditions at once, and can analyze

40. ibid, pp. 1-2, 2.

only in thought'. The important result of this understanding was that for Cuvier an animal or plant was only a 'real' organism when viewed within its environment, and as a whole organism, rather than as the sum of its parts. Because the aim of Natural History was to study the 'entire' organism, it could do so only by reflecting on the relationship between an organism's form and its physical existence. In doing so, it was imperative that 'the component parts of each must be so arranged as to render possible the whole living being, not only with regard to itself, but to its surrounding relations'.[41] The static, quantitative science of Linnaeus was discarded in favour of what Cuvier called the 'Natural System', which sought to understand functioning organisms within their world.

Cuvier's definition of living matter rested on a recognition of dynamism. 'Life', Cuvier explained, 'is a vortex, more or less rapid, more or less complicated, the direction of which is constant'. The term 'nature' was for Cuvier, 'only an abridged and rather ambiguous way of denoting the existing creatures and their associated phenomena'. In analysing natural phenomena we must 'assume that at least in everything which we can observe of these phenomena they depend upon the laws of motion'.[42] Natural Theology and Enlightenment natural philosophy conceived a world held in a state of equilibrium by the workings of God's design. By adding energy to the equation, Cuvier changed the life sciences irrevocably, inadvertently giving impetus to subsequent discoveries in the century that followed, including the work of Darwin, Lyell, and Haeckel.

The molecules in Cuvier's 'vortex' cohered into living beings, which, whilst they lived, were capable of organisation into parts. Because 'life [...] presupposes organisation' it followed that 'life proper to each presupposes the organisation

41. ibid, p. 2, pp. 2-3.
42. ibid, p. 5, (Cuvier, entry for 'Nature', *Dictionnaire des sciences naturellles* (Strasbourg and Paris, 1816), p. 262.

peculiar to that being'. The anatomy of an organism reflected its conditions of existence, and resulted from 'the mutual action and reaction of its parts', as they were organized to fulfil functions of sensory perception, movement, nutrition and reproduction, within a natural context.[43] What became significant at around the turn of the nineteenth century was how a plant or animal *worked* within its environment, and how its internal anatomy was organised to cope with environmental exigencies. Cuvier frowned on any manifestation in his own time of 'the development hypothesis', rejecting Lamarck's ontogenical evolutionism (the argument that acquired characteristics could be passed from parent to progeny), but his emphasis on functionality helped create the theoretical landscape for Darwin's phylogenetic evolutionism (the argument that species changed in response to competition or to alterations in their environmental conditions). Ruskin's participation in the wider movement towards a dynamic concept of environment was influenced immeasurably by Cuvier. His acknowledgement of Cuvier's functionalist anatomy showed that he had moved at least one step along the road to acceptance of Darwinism. The fact that he was open to Uniformitarian geology allowed him to extend and enrich his wider participation in the formation of a dynamic, ecological vision of the natural world, and suggest a more wide-ranging sympathy with the conceptualisations of nature that were emerging with force in Victorian science during the 1840s and 1850s.

In the letters on the Garden of Eden, Ruskin applied his understanding of Cuvier's methods to his critique of *Genesis*, highlighting the ambiguities at the heart of that account in his continued analysis of the animals of Eden:

> A lion at peace with other animals is [...] a contradiction in terms [...] It is the same thing as saying that God has adapted every muscle

43. ibid, p. 6.

to a function which it was never intended to discharge (1. 477).

Acknowledging that 'the gift of an instrument supposes the appointment to a function', he made his allegiance to Cuvierian method absolutely evident.

This course set himself apart from fellow Evangelicals, who took the literality of *Genesis* as a given. As in his discussion of the trees of Eden, Ruskin focused on the absurdity of literal readings:

> If these animals were at peace in Eden, they were either created with especial view to their *after* functions, and maintained for a short time at peace by especial miracle; or else they were different animals – not lions nor tigers, but things of which we have no conception, having different muscles, no claws, no digestive organs for meat (1. 477).

Ruskin argued that the naming of animals by Adam 'gives the lie direct' to the first claim, because Adam could not 'know their nature, when every one of their functions was miraculously suspended. The second claim would presuppose 'a *new creation* at the fall of Adam', which Ruskin felt would 'have been at least indicated in some way or other in scripture' (1. 477).

It is remarkable that Ruskin addressed such difficulties so directly. Responding to protests from Clayton and his sister, Ruskin did not retreat, but used his essay and second letter to press his case yet further, using a battery of materialist arguments, and suggesting that *Genesis* must be read not literally, but 'as something very like an Eastern allegory (1. 482). He used Malthusian logic to suggest that 'by the institution of carnivora, one third more *happiness* is brought into existence' by providing 'one more step of existence' (1. 477). He turned to Lyell's geology, as we have already seen, and to geological research in general, when he argued that the plants and animals of antiquity must have had 'the same organs, the same structure and development, as those growing now' (1. 484). Even the very modern science of

palaeontology (presumably through Agassiz) provided evidence: 'the digestion of the Icthyosaraus is as regular and simple as that of any living aquatic beast of prey, and far more easily traceable', a fact that undermined Clayton's speculation that animal anatomy had been different in the past (1. 484).

When Ruskin turned to agricultural science, chemistry and biology, he argued that organic life was reliant on death for the provision of food, but also for the production of air:

> There is no ammonia in the atmosphere except what results from animal decay. All the nitrogen of animal matter is given off, on its decay, as ammonia. This ammonia combines in the atmosphere with the carbonic acid, which is the result of animal *breath*. The carbonate of ammonia so formed is dissolved in rain water, and presented in this form to the root of the plant (1. 483).

One of the many reasons why these early letters are so important (and not atypical of his work) is that they set up the ecological methodology to be found later in 'The Work of Iron' and elsewhere, in which Ruskin's primary concern was to highlight the connectedness of the different elements of environment:

> *We,* again, require for our nourishment, not ammonia, but the nitrogenised substances, gluten, albumen, etc., of plants. Hence, each species of existence furnishes in its death food to the other, and the nourishment of one implies the simultaneous dying of the other (1. 483).

The only feature that markedly distinguished these letters from 'The Work of Iron' was the sheer remorselessness of their materialisation of nature, something that was softened in public accounts, but which was clear in the letters to Clayton:

> *We* are machines for turning carbon and oxygen into carbonic acid;

> the plant is a machine for turning carbonic acid into carbon and oxygen. Hence the plant is the supplement of the animal and the animal of the plant (1. 483).

If one compares this study of interdependency with Ruskin's analysis in 'The Work of Iron' of the breathing of oxygen by iron and the dependence of human respiration and circulation on oxygen and iron, it becomes clear that the two works have more similarities than differences. More substantial differences arise when one compares these early letters with Ruskin's most orthodox, Evangelical text, *Modern Painters II*, where he warned that 'when we are told that the leaves of a plant are occupied in decomposing carbonic acid, or preparing oxygen for us, we begin to look upon it with some indifference as upon a gasometer' (4. 153). This warning tellingly enables us to glimpse the nature of the differences between Ruskin's private and published work. His remarks revealed that his problem with the promotion of materialist science was that it might lead to moral degradation amongst those not educated enough to understand such matters. He did not suppress the fact of gas exchange, but attempted to guide his readers in understanding it.

For Ruskin, materialism was true within its limits, but could never represent the whole truth. To achieve this required an understanding of science, spirituality, culture, and aesthetics. What the correspondence from *Letters to a College Friend* revealed was that Ruskin had understood, and endorsed, materialist modes of investigation, and that he was perfectly capable of pursuing its findings with considerable skill. His anxiety about making such findings public in his own work did not in any way imply their rejection. The conclusions of the letters and essay did, however, suggest deep unease about the implications of these findings for his own faith. Towards the close of the first letter, Ruskin argued that the most likely explanation of the problems he outlined was that 'man in Eden was a growing and perfectible animal; that when perfected he was to have been translated or changed,

and to leave the earth to his successors without pain'. The Fall had meant that humanity 'received what before was the lot of lower animals – corruption of the body – and, far worse, death of the soul' (1. 478). In this fudged explanation, Ruskin uneasily reconciled science and scripture only by erecting a division between humanity and 'the lower animals' (a division that was subsequently undermined in works like 'The Work of Iron, 'Of Leaf Beauty' and 'The Law of Help'). All the same, Ruskin anticipated by almost two decades, the 'Higher criticism' of the 1860s. One of the key reasons why Ruskin's 1843 letters and essay to Clayton should not be dismissed is because they are so consistent with his later reception of Colenso and the Higher Critics, a subject that is therefore worth treating in a little detail now.

V. The Bishop of Natal

During the 1860s, Ruskin endorsed the Anglican Bishop Colenso of Natal, whose re-examination of the Pentateuch attempted to shape faith and doctrine anew in the light of modern science. Amidst much controversy, Colenso supported the right of ministers to free thought and scientific study. Near the beginning of his explosive work, he revealed that geology had been a major motivation for his work:

> My own knowledge of some branches of science, of Geology in particular, had been much increased since I left England; and I now knew for certain, on geological grounds, a fact of which I had only had misgivings before, viz, that a *Universal* Deluge, such as the Bible manifestly speaks of, could not possibly have taken place in the way described in the Book of Genesis.[44]

Like Ruskin nearly twenty years before, Colenso refused to ignore the burgeoning evidences of science. Not only did he claim that 'the Pentateuch, as a whole, cannot personally have been written by Moses, or by anyone acquainted personally with the

44. Colenso, p. 8.

facts which it professes to describe', but, even more fundamentally, that 'the (so-called) Mosaic narrative, by whomsoever written, and though imparting to us, as I fully believe it does, revelations of the Divine Will and Character, cannot be regarded as *historically true*'.[45] These were painful issues for recalcitrant elements of mid-Victorian religious society. As Landow points out, the often hostile reaction of Anglicanism to Colenso, and to *Essays and Reviews* (1860), infuriated Ruskin who, 'like many others, realized that Higher Criticism, geology, and biology were fast overrunning the weakened positions of both the Evangelical and High Church parties'. Landow argues that Ruskin 'would have preferred the Church to beat an honest retreat to surer ground rather than attack those who advocated such a policy'.[46] Ruskin's defence of Colenso was perhaps unsurprising, given that his own doubts about Biblical literality dated back to 1843. In the intervening years, these doubts had not diminished, as an 1862 letter to Sir John Naesmyth revealed:

> You will soon hear – if you have not heard – of the Bishop of Natal's book. Now for the last four years I've been working in the same direction alone, and was quite unable to tell anyone what I was about [...] I could not speak of anything, because all things have their root in that (36. 424-5)

Here, Ruskin revealed his anxiety about voicing his views in public. The fact that

45. *Ibid.* Wheeler offers a useful analysis of this, arguing that 'by the 1860s, as new questions posed by science and historical biblical criticism converged, Ruskin, no longer an evangelical, found Bishop Colenso on the Pentateuch reassuring, being similar to his own private findings; whereas Darwin, although hugely impressive as a naturalist, failed in his view to relate the facts to larger truths (Wheeler, *Ruskin's God*, p. 180). Wheeler's scholarly account places Ruskin close to the Natural Theological tradition even in his departure from Evangelical orthodoxy (pp. 180-2).
46. Landow, pp. 267-8. As Cook and Wedderburn note, Ruskin was 'warmly interested' in Colenso, and angered by the fact that Colenso 'had been inhibited by the Bishop of Oxford from preaching in Carfax' (14. 285n). In 1863, he was deposed as Bishop of Natal, and only restored to the see in 1866 (18. 417n).

he was initially much more candid in private than in published works only strengthens the notion that his early correspondence offered a fair reflection of his longer-term views on biblical literality. Ruskin's public silence on these matters would, he confided to Naesmyth, soon be broken:

> Now the Bishop has spoken, there will be fair war directly, and one must take one's side, and I stand with the Bishop and am at ease, and a wonderful series of things is going to happen – more than any of us know – but the *indecision* is over (36. 425).

However, further pressures intervened to delay Ruskin from public pronouncement. As Hunt reveals, he chose not to reveal his spiritual crisis of the 1860s to his readers, partly because he was influenced by the mother of Rose La Touche, the Evangelical girl to whom he was engaged at the time: 'with Mrs La Touche [...] he had long and serious discussions about his loss of faith, and it was she who extracted from him a promise not to publish any of his new views for ten years'.[47] This suppression of his opinions made Ruskin value the outlet provided by private letters all the more, and in correspondence of the 1860s and early 1870s Ruskin addressed issues of faith and science with increasing frequency.

As a result of his decision to remain silent on his religious position during the 1860s, Ruskin took some time to respond in public to Colenso. He permitted himself a brief sideswipe at Colenso's critics in *The Crown of Wild* Olive, but did not speak at length (18. 416-7). In the 1870s he seemed relieved to speak forthrightly and at length in published work. In *Fors Clavigera*, he claimed to be pleased that the Church had been unsuccessful in their attempts to 'depose, defrock, and, finally, excommunicate the Bishop', but also made clear his alienation from an Anglican hierarchy he believed were ignorant in the face of evidence:

47. Hunt, p. 281.

> The clergy, as a body, have, with what energy and power was in them, repelled the advance both of science and scholarship, so far as either interfered with what they had been accustomed to teach; and connived at every abuse in public and private conduct, with which they felt it would be considered uncivil, and feared it might ultimately prove unsafe, to interfere (28. 364).

Ruskin was even more critical of the church in an earlier letter from *Fors*, arguing that 'in general, any man's becoming a clergyman in these days implies that, at best, his sentiment has overpowered his intellect' (28. 239). Part of his frustration, Landow argues, was that 'it was precisely this weakening of the Church and the strengthening of these hostile attitudes that Colenso had tried to forestall in 1862 by removing points of doctrine which men of the mid-nineteenth century found impossible to believe'.[48] By the 1870s, churches had more to worry about than 'Higher Criticism': Darwinism was far from an established orthodoxy, but alongside sciences like geology and ecology, it was doing much to discredit scriptural accounts of nature. If only Colenso and his ilk had been heeded in the 1860s, Ruskin believed, it might have been more easy to defend religion against these further depredations. Before turning to the issue of Ruskin and evolutionary theory, however, it is necessary to investigate his relations with Evangelical views of nature, and then to turn to a broader analysis of Ruskin's attitude to science and religion.

VI. The Evangelical landscape.

As the 1843 correspondence showed, Ruskin was already rendering science and scripture equal partners in the investigation of nature, and turning to materialist methods of investigations, some fifteen years before his formal 'unconversion' from Evangelicalism. As his reception of Colenso demonstrated, the anti-literalist

48. Landow, *Critical and Aesthetic Theories*, p. 268.

tendency that continued into Ruskin's published work of the 1860s seriously undermined the notion that he was an orthodox Evangelical at any point. I also believe, though, that public works like *Modern Painters*, provide yet more evidence to distance Ruskin from the religion of his parents.

Ruskin's late autobiography, *Praeterita*, was not a consistently reliable document, but its recollections of early Bible studies resonated with the Eden letters:

> It had never entered into my head to doubt a word of the Bible, though I saw well enough already that its words were to be understood otherwise than I had been taught; but the more I believed it, the less it did me any good. It was all very well for Abraham to do what angels bid him, – so would I, if any angels bid me; but none had every appeared to me that I knew of (35. 189).

This claim to an early rejection of biblical literalism rang true, and calls into question the belief of many commentators that the genesis of the gradual decline in his Evangelical beliefs was located in the 1850s.[49] Ruskin's early religious education came directly from his staunchly Evangelical mother, for whom he had to read the Bible every morning, 'hard words and all' (35. 14). This daily exercise, which entailed repeatedly reading the holy book from beginning to end, made him, in Harold Bloom's memorable phrase, 'as Bible-soaked a writer as Milton or Blake'.[50] However, as Ruskin began the publication of *Modern Painters* in 1843 he was a far from typical Evangelical. One of the principal reasons for this was the rejection of biblical literality outlined already, but another, equally crucial aspect of Ruskin's nature studies placed him in conflict with Evangelicalism. Ruskin's extravagant and sympathetic celebrations of nature in *Modern Painters* sat uneasily

49. Landow speaks of 'the first years of firm Evangelical belief, which lasted until about 1848', followed by 'years of increasingly painful doubts which culminated in his decisive loss of religion' in 1858. See Landow, *Aesthetic and Critical Theories*, p. 243.
50. Bloom, p. x.

with the central Evangelical tenet that nature, like humanity, was fallen.

In all manner of non-conformist doctrine, nature was a persistent site of anxiety. Evangelicals argued the perceived barrenness of nature indicated what had been lost at the Fall. Within Non-conformism, Finley observes, 'the demonic haunts the perimeter of all natural inclination'.[51] Edward Irving, for example, wrote:

> How can any one who is at all interested in the primeval state of paradise which he hath lost [...] take delight and shout forth joyfully in contemplating the present misery of the lower world, [...] the sandy wastes, the rugged mountains, the hoary forests, the inhospitable climates of heat and cold, the changeful accidents of thunderstorms and thunderbolts, the avalanches of snow and inundations of wasteful waters, the iron frosts, the drenching rains; in one word, the natural barrenness of the earth's bosom, and the evil conditions which she underlieth since the Fall?[52]

The title of Irving's work, 'Nature Worship: its falseness' reflected suspicion that reverence of nature was symptomatic of an idolatry that was becoming popular in that earlier period of landscape gardening and romantic poetry. What stands out in Irving's description of the 'evil conditions' of the earth was his belief in 'the natural barrenness of the earth's bosom', a phrase that reflects an underlying disgust with both nature and women, which in Irving's phrase (as so often in Christian myth) were bound together by shared culpability for the Fall. Eve's primary guilt is subtly conjoined to nature through the apple (an archetype of natural fecundity) and the serpent (an image of the otherness of nature, as well as wisdom) that had put temptation in the way of the first humans; as well as by Eve's feminine 'weakness'

51. C. Stephen Finley, 'Ruskin, Darwin and the Crisis of Natural Form' in *Cahiers Victoriens et Edouardiens: Revue du Centre D'etudes et de Recherches Victoriennes et Edouardiens de L'Universite Paul Vale*, 25 (1987) (pp. 7-24), p. 10.
52. 'Nature Worship: Its Falseness', in *Miscellanies from the Collected Writings of Edward Irving* (London and New York: Strahan, 1866), p. 23.

for natural desires. Lying behind spiritual lessons about innocence and obedience was a warning to be wary of physical pleasures available through nature. A key preacher of Victorian Evangelicalism, John Charles Ryle, spoke of its doctrines, noting 'the *depth and prominence it assigns to the doctrine of human sinfulness and corruption*'.[53] Landow claims that Ryle was one of Ruskin's key influences, but it is far from clear that Ruskin took on board his view of fallen nature.[54]

For Evangelicals, nature acted as a stricture to individuals to consider their own mortality, but also as a warning in a second sense. Human *nature* in Evangelical thought sometimes denoted not so much the sum total of a person's character, but that which was closest to the primal physicality which had been responsible in the first place for Eve's temptation. The Evangelical consciousness was haunted by the potential corruption of the body, in terms of its physical wasting, its propensity to decline and disease, and in terms of the urges which it prompted. The answer to both the physical weakness of the body, and its deviant corruptibility, was to shun it in favour of the Holy Spirit. Methodist leader John Wesley had in the eighteenth century speculated on the education of children, and concluded that mothers should teach them 'that they are fallen spirits' and 'like the beasts of the field' because of 'the *atheism* that is natural to all the children of man'. Mired in corruption even before birth in the sins of Eve, only scripture and prayer could help them avoid 'their natural propensity to seek happiness in gratifying the outward sense'.[55] Repeatedly, the word 'natural' was made to carry negative connotations in

53. John Charles Ryle, *Knots Untied, Being Plain Statements on disputed Points in Religion from the Standpoint of an Evangelical Churchman*, 2nd ed. (London: Chas J. Thynne, 1898), p. 4 (emphasis original).
54. Landow, *Critical and Aesthetic Theories*, pp. 243-8. Landow notes that a younger Ruskin recommended '*Ryle's Tracts*' as 'the pleasantest and most useful reading I know on nearly all religious questions whatsoever (36. 180), and argues that Ryle 'clearly sets forth the points of Ruskin's belief' in the years before 1858.
55. *The Works of the Reverend John Wesley*, ed. by John Emory in 7 vols. (New York: J. Collord, 1831) II, pp. 310, 313-4.

a way that would not make sense to Ruskin until very late in his career. In Wesley's antithesis of the modern view of children as a site of primal innocence, untainted by experience, he made clear the logic of non-conformist opposition to nature.

Evangelicalism's distrust of all things natural was linked to its desire to interpret the natural world typologically, as a site of meaning – and, specifically, of warnings. In *Modern Painters* (1843-60), Ruskin clearly inherited a typological toolkit earned in Bible study, and produced a Christian reading of nature, but its positivity was antithetical to Evangelicalism. Nature in *Modern Painters* was bountiful and beautiful, the site of joyful lessons rather than sermons of human degradation. Whilst much else changed during the seventeen years it took Ruskin to complete this work, Ruskin's affection for the 'infinite wonderfulness' of nature never waned, or resembled – even in the second volume – typically Evangelical responses to environment (7. 14). Ruskin's joyous evocation of infinity, luxury, and colour in nature placed him at odds with his own religion.[56]

One of the most obvious causes of Ruskin's different stance was the influence of romanticism. The picture that emerged from *Praeterita* of an early childhood of austerity and enforced devotion to duty did not give due weight to his experiences of foreign and British travel, of art, music and theatre, and more generally of the relatively cosmopolitan life of a household founded on his father's

56. It might also be noted that language was another area in which Ruskin's Evangelical credentials were undermined. Evangelicalism, trusting only to the revealed truth of the Bible, lionized simple, direct style and vocabulary, and regarded 'high-flown', figurative language with suspicion. Statements of 'God's Truth' should be plain, because embellishment could lead to either obfuscation or self-aggrandisement. On this, see John D. D. Gordon, *Occasional Thoughts on the Study and Character of Classical Authors, on the Course of Literature, and the Present Plan of a Learned Education, with some Incidental Comparisons between Homer and Ossian* (London, 1762), pp. 39-40. The Evangelical writer should be effaced by the truths written, and subordinate to the wisdom of God, but the language of *Modern Painters*' was flamboyant, complex, and figurative. This was not the work of an orthodox Evangelical devoted to simple words and plain truths, but of a writer wishing to express the benign glories of God, nature, and Turner in exuberant language.

sherry business. The Ruskin family household did not resemble the dour picture of deliberate privation, silence, and duty so often ascribed to Victorian Evangelical families. Ruskin's pleasure in art, poetry, and landscape locate his work in direct relation to the discourses of romanticism, and in sympathy with its concern to imbue nature with meanings.[57] Whilst Ruskin's theory of the Pathetic Fallacy indicated a desire to distance himself from the intense anthropocentrism of Wordsworth, he shared a Romantic belief in the essentially beneficial effect of landscape on humanity. Combining a scientific rigour, a Wordsworthian sensibility to meaning in landscape, and the typological hermeneutics of a religion which consulted the *natura codex* for answers to spiritual questions, Ruskin's response to environment was always going to be complex. In essence, however, his early adherence to the idea that nature was accessible to scientific, spiritual, aesthetic, and emotional readings, showed that he believed in the compatibility of nature and art, science and art, and science and religion. For orthodox Evangelicals, only the last of these could be in any way trusted, and should be followed with unquestioning zeal. In this too, Ruskin failed to conform.

Ruskin voiced doubts about literal readings of Eden, firstly in private, and then publicly during the early 1870s. However, even in earlier, more cautious public pronouncements, he often wrote as if something like an Edenic state of innocence was recoverable, and in doing so revealed his departure from Evangelical orthodoxy. In 'Of Leaf Beauty', he provocatively asked, 'what can we conceive of that first Eden which we might not yet win back, if we chose?' He did not go as far as to suggest that Eden, as it was in 'the first days' was recoverable. More subtly, he

57. As Spear argues, 'surely the Ruskins were unusual among Evangelical families in taking Byron for the family poet, *Don Juan* and all?' (Spear, p. 16). Conner argues that Ruskin's contact with the Oxford Movement, Newman, Keble, and Pusey, whilst he was at University, would have alarmed Ruskin's 'violently anti-Catholic' parents, and might have contributed to his movement away from Evangelicalism (Conner, p. 18).

argued that whilst 'there may, indeed, have been a Fall of Flowers, as a Fall of Man', it remained the case that 'creatures such as we are can now fancy nothing lovelier than roses and lilies, which would grow for us side by side, leaf overlapping leaf, till the Earth was white and red with them, if we cared to have it so (7.13). In this call for a reconstruction of an Edenic scene, Ruskin endorsed the healing power of nature. He saw the bounty, moral goodness, and beneficence of the original Garden as a continuing force, rather than one whose powers had been suspended by the Fall. Why would a landscape of roses and lilies be a worthwhile objective if they had nothing to teach humankind other than lessons of degradation? In passages like this, questions of the Fall were often sidestepped in ways that subtly suggested scepticism about Evangelicalism. Whilst 'creatures such as we are' could not regain Eden, something of that sense of innocent interaction with environment was, he argued, within reach of all. Although Ruskin did not abandon the doctrine of the Fall, he was far from calling readers to distrust all natural inclination.

In 'Of Leaf Beauty', Ruskin used nature, not as a means of comparing our forlorn present state with that of lost Edenic bliss, but as a living guide to truth and beauty. This was no isolated moment in his work. In *Modern Painters IV*, he maintained token adherence to the Evangelical tenet of fallen nature, but in a way that revealed the underlying tensions of his public position, and eventually undermined it. In 'The Dry Land' from that fourth volume, he offered an ecological reading of landscape as a mutualistic, dynamic whole:

> It is impossible to examine in their connected system the features of even the most ordinary mountain scenery, without concluding that it has been prepared in order to unite as far as possible, and in the closest compass, every means of delighting and sanctifying the heart of man (6. 118).

There is a religious gloss to the final clause, but Ruskin's prime interest was the

connectedness and vitality of mountain landscapes – their essentially ecological characteristics – but, as his qualification to this remark made clear, the more obvious context was that of religious debate: "'As far as *possible;*" that is, as far as is consistent with the fulfilment of the sentence of condemnation on the whole earth'(6. 118). On the face of it, this was Evangelical orthodoxy, presenting the ineluctable fact of natural degradation, but even as he spoke of the cruelty of nature, Ruskin resisted such a depiction, softening, modifying, and ultimately transforming or contradicting his original position. What emerged from Ruskin's remarks here was a nature not cruel and fallen, but beautiful and purposeful:

> Death must be upon the hills; and the cruelty of the tempests smite them, and the briar and thorn spring upon them; but they so smite, as to bring their rocks into the fairest forms; and so spring, as to make the very desert blossom as the rose. Even among our own hills of Scotland and Cumberland [...] it is strange how many deep sources of delight are gathered into the compass of their glens (6. 118)

In Ruskin's experience of nature at this time, death was not 'upon the hills' at all. In fact, his remarks reveal that he felt that the 'delight' of nature was not a temptation to be avoided, but a necessary part of education. Nature was a moral force, desirous of imparting kindly wisdom, rather than warnings of degradation; an active agent on the side of divinity:

> Down to the most secret cluster of their far-away flowers, and the idlest leap of their straying streamlets, the whole heart of Nature seems thirsting to give, and still to give, shedding forth her everlasting beneficence with a profusion so patient, so passionate, that our utmost observance and thankfulness are but, at last, neglect of her nobleness, and apathy to her love (6. 118).

In this passage, humanity became less worthy than a natural world 'patient' in its

passion, and altruistic in its desire to teach. A few sentences earlier, 'the whole earth' had been under a 'sentence of condemnation', but here nature was placed above human life.

How far could this appeal to noble, giving nature be reconciled to the sentence of condemnation with which Ruskin began his thoughts? Does the development of this passage not uncover the striking contradiction in Ruskin's attempt to uphold Evangelical orthodoxy? Did it not reveal that he paid mere lip-service to the notion of a fallen nature, and actually believed that landscape was an aspect of divinity? Throughout *Modern Painters*, Ruskin's descriptions of nature were lavish and affectionate. At no point did he offer the warnings outlined by Irving, Wesley, or Ryle. When he seemed to do so, as in the passage from 'The Dry Land', he ended up presenting nature in an overwhelmingly positive light. If there was temptation in the contemplation of nature, Ruskin wholeheartedly permitted himself to transgress, and received more pleasure from landscape than either doctrine or art. Why else would Ruskin have told his readers a year earlier, in *The Elements of Drawing*, that he would prefer that they learned to love nature by drawing, than that they should use nature merely as a drawing instructor (15. 13)? The inescapable conclusion of an examination of Ruskin's work on landscape in the 1840s and 1850s was that he had rejected Evangelical fears about fallen nature.

As the passage from 'The Dry Land' continued, Ruskin turned to the differences between lowland and highland scenery, and left behind earlier strictures about 'death [...] upon the hills'. He asked his readers to imagine a beautiful valley landscape, and as he described it himself, the multiplying details of the scene evinced his abiding love of nature, building to a celebration of divine purpose that suggested that he could not believe that nature had fallen:

> Let him conceive all this great plain, with its infinite treasures of natural beauty and happy human life, gathered up in God's hands

> from one edge of the horizon to the other, like a woven garment; and shaken into deep falling folds, as the robes droop from a king's shoulders (6. 119).

The passage continued in breathless celebration of uplands for a further page, full of lavish description, and climaxing in an assertion that highland scenery was 'more necessary to his happy existence than all the level and easily subdued land which he rejoices to possess' (6. 120). He rejected the idea that utility was the main purpose of nature, and directly dismissed depictions of nature produced in earlier ages:

> In the seventeenth century, one of the most enlightened of the religious men of his day (Fleming), himself a native of a mountain country, casting about for some reason to explain to himself to existence of mountains, and prove their harmony with the general perfectness of the providential government of creation, can light upon this reason only, 'they are inhabited by the beasts.' (6. 120)

The shadow of this fear of mountains, and of nature itself, a shadow that had continued to haunt Irving and Ryle, was cast aside by Ruskin, perhaps from the first moment he experienced carriage travel in the Lakes and gazed at Turner. His was an experience of landscape formed in part by Romanticism, in part by a Christianity softened from its original Evangelicalism, and in part by a modern, scientific vision. In this synthesis, I would argue, Ruskin departed significantly from Evangelicalism, but also from that other major manifestation of Victorian religious attitudes to nature, the movement of Natural Theology.

VII. Natural theology

> It is only by a simultaneous contemplation of matter and mind that Natural History rises to its true character and dignity, and attains its noblest end, namely, the indication throughout the whole of creation

> of a plan fully matured in the beginning; and invariably pursued; the work of a God infinitely wise, regulating Nature according to the immutable laws which He has imposed on her.[58]

> Amongst the invisible things of nature, there must be an intelligent mind, concerned in its production, order, and support. These points being assured to us by Natural Theology, we may well leave to Revelation the disclosure of many particulars which our research cannot reach, respecting either the nature of this Being as the original cause of all things, or his character and designs as a moral governor.[59]

The tenets of Natural Theology voiced here by Louis Agassiz, Philip Gould, and Reverend William Paley (1743-1805), had in one form or another dominated influential elements of scientific and religious thinking since the seventeenth century. One of the principal exponent in the early 1800s of this distinctively Anglican intellectual movement was Paley, whose *Natural Theology* (1802) became its key text.[60] Natural Theologians searched for evidence of God's designing hand

58. Louis Agassiz and Philip Gould, *Comparative Anatomy*, enlarged edition (London: H. G. Bohn, 1851), p. 8.
59. William Paley, *Natural Theology, or Evidences of the Existence and Attributes of the Deity, Collected From the Appearances of Nature* (London: R Faulder, 1802)., p. 579. Other key texts in the long history of Natural Theology include John Ray, *The Wisdom of God Manifested in the Works of the Creation: in Two parts; viz The heavenly Bodies, Elements, Meteors, Fossils, Vegetables, Animals (Beasts, Birds, Fishes, and Insects); more particularly in the Body of the Earth, its Figure, Motion, and consistency; and in the admirable Structure of the Bodies of Man, and other Animals; as is also in their Generation, & c. With Answers to Some Objections* (London, printed for Samuel Smith, 1691); William Derham, *Physico-theology, or, A Demonstration of the Being and Attributes of God from his Works of Creation Being the Substance of XVI Sermons Preached in St. Mary le Bow-Church, London, at the Hon'ble Mr. Boyle's Lectures in the Years 1711 and 1712* (London: W. Innys, 1713); Linnaeus, *Oeconomia Naturae* (Uppsala, 1749); and John Bruckner, *A Philosophical Survey of the Animal Creation* (London: J. Johnson and J. Payne, 1768).
60. As noted earlier, Natural Theology represented the orthodoxy of more liberal Protestant scientists. Roman Catholics, Evangelicals and Calvinists alike were generally deeply distrustful of attempts to use science to unveil the divine mysteries of creation.

on earth, and their work implied a more beneficent Creator, and a less bleak reading of the Fall, than that offered by their Evangelical counterparts. Natural Theology drew heavily on Enlightenment beliefs in the possibility of progress through rationality, and believed firmly that reason and rigorous scientific observation would reveal the evidence of God's design. Through a synthesis of faith and science, the benign intentions of the Creator on earth would become accessible. By foregrounding the apparent care taken by God in making the earth bountiful, Natural Theologians sidestepped the implications of the Fall, and avoided the characteristic Evangelical reading of nature as a wasteland.

If one accepts that Ruskin rejected Evangelicalism, it might seem logical, therefore, to suggest that he belonged within Natural Theology. Indeed, the views he put forward in *Modern Painters* often seemed wholly consonant with that tradition, and it is clear that to some extent Ruskin did hold some degree of allegiance to Natural Theology. For a start, and as I have already shown, *Modern Painters* was more inclined to argue for the beneficence of creation than for its degradation. All the same, it is far from clear that in private Ruskin meekly followed Paley's warning that 'we may well leave to Revelation the disclosure of many particulars which our research cannot reach'. For Ruskin, moving on from strictly Evangelical readings of nature did not necessarily mean residing comfortably within the alternative orthodoxy of Natural Theology. As his early correspondence, his geological work, and his support for Colenso all demonstrated, he refused to reject science, even when science conflicted with scripture. Natural Theology sought to reconcile geology and *Genesis*, while Ruskin sided with sceptics on this issue. I would argue that he moved on, not only from Evangelicalism, but from some key aspects of Natural Theology. Whilst it is not possible to indicate such an absolute break from this movement as it is from Evangelicalism, Ruskin was clearly unable to accept many tenets of Natural Theology, and moved towards

conceptualising the natural world in much more dynamic terms.

The central idea of Natural Theology was 'design': just as it was possible to discern the inventor from an invention, so the designing hand of God could be found in the natural Creation. Paley's re-working of the image of 'the watch on the heath', which opens *Natural Theology*, is the most famous exposition of this idea:

> Suppose I pitched my foot against a stone, and were asked how the stone came to be there, I might possibly answer, that, for any thing I knew to the contrary, it had lain there for ever; nor would it perhaps be very easy to show the absurdity of this answer. But suppose I had found a watch upon the ground, and it should be enquired how the watch happened to be in that place, I should hardly think of the answer which I had before given, that, for any thing I knew, the watch might have always been there. Yet why should not this answer serve for the watch, as well as for the stone? [...] For this reason, and for no other, viz. that, when we come to inspect the watch, we perceive (what we could not discover in the stone) that its several parts are framed and put together for a purpose.[61]

The scientist should actively discern Divine purpose in the stone, the plant and the animal, and seek the laws by which nature had been constructed. Like Newton, Paley discerned a mechanical model for a natural world governed by unchanging rules. That natural theologians partook so heavily in quantitative ways of viewing the world, both in terms of its 'primary features', and in its overriding sense of the world as essentially mechanistic, placed their science in opposition to more 'modern' streams of thoughts which emerged during the late eighteenth century and in the years that followed. For many followers of Natural Theology, nature could show progress (in that we can see the enhanced level of design in hierarchies which move, typically, 'from mollusc to man') but not development (in evolutionary terms). The perfection of God's design maintained the earth in an essential

61. Paley, pp. 2-3.

equipoise, despite cyclical movements like the life cycle and the seasons. In many important ways, nature – for Natural Theologians – was static. Ruskin, influenced by the idea of pre-ordained rules and laws of organic and inorganic structure and arrangement, seemed in 'Of Leaf Beauty' to concur:

> [From vegetation] most of the pleasures which we need from the external world are gathered, and most of the lessons we need are written, all kinds of precious grace and teaching being united in this link between the Earth and Man; wonderful in universal adaptation to his need, desire, and discipline; God's daily preparation of the earth for him, with beautiful means of life (7. 15-16).

However, the impression given by his remarks about 'vegetation' in 'Of Leaf Beauty', which he described as the 'mystery of intermediate being' and as an 'unsuffering creature', pointed in a contrary direction. His inability to maintain divisions between human and vegetable life was incompatible with the Natural Theological belief that humanity was the apex of creation. Natural Theology anthropomorphically rendered natural forms ciphers of the greater significance of humanity, and acted like Evangelical typology in its analysis of nature.[62]

62. Nature was not only of practical utility to 'Man', but also provided spiritual lessons – an aspect of Natural Theological practice which Ruskin frequently employed. Hugh Miller argued that God's 'aim in forming the earth, in allowing it to undergo the successive changes which geology has pointed out, and in creating successively all the different types of animals which have passed away, *was to introduce man upon the surface of our globe*'. For Miller, 'Man is the end towards which all the animal creation has tended from the first appearance of the first palaeozoic fishes', he argued. In this emphatically linear, progressive account, Miller argued that two meanings of 'type' converge, one a typological 'prophecy embodied in a symbol', the other suggesting a typical 'pattern form' in nature. Tracing such types in mammalian digits and vertebral links, he suggested that geological evidence was a prefigurative insight into god's intentions in the final creation of man. Each species therefore owed its meaning and existence to its role in aiding humankind and expressing the Divine plan in the cosmos (Miller, *The Testimony of the Rocks, or Geology in its Bearing on the Two Theologies, Natural & Revealed* (1857; lecture originally given in 1852), Lecture Fifth, 'Geology in its Bearings on the Two Theologies', in Cosslett (ed), p. 6).

Ruskin's accounts severely compromised such readings. In the 'The Work of Iron' and 'Of Leaf Beauty', organisms did not often appear in this clearly subservient guise, but were more generally represented as independent, purposeful, and 'vital'. Natural Theology was not given to believe that plants had souls, but 'Of Leaf Beauty' seemed to have at least entertained the notion. Sometimes nature was divided from humanity, but more often vegetation, and, in 'The Work of Iron', mineral forms, were in communion with it. The often indeterminate status of plants and rocks in Ruskin's work, corroded divisions established in orthodox Natural Theology between animate and inanimate, passive and dynamic, matter and mind.

Ruskin's work therefore displayed an underlying uneasiness when it offered Natural Theological orthodoxies. For example, the opening chapter of 'Leaf Beauty' argued that flora and fauna had been designed specifically with human benefit in mind, but quickly turned into a description of the energetic independence of trees and other plants. Forests, he argued, offered many utilities to humankind:

> Tall spreading of foliage to shade him from sun heat, and shade also the fallen rain, that it may not dry quickly back into the clouds, but stay to nourish the springs among the moss. Stout wood to bear this leafage: easily to be cut, yet tough and light, to make houses for him, or instruments [...] useless it had been, if harder; useless, if less fibrous; useless, if less elastic [...] The seeds which are to prolong the race, *innumerable according to the need*, are made beautiful and palatable, *varied into infinitude* of appeal to the fancy of man, or provision for his service: cold juice, or glowing spice, or balm, or incense, softening oil, preserving resin, medicine of styptic, febrifuge, or lulling charm: *and all these presented in forms of endless change* (7. 16; my emphasis).

The language of this passage revealed Ruskin's point of departure from Natural Theology. Despite the rhetorical power of the repeated 'useless', perfect design was eclipsed as the central focus of his treatment. The energy of the passage derived

instead from the 'forms of endless change', 'varied into infinitude' which Ruskin discerned, the variations which were 'innumerable according to the need', and which appeared altogether less static here than in Paley's cosmos. The sensual tone of the listing of tree produce evoked a nature which was luxuriantly, perpetually bountiful, rather than regulated and restricted. Such forms, not merely 'innumerable' but subject to 'endless change', were frequently offered in *Modern Painters*. Both 'endless change' and innumerability were principal theoretical supports in the construction of the theory of evolution by natural selection. The natural world that Ruskin discerned was in many ways as close to Darwin as to Natural Theology. Ruskin may have claimed to show 'God's daily preparation of the earth' for humankind, 'with beautiful means of life', but his nature studies always led him towards a modern approach to natural phenomena which recognised a lengthier timescale, infinite variety in nature, the importance of anatomy, ecology, and of a dynamic environment (7. 15). What was revealed by Ruskin's inability to adhere to the hierarchies of Natural Theology (or of Evangelicalism, or Linnaean science) was his adherence to a modern concept of organic life that was finding its principal expression in the emergent science of ecology. Ruskin's use of analogy in his descriptions of tree growth blurred boundaries between organic life forms. In *Modern Painters V*, Helsinger points out, 'not only animals but trees, rocks, and clouds all seemed alive in varying degrees', because 'Ruskin admitted no sharp division between animate and inanimate nature'.[63] Such a view was out of harmony with Natural Theology, but indicative of Ruskin's ecological consciousness. Paley's sense of *Homo sapiens* as the only species capable of comprehending God's plan was undermined by Ruskin's belief that in their purposive behaviour, trees and other plants also celebrate and express the creative energy behind all life. As 'The Work of Iron' showed, even a pebble was capable of understanding something of this.

63. Helsinger, p. 32.

VIII. Ruskin's ecological science: matter and spirit in the building of trees

Given that a number of sections of this chapter have focused on what Ruskin's scientific position was *not*, it is useful at this stage to clarify just how his science played out in a specific text, in terms of its reliance on the groundwork of materialist investigation. In the previous chapter, I outlined the ecological organisation revealed and expressed by 'Of Leaf Beauty'. It is worth now briefly outlining how his scientific ecology and what we might term his cultural science was grounded in materialist methods.

The human analogies of 'Of Leaf Beauty' grew out of materialist, observational science. Every truth that could be squeezed from this narrative was built upon the central contention that the life of tree buds was dependent on environment. In recognising external agency, Ruskin showed that the shape, size and disposition of leaves resulted from their role as seekers of light and air; and guided readers through the processes by which trees coped in a world of disease, weather, and parasites. The form taken by trees was a factor both of their function and of interactions with the environment. The environmental determinism of these chapters was encapsulated in a number of phrases. Ruskin spoke of the impact upon the tree of 'the great merciless influences of the universe, and the oppressive powers of minor things immediately near it', forces which 'act continually', so that 'heat and cold, gravity and the other attractions, windy pressure, or local and unhealthy restraint, must, in certain inevitable degrees, affect the whole of its life' (7. 49). The material need to find resources was inescapable and remorseless, Ruskin argued: 'the family of leaves which [the stem] bears are forced unanimously to take some given direction in search of food or light' (7. 58). Material imperatives were emphasised in Ruskin's insistence that 'where the sun and air are, the leaf must go' (7. 48).

Ruskin's descriptions of bud growth contained a recognition of death that recalled, but softened, the uncompromising materialism of his letters on Eden:

> They will fail [...] fail egregiously; – ridiculously; – it may be agonizingly. Instead of growing up, they may be wholly sacrificed to happier buds above, and have to grow *down*, sideways, roundabout ways, all sorts of ways [...] Yet out of such sacrifice, gracefully made – such misfortune, gloriously sustained – all their true beauty is to arise. Yes, and from more than sacrifice – more than misfortune: from *death* (7. 74).

A higher purpose was now conjoined to the material necessity of death. In the eighth chapter, he drew attention again to its lessons. Entreating readers to avoid 'pensiveness' at the sight of falling leaves, he reminded them that the 'stately' and 'eternal' forests were 'monuments of those poor leaves that flit faintly past us to die' (7. 100). The materialist recognition of death and decay was again combined with spiritual, aesthetic, and social purpose. Ruskin's materialism was moderated by his cultural scope: his desire to organicise human life in some senses humanised organic life. Earlier in the eighth chapter, he likened the appreciation of the 'proportionate strengths and measured efforts' of larger boughs to 'the same fine instinct which enables us to perceive, when a girl dances rightly, that she moves easily, and with delight to herself':

> You may know, though you cannot see, that an absolute mathematical necessity proportions every bend of the body to the rate and direction of its motion, and that the momentary fancy and fire of the will measure themselves, even in their gaily-fancied freedom, by stern laws of nervous life, and material attraction, which regulate eternally every pulse of the strength of man (7. 86).

Just as in 'The Work of Iron', Ruskin drew the material world of nature into close

communion with human culture, and expressed the indivisibility of our ecological bonds with nature. The dancing girl, and the grace of a tree bough, were equal manifestations of the same laws of energy and matter, but also of the same source of divine guidance. Equally, they denoted a world in harmony, but also in motion. Understanding these organic truths required a human subject capable on the one hand of theorising on 'stern laws of nervous life, and material attraction', but, on the other, also able to 'know' without seeing, the truths of organic life. The lessons of matter, and of spirit, were united harmoniously in the works of this period, but such unities would never again be achieved so effectively in Ruskin's work.

IX. A cultural science.

Having considered key aspects of the interplay of science and religion in Ruskin's studies of nature, I would like to close this chapter by examining in more general terms how he conceived the relationship between science and human culture; and of how, in the years prior to Darwin, he hoped to achieve a cultural science that combined materialism and human sensibility in equal, proportionate measure.

In *Modern Painters I*, Ruskin focused on a mountain landscape by Turner, in which he found a distinctively holistic reading of environment:

> The whole truth has been given, with all the relations of its parts; so that we can [...] reason upon the whole with the same certainty which we should after having climbed and clambered over the rocks bit by bit. With this drawing before him, a geologist could give a lecture upon the whole system of aqueous erosion (3. 487-88).

The ecologically interconnected view of systems was present here, of course, but the power of Turner's 'scientific' investigation of nature is also worth noting. It offered the geologist 'the capability [...] of reasoning on past and future phenomena' and provided both material truths about landscape and a rendering of its imaginative

aspects (3. 487). In *Modern Painters I,* Ruskin argued that the landscape painter had two 'great and distinct ends' which were 'to induce in the spectator's mind the faithful conception of any natural object whatsoever', and also to guide their minds towards an imaginative response 'to those objects most worthy of its contemplation' (3. 133). The imagination had value only once facts were in place:

> Although it is possible to reach what I have stated to be the first end of art, the representation of facts without reaching the second, the presentation of thoughts, yet it is altogether impossible to reach the second without having previously reached the first.

So whilst imaginative representation was 'the real and only important end of all art', scientific truth is 'the foundation of all art (3. 136)'.

Such thoughts were revisited in greater detail in an important chapter of the third volume of *Modern Painters*, 'The Moral of Landscape'. Here, Ruskin's impatience with Wordsworth's anxiety at the picking of leaves or breaking of stones expressed his desire to clarify the role of scientific research in the study of nature. 'The chief narrowness of Wordsworth's mind', Ruskin insisted, was that 'he could not understand that to break a rock with a hammer in search of crystal may sometimes be an act not disgraceful to human nature' or that 'to dissect a flower may sometimes be as proper as to dream over it' (5. 359). 'The Moral of Landscape' articulated Ruskin's belief that 'a curiously balanced condition of the powers of mind is necessary to induce full admiration of any natural scene' (5. 357). Most people, he argued, were incapable of achieving the rare balance necessary for the full comprehension of nature. To illustrate this point, he described the responses that different people might have on encountering a pine tree. The first, 'perhaps an engineer', we are told, 'is struck by the manner in which their roots hold the ground, and sets himself to examine their fibres'. After a while, this earnest individual retained 'no more

consciousness of the beauty of the trees than if he were a rope-maker untwisting the strands of a cable'. For the second individual 'the sight of the trees calls up some happy association, and presently he forgets them, and pursues the memories they summoned'. Likewise, a third 'is struck by certain groupings of their colours, useful to him as an artist, which he proceeds immediately to note mechanically for future use'. Meanwhile, the fourth, 'impressed by the wild coiling of boughs and roots, will begin to change them in his fancy into dragons and monsters, and lose his grasp of the scene in fantastic metamorphosis' (5. 358). Each in their different errors failed to grasp the *dasein* of the tree's existence.[64] Only in rare individuals like Turner were 'all these perceptions and trains of idea' presented in 'a mingled and perfect harmony' (5. 358). Such a desire for unity in the fields of knowledge, was far from unique in Victorian science. Agassiz and Gould, for example, warned against falling into 'gross materialism':

> Two points of view should never be lost sight of, or disconnected, namely, the animal in respect to its own organism, and the animal in its relations to creation as a whole. He who beholds nothing in nature besides organs and their functions, may persuade himself that the animal is merely a combination of chemical and mechanical actions and reactions, and thus becomes a materialist.

They insisted that the opposite error, 'a vague pantheism', was also dangerous:

> He who considers only the manifestations of intelligence and of creative will without taking into account the means by which they are executed, and the physical laws, by virtue of which all beings preserve their characteristics, will be very likely to confound the creator with the creature.[65]

64. Fitch's use of this phrase in connection with Ruskin's botany is particularly fitting. See Fitch, p. 331.
65. Agassiz and Gould, p. 8.

Like many others, Agassiz hoped in the years prior to 1860 to maintain an alliance of Christianity and science in the face of Lyell's geology and the emergence of evolutionist theories like Robert Chambers' highly speculative *Vestiges of the Natural History of Creation* (1844).[66] By calling for an approach that did not fall into narrow specialisms, Ruskin held the same view. Both men were confident that a 'mingled and perfect harmony' between science and wider culture could be maintained. In speaking of Wordsworth's abhorrence of a science that practised dissection of rocks and plants, Ruskin even argued that 'among men of average intellect the most useful members of society are the dissectors, not the dreamers' (5. 359). It is clear that at this early stage, at least, he saw a critical, but not an exclusive, role for science in the investigation of nature.

Ruskin's natural history consistently stresses the necessity of a balance between scientific and artistic viewpoints in analyses of landscape and natural forms. One of the questions that will recur throughout the following chapter concerns the degree to which Ruskin was able to maintain this balance. 'Landscape' for Ruskin was both an idea and a collection of 'facts', and meant more than either personal engagement with beauty or a scientific description of the physical characteristics of natural systems. He believed that a rational investigation into landscape, if imbued with spirituality, could yield much more than either science or art alone could achieve. There was, however, an embedded anxiety within this project which arose because of the debates over the relationship between science and the Bible which have been discussed so far. If Ruskin's attempt to bring science and art together on something like an equal footing appeared on one level to be common sense, it was also indicative of debates about the territories which these different

66. Robert Chambers, *Vestiges of the Natural History of Creation* (London: John Churchill, 1844).

discourses might control, and whether science might attempt to increase its significance and power by annexing those areas of culture which had traditionally been the preserve of clerics, art critics, and moralists. The tool by which these annexations were effected was materialism, which operated on the monistic premiss that everything was reducible to matter. In the changing climate of the 1870s and 1880s, the territorial advances of materialism would be considerable. Ruskin's work of this period should be read as an attempt to reunite this shattered alliance, but his attempts in this respect became increasingly desperate, forlorn and pessimistic, giving way in turn to outright condemnation of the 'evils' of modern science. Given its central role in bringing about these changes, and in forcing Ruskin to reconfigure his scientific outlook, it will be necessary to address the issue of Darwinism more directly in the following chapter.

In showing that Ruskin was out of sympathy with Linnaean Natural History, Natural Theology, and Evangelicalism, I wished to understand how this might affect a reading of his response to nineteenth century materialism. In no way do I aim to brush aside Ruskin's vocal opposition in later life to these strands of nineteenth century science. However, by understanding that Ruskin's earlier attitude to materialism was less antagonistic than his later views, it is possible to dismiss the notion that Ruskin's later distaste for materialism was merely a development of, rather than a shift from, his early attitudes, and permits one to re-investigate the nature of Ruskin's Darwinian crisis in a fairer and a more revealing way.

CHAPTER 3, SEX, MATERIALISM AND THE FALL OF ECOLOGY IN RUSKIN'S LATE WORK

In the first chapter, I outlined a movement from metaphor to analogy during the period in which Ruskin was writing *Modern Painters*, and argued that this was indicative of the development during the 1850s of his ecological view of nature, knowledge, and society. In the second chapter, I analysed Ruskin's scientific position prior to 1870, arguing that he often went much further in endorsing materialism than is generally acknowledged. The imprint of an ecological vision drawn from a combination of dynamic materialism and an engagement with cultural issues shaped those key texts of the 1850s and early 1860s in which he completed his most ambitious work on the interplay of nature, aesthetics, and society. Having concluded that Ruskin had often been open to materialism in the period prior to 1870, I would now like to examine why Ruskin's relations with materialism changed after this date. It is necessary to examine the powerful influence of Darwin, outline the nature of Ruskin's objections to evolutionism, and trace the way that it led to an erasure of ecology, a rise in moral mythopoesis, and a new belief in the Fall of nature in that key text of Ruskin's late botany, *Proserpina*.

My first task will be to demonstrate that Ruskin's attitude to nature began to change in the 1860s, becoming increasingly pessimistic about the possibility of an ecologically-harmonious future. I will argue that this more forlorn reading of nature arose partly as a response to environmental degradation, and that this was one factor leading him to construct an entirely new typology of nature in the 1870s. However, the primary cause of Ruskin's changed attitude to nature was evolutionary theory. Given this, I believe that one must also face a crucial question about Ruskin's reception of Darwinism: why did his opposition to evolutionary theory not emerge until over a decade after the publication of Darwin's *Origin of Species* in 1859? In attempting to answer this key question, a number of enquiries will become

necessary, but my key contention throughout – and one on which a number of other conclusions will rely – is that Ruskin chose direct, implacable opposition to Darwinism only after the publication of *The Descent of Man* in 1871.[1] That text, much more than *The Origin of Species*, fatally endangered Ruskin's notion of a balanced cultural science.

To introduce this contention, I will compare Ruskin's attitude to flowers at two moments in his career, in the passages on the trees of Eden from *Letters to a College Friend*, and in a discussion of cherry blossom in *Proserpina*. By doing so, I will show that his later work deliberately rejected his own, earlier, materialist readings of nature; and that Ruskin's early and late work were irreconcilable in terms of attitudes to reproduction, function, and aesthetics. This textual comparison will prove doubly instructive because it demonstrates that the issue of sex was a crucial aspect of Ruskin's opposition to Darwin. After the publication of *Origin of Species*, Ruskin did not deny its claims, and his initial response suggested he felt it might be possible to avoid conflict between culture and biology. *The Descent of Man*, with its apparent reduction of social interaction and love to reproduction, and its direct focus on human biology, seemed to Ruskin to be a materialisation of human existence that threatened not just the morals of a generation, but the whole notion of culture. As Roger Smith argues, 'mid-nineteenth century biological thought had a peculiarly significant status, since decisions about its contents were seen to have immediate implications for [...] the understanding of human concepts of value and purpose'.[2] Ruskin was amongst those who believed that Darwinism represented an unacceptable reductionism, and an annexation of the prerogatives of aesthetic and cultural studies. This required that he reject his previously more

1. Charles Darwin, *The Descent of Man, and Selection in Relation to Sex* (London: John Murray, 1871).
2. Roger Smith, 'The Human Significance of Biology: Carpenter, Darwin, and the *vera causa*' in Knopflmacher and Tennyson (eds.) (pp. 216-230), p. 217.

generous attitude to materialism. His antagonism to Darwin arose as he came to feel that the logical result of the materialism that they had both in various ways employed, when played out in sexualised evolutionary theories, was morally and socially unacceptable.

Ruskin's opposition to Darwin in the 1870s was problematic (and particularly vociferous) because it involved a rejection of precisely those materialist methods and that dynamic conceptualisation of the natural world that had been such an important component of his own approach to science in works prior to 1870. One of the key outcomes of Ruskin's opposition to evolutionary theory was that after 1871 ecology began to disappear from works like *Proserpina*, a phenomenon I will examine in some detail. That this attempted erasure was not absolutely successful indicated that even at this late stage, Ruskin's characteristic inability to resolve the tensions that always existed in his work – between a Christian, anthropomorphic vision of nature, and one in which a combination of materialism and culture led to a vision of environment as dynamic and biocentric – continued unabated. In the middle period of his career, he had moved purposefully towards biocentrism; but in later years, he retreated firmly back towards an anthropocentrism that was inimical to his own ecological principles.

Without the guidance of his ecological vision, Ruskin's later botany was stripped of the vital, hopeful energy that had characterised earlier works. Beginning with the earliest-written chapters, I will chart a movement from work that resembled 'Of Leaf Beauty' in its commitment to detailed field research, close observation, and ecology, to chapters written after 1875, when this approach was abandoned in favour of mythopoesis. The moral messages of the flower studies of *Proserpina* grew bleaker as they became less grounded in empirical botany: his mythology of flowers moved away from the source of truth on which Ruskin had always relied (the natural world as revealed by a combination of material and aesthetic investigation, filtered

through cultural gauze) and into the realms of a personal vision that veered in disorienting fashion between whimsy and apocalypse.

Ruskin's ability to draw positive lessons from plants increasingly deserted him. His moral readings condemned to damnation parts of the vegetable kingdom, as vegetation ceased to be a Godly 'veil of strange intermediate being' and became the site of moral warfare. Finley suggests that Ruskin came to believe that nature had suffered a 'Fall', and that, ironically, this brought him closer than he had previously been to the tenets of his evangelical upbringing, a view I will support by offering evidence from *Proserpina*.[3] In this distinctively post-lapsarian text, Ruskin directed his attention to 'Studies Of Wayside Flowers, While The Air Was Yet Pure, Among The Alps, And In The Scotland And England Which My Father Knew' (25. 187). This sub-title indicated a yearning for a utopian moment prior to the social, spiritual, and environmental calamity that Ruskin felt had struck Europe. The fall of nature that followed was the result of a complex of crises occurring in Ruskin's environmental, religious, scientific, and social attitudes.

In *Proserpina*, Ruskin's new belief in an immanent Fall led to the depiction of various plants as degraded or evil. At the same time, his suspicion of the 'unclean' science of evolution led to the erasure of ecological science from his work. Both of these changes were related, and I will show that they came together in terms of Ruskin's attitude to gender in the text. Replacing materialism, ecology, and observation with morality, mythology, and assertion, he constructed an entirely new system of plant names to challenge the existing nomenclature of his day. He did so to excise references to sexual function from plant names, and proposed a new series of plant orders which he termed 'queendoms', each ruled by a figure from ancient mythology. In promoting this desexualised vision of both flowers and women, he revealed anxieties about the sexualised and materialised vision of *The Descent of*

3. Finley, 'Ruskin, Darwin and the Crisis of Natural Form'.

Man, and displayed his own attitudes to female sexuality in ways that are worth inspection.

Proserpina is a key text because within its confused and often confusing pages, the drama, and ultimate failure, of Ruskin's faltering attempts to maintain an alliance between science and culture were revealed in all their varied forms. The fall of ecology in that work was concomitant with the rise of moral judgement of plants, which in turn related to his belief in the Fall of nature. Both of these changes were results of the impact of Darwinism, which also led to the construction of an alternative mythological nomenclature, and to his highly gendered account of flowers. All of these changes, when taken together, and placed in relation to one another, make sense when one posits that *The Descent of Man*, rather than *Origin of Species*, provided the major crisis point in Ruskin's response to materialism.

I. Intimations of ecological crisis: *The Crown of Wild Olive* (1866)

The successful conjunction of materialist ecology, culture, and aesthetics in 'Of Leaf Beauty' indicated the confidence of Ruskin's nature vision in 1860, even as Darwin's *Origin of Species* was being digested by the reading public. During the decade that followed, a number of changes occurred that left Ruskin much more pessimistic about the natural world. One of these was destruction of landscape, which prefigured for Ruskin a more widespread breakdown of ecological organisation in both nature and society. In *The Crown of Wild Olive* (1866), Ruskin's ecological insights were conjoined to unprecedented alarm at the degradation of natural systems by industrial development, urbanisation, and extension of communications. In 'The Work of Iron', Ruskin had contrasted the present, ecologically-organised state of harmony to a synthetic alternative which threatened to bring about environmental apocalypse. Ecological harmony, restored to his audience in a rhetorical sleight-of-hand, was valorised by the dreadful

epiphany that had presaged it. In 'The Work of Iron', apocalypse resided in a possible future.[4] In later texts, it had often already happened, and led Ruskin to offer a new contrast: the non-natural state of things as they appeared to have become was placed alongside an aspirational future in which ecological harmony might just return. A powerful example of this occurred in the introduction to *The Crown of Wild Olive*, an 1866 collection of lectures in which Ruskin raged at Victorian society. Hanley argues that Ruskin's later work showed his conviction that 'the well-springs of Christian civilisation were indeed dried up'. Although Hanley does not discuss *The Crown of Wild Olive*, it provides rich evidence for his argument.[5] A recurrent concern of these political lectures was the degradation of nature by industry, an issue to which Ruskin turned directly in the introduction.

In the introduction, Ruskin returned to the pools of the River Wandel in Croydon, a favoured haunt of childhood, only to find the same narrative of declining value, vitality, and beauty that throughout the volume he discerned in society. The elegiac prose style of the opening passage seemed to intimate that the idyll he described existed only in memory:

> Twenty years ago, there was no lovelier piece of lowland scenery in South England, nor any more pathetic in the world, by its expression of every sweet human character and life, than that immediately bordering on the sources of the Wandel, and including the low moors of Addington, and the villages of Beddington and Carshalton, with all their pools and streams. No clearer or diviner waters ever sang with constant lips of the land which 'giveth rain from heaven;' no pastures

4. A number of writers deal effectively with issues of Ruskin, apocalypse, and late nature texts, notably Fitch, and, in probably the most authoritative account of Ruskin's reading of *Revelation* and its influence on his environmental position, Wheeler's 'Environment and Apocalypse' in Wheeler (ed.), pp. 165-186. Wheeler demonstrates many ways in which Ruskin employed biblical exegesis in a hermeneutic examination of nature.
5. Hanley'The discourse of Natural Beauty', p. 20.

> ever lightened in spring-time with more passionate blossoming (18. 385).

The repeated use of 'no' and 'ever', and the rhythmic sentence structure, acted as a lament. On returning in 1870, Ruskin declared that 'I have never seen anything so ghastly in its inner tragic meaning [...] as the slow, stealing of aspects of reckless, indolent, animal neglect, over the delicate sweetness of that English scene' (18. 385, 386). As Carroll points out, the dreadfulness of this pollution of beauty represented for Ruskin, 'the *topos* of sacred contagion'.[6] The horror Ruskin felt was redolent of 'blasphemy and impiety', because it was an 'insolent defiling of those springs by the human herds that drink of them' (18. 386). This fouling of holy waters represented the destruction of divine ecology.

For what this older Ruskin found was not the 'clear' waters of childhood, but a riverbank that had become 'dead earth' overrun by the 'street and house foulness' dumped by 'the human wretches of the place'. Unable to divert his eyes, Ruskin obsessively detailed the 'heaps of dust and slime, and broken shreds of old metal, and rags of putrid clothes' dumped into the river to 'diffuse what venom of it will float and melt'. Further on, he encountered 'a ragged bank of mortar, and scoria, and bricklayer's refuse', 'and there, circled and coiled under festering scum, the stagnant edge of the pool effaces itself into a slope of black slime, the accumulation of indolent years' (18. 386). The references to venom and to coiled forms pointed to a religious context, but ecology was also a key source of Ruskin's descriptive energy. The scene he revealed was essentially one of disarrangement, of the improper conjunction of phenomena. Some of the rubbish on one bank, 'the clean water [...] chastises to purity', but even the dynamic forces of nature 'cannot conquer the dead earth beyond' (18. 386). The ecological order which had once existed had been overthrown by a chaos of non-natural elements

6. Carroll, p. 72.

incapable of change and interaction. The ability of nature to transform, to undergo dynamic processes, was the key to the ecological world described in texts like 'The Work of Iron'. Carroll perceptively picks up on the 'types of rubbish which are resisting the return to dust and slime' in *The Crown of Wild Olive*. He argues that in not conforming, or conforming only slowly, to the laws of biodegradability, and so maintaining 'their grotesque identity', they symbolised profanity to Ruskin.[7] Nature's covenant was defiled, but also confounded in its attempts to re-absorb pollution and begin its re-formation.

In *The Crown of Wild Olive* and elsewhere, Carroll argues, Ruskin depicted a society obsessed with decay and corruption:

> Ruskin offers the Victorians the kind of stark choice they were accustomed to [...] Were they to worship God in Creation or the Divinity of Decomposition? For Ruskin the opposing powers are those validating his natural theology and those of devilish Mammon [...] They are held in balance as his childhood self wanders in memory through the sacred sites in which he now stands knee-deep in rubbish. The two coexist under enormous pressure in his (and the reader's) mind, as the endless metonymies of modern civilisation are superimposed upon the precise metaphors of Eden, and the precious pastoral composition is decomposed before our eyes.[8]

The inner failings of humanity were writ large on the landscapes of Europe, and the Fall had become possible. Whilst nature continued to offer the possibility of redemption, Ruskin became less optimistic that humanity would embrace its solutions. What he found in the stagnant pollution of the Wandel indicated the stark nature of the crisis. If dynamic change was no longer possible in the face of human desire and industrial progress, there could be no future. Neither natural nor human

7. *Ibid.*, p. 73.
8. *Ibid.*, pp. 74-5.

aid was possible. The latter was withheld because the day's work for six men which Ruskin claimed could cleanse the pools 'is never given, nor, I suppose, will be; nor will any joy be possible to heart of man, for evermore, about those wells of English waters' (18. 387). In a fitting postscript to the narrative, Ruskin paid for the cleansing of the pools, only to find that within a few years the scene had reverted to lapsarian pollution.[9]

Leaving the pools of Wandel, Ruskin turned into Croydon High Street, only to find something like the triumph of polished iron of which he had warned his audience in Tunbridge Wells in 1858. Eight years on from that lecture, he described a public house, 'built in so wise manner, that a recess of two feet was left below its front windows, between them and the street-pavement'. Although this area was 'too narrow for any possible use', the publican had 'by way of making this two feet depth of freehold land more expressive of the dignity of an establishment for the sale of spirituous liquors', added 'an imposing iron railing, having four or five spear-heads to the yard of it, and six feet high; containing as much iron and iron-work, indeed, as could well be put into the space'. This had produced 'a protective receptacle of refuse; cigar ends, and oyster-shells, and the like, such as an open-handed English street-populace habitually scatters' (18. 387). The greatest waste was that the human energy that had gone into their production 'would have cleansed the Carshalton pools three times over'. Worse still, this was not healthful, outdoor work, but 'work, partly cramped and perilous, in the mine; partly grievous and horrible, at the furnace; partly foolish and sedentary, of ill-taught students making bad designs'. Like the spoiling of the pools, the iron railings represented work that was 'venomous, deathful, and miserable', and which moved humanity so far from the lessons Ruskin sought in nature that it moved him to attack, in the remainder of

9. Ruskin's own efforts to cleanse the spring, undermined by continued dumping and the intransigence of local officials, had to be abandoned in 1877 (see 22. 533).

the introduction, the overarching mechanisms of capitalism (18. 387-8, 388).

Because 'the greater part of the profitable investment of capital, in the present day, is in operations of this kind, in which the public is persuaded to buy something of no use to it, on production or sale of which the capitalist may charge per-centage', Ruskin called for wholesale reformation of labour:

> If his labour is so ordered as to produce food, and fresh air, and fresh water, no matter that his wages are low; – the food and fresh air and water will be at last there; and he will at last get them. But if he is paid to *destroy* food and fresh air, or to produce iron bars instead of them, – the food and air will finally *not* be there, and he will *not* get them, to his great and final inconvenience (18. 389, 391).

In this return to the themes of the closing lecture of *Unto This Last*, Ruskin offered an alternative to modern political economy that promised a society modelled on organicism.[10] Ruskin urged his readers to take on board his ecological model of society as a network of self-supporting and mutualistic individuals engaged in a higher pursuit of the true wealth of life, rather than profit.

In what may have been a startling manoeuvre to those of Ruskin's readership who recalled his Protestant homilies of *The Seven Lamps of Architecture* and the early volumes of *Modern Painters*, Ruskin warned that early pagans understood the organic nature of society better than their nineteenth-century, Christian counterparts:

> Was this grass of the earth made green for your shroud only, not for your bed? And can you never lie down *upon* it, but only *under* it?

10. In *Unto This Last* Ruskin declared, 'it matters, so far as the labourer's immediate profit is concerned, not an iron filing whether I employ him in growing a peach, or forging a bombshell; but my probable mode of consumption of those articles matters seriously [...] The difference, to him, is final, whether when his child is ill, I walk into his cottage and give it the peach, or drop the shell down his chimney, and blow his roof off. (17. 102-4).

> The heathen, in their saddest hours, thought not so. They knew that life brought its contest, but they expected from it also the crown of all contest (18. 398).

The crown achieved by economic competition was gold, but that received by the heathen was superior, because natural: 'no jewelled circlet flaming through Heaven' but instead 'some few leaves of wild olive, cool to the tired brow'. Happiness could be found only in the gentler, co-operative energies of organic life:

> The wreath was to be of *wild* olive, mark you: – the tree that grows carelessly, tufting the rocks with no vivid bloom, no verdure of branch, only with soft snow of blossom, and scarcely fulfilled fruit, mixed with grey leaf and thorn-set stem [...] These, and the blue sky above you, and the sweet waters and flowers of the earth beneath; and mysteries and presences, innumerable, of living things, may yet be here your riches; untormenting and divine (18. 398-9).

The introduction opened with a lament for lost pure waters and closed with a passionate call for a new future modelled on that lost purity. From this point on, however, Ruskin's confidence in the possibility of this new future diminished.

II. The triumph of polished iron

Landow argues that a key feature distinguishing the 'Victorian sage' persona Ruskin adopted in lectures like 'Traffic' in *The Crown of Wild Olive*, from the voice assumed by the ordinary politician was that Ruskin was able to draw attention 'to apparently trivial phenomena, to facts that only he at first perceives can embody meanings important to his listeners'.[11] Landow acknowledges in passing that this was also the method used by Ruskin in the introduction to *The Crown of Wild Olive*.

11. George P. Landow, 'Ruskin as Victorian Sage: The Example of "Traffic"' in Hewison (ed.), p. 90.

The details Ruskin noted in his Croydon walk became redolent of spiritual and environmental catastrophe. The particularities described in Ruskin's perambulation represented moments of crisis, in which the possibilities of his earlier, positive vision of nature and society receded.

For Hanley, Ruskin's late works offer many examples in which 'the Burkean discourse of organicism was coming up against its actual marginalisation in the 1870s by another sort of capital – the infiltration of the effective national discourse of capitalistic imperialism'.[12] He traces the way that landscapes for Ruskin became 'sacred' (but also therefore capable of being 'defiled') as this national discourse spread farther afield, leading Ruskin to adopt an anthropocentric 'proto-environmentalist position'. Sometimes, nature in Ruskin's work provided 'a screen on which the moral condition of a society is projected', whilst at others it offered the possibility of personal reformation. Taken together, these 'add up to an overriding, if untheorised, interest in the relationship between both natural and human factors'.[13] The result of this opposition was played out in Ruskin's defence of places like the Wandel, or, as both Hanley and Carroll point out, of the views and walks of Kirkby Lonsdale in Westmorland.

Turner painted *Kirkby Lonsdale Churchyard* in 1817. The artistic 'station' which the churchyard provided was lauded as amongst the finest in Britain.[14] Ruskin described the Lune valley at Kirkby as 'one of the loveliest scenes in England', and paid particular attention to 'a little bye footpath on the right descending steeply through the woods to a spring among the rocks of the shore'.

12. Hanley, 'The discourse of natural beauty', p. 14.
13. *Ibid.*, p. 18.
14. Thomas Dunham Whitaker, for example, remarked that this was 'perhaps the finest valley in the kingdom' and argued that 'if [...] beauty alone had been attended to in the choice for a capital [...] Kirkby Lonsdale must have been the place' (Thomas Dunham Whitaker, *An History of Richmondshire*, 2 vols. (London and Leeds: Longman, 1823), II, p. 277.

This place had, he argued, been 'more naturally divine' than any other he had known (28. 298, 299). Like the pools of Wandel, however, its purity would not be preserved. In 1875, in another dramatic return to a scene of beauty, Ruskin declared that the area around the churchyard offered 'more ghastly signs of modern temper than I yet had believed possible' (28. 298). In drawing attention to Ruskin's fury at the erection of a strong, elaborately wrought, and spiked iron fence, Hanley does not make the parallel with the Croydon public house, but it is worthy of attention. Both acts of fencing follow the same capitalist logic of domination. Just as in Croydon, waste of resources and the erection of territorial boundaries involved pollution:

> The well at the bottom was choked up and defaced, though ironed all round, so as to look like the 'pound' of old days for strayed cattle: they had been felling the trees too; and the old wood had protested against the fence in its own way, with its last root and branch, – for the falling trunks had crashed through the iron gratings in all directions (28. 299-300).

In these examples of on-the-scene reportage from *Fors Clavigera*, Hanley perceives hostility to enclosure and privatisation, and to the over-management of natural beauty that 'imposed an inner exclusion of utilitarian compartmentalisation, closing down a kind of pleasure that ought to be free-ranging and pervasive'.[15]

Whilst entirely endorsing Hanley's reading, I would like to also draw attention to the manner in which nature itself, and not just human experience of nature, was fenced around by acts of enclosure. The fallen trees became active agents of protest in a rearguard, and increasingly hopeless battle against capitalist interventions in landscape: Ruskin's response still had biocentric and anthropocentric elements, although the latter clearly predominated. That greed which Ruskin perceived in the planners of Kirkby was indicated, as Hanley and

15. Hanley, 'The discourse of natural beauty', p. 20, 21.

Carroll, both observe, by the choice of snakes as decorative features in the new wrought-iron benches that the people of Kirkby had placed 'to admire the prospect from'. The fact that these satanic serpent forms had 'geese-heads without eyes' was entirely fitting for Ruskin, who believed they symbolised the blindness to beauty and debt to greed that had prompted the erection of the fence and benches (28. 300).

Carroll points out that Ruskin described not only his stop at Kirkby Lonsdale but a whole journey from Brantwood to Yorkshire, during which he found other examples of defilement in an urbanised schoolyard at Clapham, and a polluted river at Bolton Bridge (28. 301). The two were linked in Ruskin's mind: modern education failed to produce individuals able to co-exist with nature or to learn spiritual lessons. The uncovering of pollution in its various forms (physical, moral, and spiritual) became a consistent trope in Ruskin's late work, part of an obsessive exercise in uncovering the typology of a degraded world.[16] Hanley notes that 'Ruskin's paradise garden had suffered a fall' in these later years, and argues that because 'for Ruskin, the discourse of "nature" was shaped by the real world', it was inevitable that as his vision of human life and society darkened in the period after 1870, he increasingly 'discerned the outlines of contemporary history in the weather' and other natural phenomena. I would like to demonstrate that this tendency towards what Hanley describes as a 'semiosis of nature', a bringing together at a spiritual level of the worlds of nature and culture, also played out in the world of plants in his late botany, *Proserpina*, and that that work too evidenced his sense of a fallen nature.[17] As this darker vision of nature predominated, it partially replaced that which had previously been grounded in ecology, without, however, entirely erasing its traces. Before outlining this complex series of changes it is necessary to analyse one of the principal reasons that nature suffered a fall during

16. Carroll, pp. 71-2.
17. Hanley, p. 25, 36.

the period between 'Of Leaf Beauty' and *Proserpina*. Whilst there are a number of contributory and overlapping factors, including the effects of industrialisation, as well as Ruskin's own personal and mental disintegration, I would like to direct attention to the emergence of Ruskin's response to Darwin, and its impact on his view of nature and culture.

III. A decade of silence: Ruskin and the *Origin of Species*

If Ruskin had been a biblical literalist, a devout evangelical, an orthodox Natural Theologian, or a lifelong critic of materialism, he would surely have unequivocally opposed Darwin's *Origin of Species* shortly after its emergence in 1859. In the previous chapter, I argued that Ruskin was none of these things, and it should therefore be unsurprising that he did not instantly join those brethren who opposed Darwin. In fact, a decade elapsed before Ruskin responded to Darwin at all, and it took a further couple of years for this response to harden into outright opposition. By demonstrating that Ruskin's eventual opposition to evolutionary theory and all other manifestations of materialist science was a complex development, rather than an instantaneous reaction, I hope to reveal the abiding reasons for his eventual antagonism; to argue that it provides further evidence of the divide between his early and late work; and to set up the sections discussing *Proserpina*, reproduction, ecology, and gender, that will follow.

It could perhaps be argued that in 1859 Ruskin was riper for conversion to Darwinism than many of his Christian counterparts, given his doubts about scripture, acceptance of Uniformitarianism, adherence to a dynamic, Cuvierian view of nature, and defence of Colenso. However, if Ruskin ever seriously considered such a conversion, there is only the sketchiest evidence of it. Fred Kaplan argues that after 1860 Ruskin was disturbed by the potential power that materialist readings of environment held over traditional Christian cosmogony:

> By the early 1860s, severe anxieties disturbed Ruskin, some of which he communicated to Carlyle: "The heaviest depression is upon me I have ever gone through' he reported, because 'the great questions about Nature and God and man have come on me in forms so strange and frightful". His doubts about the reality of God in traditional forms shook the security of his relationship with his parents [...] The notion that nature might harbor [sic] irredeemable destructive powers frightened him.[18]

On one level, this indicated an acceptance of materialist explanations of nature: if materialism were simply untrue, why should it have been attended with such dire consequences? On another level, however, it suggested that Ruskin had begun to transform or distort such materialist readings into those in which nature was invested with non-material powers: if this reading is correct, the beginnings of the transcendent and spiritualised explanation of plants, rocks, and clouds that dominated his work of the 1870s had its genesis here. At this stage, however, it was far from fully formed, and Ruskin was still close enough to materialism to accept the plausibility of its explanations of natural phenomena. Kaplan's analysis suggests that in the 1860s Ruskin's understanding of science undermined his spirituality. Later, however, he began to push back in the other direction.

Unfortunately, neither Kaplan, nor Ruskin's own letters or diaries, reveal whether the 'great questions' in the early 1860s about environment and divinity were prompted by *Origin of Species*, although it is not unreasonable to suggest this as a possibility. Whatever the causes of his anxiety, Ruskin appeared to be moving rapidly towards agnosticism when he wrote to Elizabeth Barrett Browning in 1861:

> You cannot tell *why* God acts, unless you could see not only the

18. Fred Kaplan, *Thomas Carlyle, a Biography* (Cambridge: Cambridge University Press, 1983), p. 442. Kaplan quotes from *The Correspondence of Thomas Carlyle and John Ruskin*, ed. by George Allan Cate (Stanford: Stanford University Press, 1982), pp. 92-3.

> hearts and minds of every man in the nation. [...] God's *laws* you can trace. His Providence *never* [...] I am stunned - palsied – utterly helpless – under the weight of the finding out the myriad errors that I have been taught about these things (36. 363-4).

The 'many errors' to which Ruskin referred were clearly not confined to biblical matters. Natural science was important in undermining his religious views, as an 1869 letter to Charles Eliot Norton revealed:

> That I am no more immortal than a gnat, or a bell of heath, all nature, as far as I can read it, teaches me, and on that conviction I have henceforward to live my gnat's or heath's life.

He found some comfort in a continuing belief that 'a power shaped both the heath bell and me, of which I know and can know nothing, but of which every day I am the passive instrument, and, in a permitted measure, also the Wilful Helper, or Resister' (36. 596). Nonetheless, Ruskin's tone was deflated, and showed that he had become dismayed by the implications for faith of materialist science:

> If you had to teach your children that there was no evidence of any spiritual world or power, I think they would become separate from their fellows in humanity, incapable of right sympathy, – in many ways themselves degraded and unhappy (36. 596).

Here, Ruskin contemplated what a materialist education would look like, but rather than attacking the truth of materialism, he questioned its results. His remarks about the education of Norton's daughter support this reading, and also strongly suggest that Ruskin was more comfortable to speak on these matters in private than in print:

> I am not the least afraid of Sally's beginning to tease her pet bird or kitten, because you and Mr. Darwin choose to teach her that their tails grew by accident, or that feathers were once fur; while, on the

> contrary, I should be much afraid that both you and I might be teased, very literally, to Death, with fire or brimstone, by some very pious persons, if they could read both our letters and were allowed then to do what they liked with us (36. 597).

Distancing himself from both Darwin and clerical reactionaries, Ruskin highlighted his own sense of isolation and indecision about his place within the growing debate about evolutionary theory, suggesting a mind contemplating acceptance of Darwin, but temperamentally and morally averse to so doing.

Ruskin remained publicly silent on Darwinism until the final months of the 1860s, perhaps suppressing his views on the subject in the same way as he had done in regard to Colenso. His first remarks, in *The Queen of the Air* (1869), are all the more worthy of close inspection, therefore. Even though a decade had passed since the original furore surrounding the publication of *Origin of Species*, Ruskin's first statement on evolution neither endorsed nor dismissed the theory:

> It is perfectly possible, and ultimately conceivable, that the crocodile and the lamb may have descended from the ancestral atom of protoplasm; and that the physical laws of the operation of calcareous slime and of meadow grass, on that protoplasm, may in time have developed the opposite natures and aspects of the living frames; but the practically important fact for us is the existence of a power which creates that calcareous earth (19. 358-9).

Although he cast aside the despondent, doubtful tone of his correspondence, and focused on the central 'fact' of God's existence, he also acknowledged the plausibility of evolutionary theory. He did not argue *for* Darwinism, but nor did he deny it. His remarks suggested, on the one hand, that it might be possible to accommodate faith and science. On the other hand, they indicated a moment of separation: evolutionary science might be 'ultimately conceivable', but could be marginalised from more 'practically important' issues. For the first time, Ruskin

seemed to be suggesting that science need not – or indeed, should not – encroach upon the fields of aesthetics, spirituality, and moral guidance.

The 1869 statement therefore articulated Ruskin's ambivalent response to an increasingly professionalised scientific culture. This was expressed by the presence of conflicting statements – an apparent acceptance of the validity of a theory of species mutability, which was closed with a speculation that such a theory might in fact be chimerical: whilst still 'conceivable', Darwin's theory was yet to be proved. I would argue that his first public response to Darwin suggested that whilst uncertain how to deal with a changing scientific climate, he not only clearly recognised the potential power of the new science, but refused to dismiss its arguments. A footnote to these remarks reinforced this impression: 'the facts on which I am about to dwell', Ruskin argued, in preface to a discussion of Greek nature myth, 'are in nowise antagonistic to the theories which Mr Darwin's unwearied and unerring investigations are everyday rendering more probable' (18. 358n). This acceptance of the probability of Darwinism was most extraordinary, given the lengths to which he went after 1875 to discredit evolutionary theory.

A number of explanations for his subsequent movement to a firm anti-Darwinist position could be put forward. Firstly, the 1869 statements might be deemed irrelevant because unrepresentative, and regarded as nothing more than an early, unconsidered response to Darwin's work. However, the interval of ten years since the publication of *Origin* weakens such an argument. A second possibility is that Ruskin experienced a radical shift in his scientific opinions at some time during the 1870s, such that he was able to repudiate his early provisional acceptance of Darwin in favour of an alternative scientific theory. There is no evidence for this, however, in Ruskin's diaries or published texts, and at no point during the following twenty years did Ruskin's antagonistic remarks about evolutionary theory cohere around a single counter-theory. A third explanation is that Ruskin's crisis of faith

during the 1860s and 1870s predisposed him to accept evolutionary theory as at least 'probable', but that his return to belief in 1875 spurred him to reject Darwinism on grounds of faith. In defending his renewed faith, Ruskin took aim at a consistent range of opponents – liberal economics, industrial expansion, pollution, and modern science – all of which were archetypes for Ruskin of unrestrained competition, disorder, anarchy, and materialism. Together, they came to represent an apocalyptic threat to global salvation, as I have demonstrated in discussion of *The Crown of Wild Olive* and *Fors Clavigera*. There was certainly a parallel trajectory between Ruskin's lost and recaptured faith, on the one hand, and, on the other, his initial acceptance and later repudiation of Darwin, but whilst religion was a significant factor, I believe it does not provide a full explanation of changes in Ruskin's reception of Darwin.

The possibility that I would like to pursue now is that Ruskin was less troubled by *Origin* than he was by *The Descent of Man*. This work went much further than *Origin*, in discussing human evolution and the theory of 'sexual selection', and I believe that Ruskin revolted at this fresh incursion onto territory that he felt should be extraneous to science, as a passage from *Proserpina* implied:

> The blush of a girl when she first perceives the faltering in her lover's step as he draws near, is related essentially to the existing state of her stomach [...] Nevertheless, neither love, chastity, nor blushing are merely exponents of digestion (25. 263).

Ruskin disliked Darwin's focus on sexuality even more than he feared his materialisation of the natural world. In the years that followed, these two elements cohered in Ruskin's attacks on evolutionary theory and materialist science.

In Ruskin's 1869 remarks, there was neither an absolute capitulation, nor a categorical statement of allegiance, to evolutionary theory. Whilst accepting that the truth of Darwinism was every day 'more probable', Ruskin also voiced modest

doubts when he added that 'it has always seemed to me, in what little work I have done upon organic forms, as if the species mocked us by their deliberate imitation of each other when they met: yet did not pass one into another' (18. 358n). Ruskin did not withdraw his adherence to the idea of the fixity of species. Placing his 'little work' in the shadow of Darwin's, he nonetheless insisted that 'the aesthetic relations of species are independent of their origin', indicating that this was an area of enquiry into which Darwinism should not attempt to stray (19. 358n). Culture – exemplified by the ability to gain pleasure from aesthetic experience – was by this device divided from an animalistic world ruled by materialism. Rather than a harmonious blending of science and art, Ruskin seemed to be mooting the idea of an amicable divorce.

IV. The descent of nature: Ruskin and Darwin after 1871

Ruskin's initial (if delayed) response to *Origin of Species* was not openly hostile. I would argue that it was not coincidental that Ruskin's position hardened after the publication of *The Descent of Man*, in which Darwin argued that organisms evolved a range of secondary characteristics whose purpose was the attraction of suitable mates. The introduction, alongside his theory of 'natural selection', of this idea of 'sexual selection' was controversial, but also evidenced Darwin's growing confidence, especially as he felt able by this stage to speak directly of human sexuality and evolution. A year on from *The Descent of Man*, Ruskin's position had already hardened considerably in *The Eagle's Nest*:

> I have just used the expression 'had Darwinism been true,' implying its fallacy more positively than is justifiable in the present state of our knowledge; but very positively I can say to you that I have never heard yet one logical argument in its favour, and I have heard, and read, many that were beneath contempt (22. 246).

In a similar comment a little later, the balance had swung firmly against evolution:

'Darwinism, like all widely popular and mischievous fallacies, has many a curious gleam and grain of truth in its tissue', Ruskin argued in *Mornings in Florence* (1875-7) (23. 394). For Ruskin, Darwinism had begun as a theory likely to be proved true in *The Queen of the Air*, changed to a probable fallacy that had no logical ground in *The Eagle's Nest*, and became an unhealthy fallacy that contained a small core of truth in his studies of Florentine art. In *Love's Meinie* (1875-83), Ruskin's public position ossified entirely:

> The doctrine of development seems at first to explain all so pleasantly, that the scream of consent with which it has been accepted by men of science, and the shriller vociferation of the public's gregarious applause, scarcely permit you the power of antagonist reflection (25. 54).

Had Ruskin, in 1869, fallen into the trap of believing that Darwinism pleasantly explained away objections, only to later reconsider; or did his objections have little to do with science? By 1875, he was in the mood for 'antagonist reflection', but while his desire to resist evolutionism matched that of the staunchest of opponents (at a time when the validity of the theory had yet to be supported by hard evidence, and was being challenged on a number of fronts), his resistance was not always convincing.[19] Too many of his comments were uneasily flippant, suggesting that he had either not read Darwin carefully, or that he was deliberately misrepresenting him. In *The Eagle's Nest*, for example, Ruskin wilfully or negligently confused ontogeny (the life development of an individual) and phylogeny (the life development of a species), when he declared, 'had Darwinism been true, we should long ago have split our heads in two with foolish thinking, or thrust out, from above

19. See introduction to Darwin, *The Descent of Man, and Selection in Relation to Sex* (Princeton: Princeton University Press, 1981) for a good account of the range of theoretical objections, by Kelvin and others, to Darwinism.

our covetous hearts, a hundred desirous arms and clutching hands; and changed ourselves into Briarean Cephalopoda' (22. 246). There is also misrepresentation in his satire in *Love's Meinie*:

> We might even sufficiently represent the general manner of conclusion in the Darwinian system by the statement that if you fasten a hair brush to a mill-wheel, with the handle forward, so as to develop itself into a neck by moving always in the same direction [...] After a certain number of revolutions the hair-brush will fall in love with the whistle; they will marry, lay an egg, and the produce will be a nightingale (25. 36)[20]

Much of the criticism, particularly during the 1950s and 1960s, of Ruskin's scientific capabilities, may have rested on a belief that anti-Darwinian comments like these accurately represented the level of his scientific knowledge. As many of his attempts to dismiss Darwin relied on misreading evolutionary theory, it might seem evident that Ruskin did not know what he was talking about. Such a reading makes little sense, however, when one recalls the degree to which Ruskin was capable in his earlier writing, of getting to grips with extremely complex theories from anatomy, geology, chemistry, and biology, or that in his later career he grasped new theories in physics, chemistry, and geology, as Sharon Aronofsky Weltman has pointed out in her useful study of the interplay of science, myth, and gender in Ruskin's later work.[21] I believe that Ruskin's apparently unlearned criticism of Darwin did not result from a lack of knowledge, but from a deliberate attempt to

20. The same unconvincing light-heartedness appeared in a discussion of hawthorn blossom, which led to speculation on Darwin's opinion of the species: 'undeveloped, thinks Mr Darwin – the poor shortcoming, ill-blanched thorn blossom – going to be a Rose, some day soon; and what next? – who knows? – perhaps a Paeony!' (25. 300). See also 23. 393-4, 25. 54-6, and 27. 154.
21. Sharon Aronofsky Weltman, *Ruskin's Mythic Queen: Gender Subversion in Victorian Culture* (Athens: Ohio University Press, 1998), pp. 177-195.

discredit evolutionary theory by any means possible.

Ruskin's critique of Darwinism after 1871 rested on a sense of despair and disgust at science's preoccupation with 'deciphering the filthy heraldries which record the relation of humanity to the ascidian and the crocodile' (25. 56). How to challenge the impertinence of modern science in its rampant materialisation of life was a difficult project, however. Although there are innumerable examples of Ruskin's criticism of evolutionary theory, he never reached a single, stable point of disagreement, or developed a consistent theoretical position. I believe that the degree to which his critiques shifted throughout the 1870s and 1880s indicated that he never proposed an effective scientific objection to Darwinism (and might have conceded in private that the theory had some merit), but was absolutely convinced at all times that it was culturally unacceptable.

That Darwinism represented an untenable vision for Ruskin was made clear in a significant passage from Letter 77 of *Fors Clavigera* (July 1877). This began with Ruskin describing the loss of the 'Divine Promise of Peace' and of the joy that arose from taking on 'the yoke of the lord':

> That such promises should have become all but incredible to most of you is the necessary punishment of the disobedience to the plainest orders of God, in which you have been taught by your prophets, and permitted by your priests to live for the last quarter of a century.

In terms familiar within Victorian debate on evolution, Ruskin emphasised the challenge posed by Darwinism, not only to religion, but to the social morals:

> But that this incredibility should be felt as no calamity, – but rather benefit and emancipation; and that the voluble announcement of vile birth and external death as the origin and inheritance of man, should be exulted over as a new light of the eyes and strength of the limbs; this sometimes, after all that I have resolved, is like to paralyse me

into silence – mere horror and inert winter of life (29. 149).

Ruskin was horrified not because of the self-evident falseness of Darwinism, but because 'vile birth and external death' were not what children should draw from science. Although he could not forever forestall silence in his own life, his later scientific works vehemently refused to give ground to Darwin. What was at stake was not so much the now somewhat marginal issue of scientific fact, but the fate of generations to come. The implications of evolutionary theory on religion, society, and education were more important to Ruskin than its truth or falsehood. This had profound effects on later writings, contributing to the difference in tone and method that distinguished later works from *Modern Painters*. The attention to the energy, detail, and abundance of nature was noticeably absent from much of Ruskin's later botany, for reasons that are not hard to trace.

Cook and Wedderburn argued that when 'Ruskin chaffed men of science' in later life, he 'sometimes allowed himself in passages, destined to stand, a freedom of contemptuous comment which his admirers must deplore'. Shrewdly, they suggested that 'when he assumed magisterial robe omniscience became his foible', but that his apparently implacable opposition to materialist science was not all it seemed (25. xlvi). 'In reality', they contended, 'he was perfectly conscious of his own limitations' and 'was ever ready to sit at the feet of masters in their several subjects' (26. xlvi.). Their contention that Ruskin 'was not in reality so contemptuous of modern science, as his attacks on some of its methods, pretensions, and professors might lead a hasty reader to suppose' has not been sufficiently acknowledged by subsequent critics (25. xxxix). As they observe, Ruskin was 'intolerant (in print) of 'men of science' in general', but 'always drawn to them individually' (36. lxxiii.). They record, for example, his close relations with Sir Richard Owen, Professor Story-Maskelyne, Professor Oliver, Sir John Lubbock, Sir Oliver Lodge, and Darwin (25. xlvi, 36. lxxiii- lxxiv.). They detail Ruskin's first,

amicable encounter with Darwin at the Geological Society in the 1830s, their long, intermittent but surprisingly warm, acquaintanceship, and various meetings between the two men during the 1870s and 1880s, (25. xlvi., 26. xx., 33. xxi., 36. lxxiii.). Ruskin's correspondence supported Cook and Wedderburn's belief in Ruskin's cordiality towards scientists. His letters frequently adopted a different tone to his combative words in print. In 1886, he launched a public attack in the *Pall Mall Gazette* on the Darwinist Sir John Lubbock, arguing that 'Darwin has a mortal fascination for all vainly curious and idly speculative persons, and has collected, in the train of him, every impudent imbecility in Europe, like a dim comet wagging its useless tail of phosphorescent nothing across the steadfast stars' (34. 586). His tone a year later in a letter to Lubbock was far more congenial:

> Dear Sir John, – and will you really come? It's so wonderful to think you can forgive me all the ill-tempered things I've said about insects and evolution and – everything nearly that you've been most interested in – and will see the Lake country first from my terrace – where, however, Darwin has walked also (37. 590).

How is one to judge the apparent separation between the apparent underplaying of opposition to Darwinism in private and the vehemence of his public attacks? Can his letter to Lubbock be explained away merely as sycophancy or embarrassment? Why did Ruskin seek Lubbock's company at all? Cook and Wedderburn, nervous that Ruskin's vocal opposition to modern science might consign him to critical oblivion, consistently underplayed his attacks on Darwin. They argue that the flippant remarks about nightingales and fly-wheels in *Love's Meinie* had been merely an 'amusing skit on Darwinism' (25. 36). They argue that Darwinism was at that time 'a new theory, not perhaps too well understood' (25. xxi) and that Ruskin's words illustrated a jocular lecturing device rather than a considered response.

Whilst this defence was not entirely convincing, their attempt to distance Ruskin's natural history from mainstream science rang with more truth:

> He was not so ignorant or narrow-minded as to suppose that there was no proper place for the science which classifies and analyses, in accord with, or in the effort to discover origins and essence [...] Ruskin's attitude was simply that this was a kind of science which did not interest him, and which he never pretended to study, but that there was another kind of science, which, for purposes of general education, he held to be more important (25. xxxix).

Ruskin's editors rightly identify Ruskin's point of departure from professional science. The value of their comments is twofold. Firstly, they acknowledge Ruskin's resistance to a division between science and wider culture, one of the principal results of the 'advancement' of science in the latter half of the nineteenth century. Secondly, they do not condemn Ruskin as a bumbling amateur, unable to comprehend materialist science.

Building on the more tenable aspects of Cook and Wedderburn's critique, I would conclude that Ruskin deliberately chose not to embrace natural selection, despite his intellectual kinship and sympathy with key elements of modern science. He was clearly unable to reside comfortably with the rump of ill-conceived clerical opposition to Darwin which characterised much of the criticism in newspapers, periodicals, and church pulpits during the latter half of the nineteenth century. His support for Colenso in the 1870s offered persuasive evidence that he continued to disregard clerical orthodoxy. Ruskin's conscious, dogmatic opposition to Darwin led him to entirely reconfigure his approach to natural history. This involved a complex of related changes. In a number of late works, there was an increase in politicised environmentalism, and in direct support for specific campaigns against railways, reservoirs, quarries and other encroachments on natural landscapes. These

will not form the focus of the remaining study. Instead, three other changes can be traced in *Proserpina*. Firstly, Ruskin's oppositionism manifested in a rejection of reproductive explanations of plant life, which led in turn to a highly subjective, gendered and mythologised account of plant life. Secondly, it continued the 'semiosis of nature' begun in works like *The Crown of Wild Olive*: material explanations of natural phenomena were no longer conjoined to cultural readings, but replaced entirely by religious mythopoetic readings in which the Fall of nature became a reality. Thirdly, *Proserpina* marked the failure of Ruskin's attempt to re-connect science and culture. Ecology in Ruskin's work represented the successful synthesis of nature and culture, science and art, matter and spirit. The fact that Ruskin's explanations of plant life in *Proserpina* were in this respect significantly different from those of 'Of Leaf Beauty' was a marker of the decline of his earlier project to explain all ordering systems in the light of ecology. Ruskin's decision to reject Darwinism led to many casualties in his later work. The greatest of these was ecology.

In now attempting to outline this complex of changes, I will argue that a trace of ecology nonetheless remained in works like *Proserpina*. If ecological science became suspect to Ruskin in later years, ecologism, and an ecological epistemology maintained a shadowy and often frail presence in his work. Ecology was never fully erased from his work, because whilst he could refuse to investigate nature using the same distinctively ecological tools he employed in 'Of Leaf Beauty' and 'The Work of Iron', his whole approach to intellectual endeavour, his concept of order and organisation, were themselves ecological.

V. De-sexing the cherry: the flowers of *Proserpina*

As we saw in the previous chapter, Ruskin had in his early correspondence endorsed highly materialist methods of investigation. In his letters on Eden in 1843, he had

argued from scientific principles that the tree of biblical accounts of the Garden must have been 'a growing, changing, and preparing thing', and that it could not therefore have been immortal. Because the flowers and fruit of a tree prepared for its replacement by successive generations, flowers ineluctably indicated mortality: 'that which has not in it the beginning and germ of death, is not a tree (1. 476). I suggested that the bleak elision of sex and mortality in these letters indicated that Ruskin was, at this point, closer to a Darwinian vision of nature than he was to either Buckland or Evangelicalism, for in Ruskin's remorseless materialisation of the divine garden, the purpose of flowers had become solely reproductive. If one examines a depiction of cherry flowers from *Proserpina*, written nearly forty years later, it becomes evident that Ruskin overturned his earlier materialist reading, largely in response to the implications of *The Descent of Man*.

If sexual selection was to be accepted, love no longer remained separate from the physical world. Instead, it became a functional aspect of the means by which humans sought to reproduce. The sacred bonds between a man and a woman – love, affection, courtship, marriage, the raising of children – had no more significance than the dropping of acorns or animal mating rituals, if all of these things were designed purely to ensure the successful passage of genes to the next generation. Ruskin offered no text-specific criticism of *Origin of Species* (and there is no direct evidence that he read that work), but he certainly engaged with the details of *The Descent of Man*. He attacked Darwin's theories about the role of bird plumage in mating rituals, arguing that 'all these materialisms, in their unclean stupidity, are essentially the work of human bats; men of semi-faculty or semi-education, who are more or less incapable of so much as seeing, much less thinking about colour; among whom, for one-sided intensity, even Mr Darwin must be often racked, as in his vespertilian treatise on the ocelli of the Argus pheasant' (25. 263).[22]

22. See, 'Formation and Variability of the Oceli, or Eye-like Spots on the Plumage of Birds" in pt. ii ch. xiv of the *Descent of Man*.

Ruskin went on to say that Darwin's 'ignorance of good art is no excuse for the acutely illogical simplicity of the rest of his talk of colour in the *Descent of Man*' (25. 264). Subsequent comments suggested he had read this work carefully:

> Peacocks' tails, he thinks, are the result of the admiration of blue tails in the minds of well-bred peahens – and similarly, mandrills' noses the result of the admiration of blue noses in well-bred baboons. But it never occurs to him to ask why the admiration of blue noses is healthy in baboons, so that it develops their race properly, while similar maidenly admiration either of blue noses or red noses in men would be improper, and develop the race improperly. The word itself 'proper' being one of which he has never asked, or guessed, the meaning (25. 264).

To render sex a merely animalistic act, and attraction a performance whose ultimate aim was 'mere' reproduction, was to render both beauty and human existence meaningless. As Ruskin's words suggested, his interest in what was 'proper' led him to reconsider the nature of 'properties': where before he had seen properties as both material and spiritual, now he felt that explanations that relied too much on material properties were inherently suspect. Ruskin returned to the theme of 'properties' in the following chapter of *Proserpina*:

> When, therefore, I said that Mr Darwin, and his school, had no conception of the real meaning of the word 'proper,' I meant that they conceived the qualities of things only as their 'properties,' but not as their 'becomingnesses'; and seeing that dirt is proper to a swine, malice to a monkey, poison to a nettle, and folly to a fool, they called a nettle *but* a nettle, and the faults of fools but folly; and never saw the difference between ugliness and beauty absolute, decency, and indecency absolute, glory or shame, absolute, and folly or sense absolute (25. 268).[23]

23. See Letter 70 of *Fors Clavigera*, 'Property to Whom Proper' for a social, political, and scientific reading of these ideas ((28. 712-31).

This crucial passage revealed the core of Ruskin's critique of Darwinism: materialist explanations might not, within their limits, be false, but their limits rendered them false as a means of providing judgement. Materialism, in its privileging of physical properties, was incapable of ascribing true value. For Ruskin. science could never be an end in itself, isolated from moral, spiritual, cultural, and aesthetic judgement. By turning its back on these things, it distorted and falsified the world. What Kirchhoff describes as 'Ruskin's concern with science as a complete human experience' motivated him to strive against Darwinism, and to assert that 'the struggle to survive is the proving ground for essential form – but survival itself is not the criteria [sic] of a form's ultimate value'.[24]

So appalled was Ruskin by the drama of sex and death promoted by *The Descent of Man* that he found it difficult to confront in terms of human or even animal sexual behaviour. Instead, it was played out most powerfully in the world of plants. At this point, the degree to which Ruskin's view of botany and plant reproduction changed between the 1830s and the 1870s becomes apparent. His 1843 description of the Eden trees as 'fructifying things' preparing for their own death did not, in retrospect, conflict at all with Darwin, and was more interested in their properties than their 'becomingnesses'. His analysis suggested, with acute proto-Darwinian logic, that the only real purpose of a tree was to produce new generations. Yet, if one then examines Ruskin's remarks about floral forms in *Proserpina* in 1875, it is evident that he had changed his mind completely. 'The flower [...] is the utmost purification of the plant, and the utmost discipline', he argued there. It was, he urged, 'created [...] by the purity and order, more than by the function'. The reproductive purpose of flowers was entirely marginalised as he urged readers to understand that 'the flower exists for its own sake, - not for the fruit's sake'. The fruit no longer represented the sole purpose of flowering, but

24. Kirchhoff, p. 250, 254.

became merely 'an added honour to it' (25. 249). He insisted that 'the flower is the end of the seed, - not the seed of the flower' (25. 249-250). This inversion of the logic of his letter on Eden revealed a transformed hierarchy of values. In 1843, a materialist account of reproduction overwhelmed all consideration of aesthetics or morals, but by 1875 beauty and morality reigned supreme, whilst sex was almost entirely erased:

> You are fond of cherries, perhaps; and think that the use of cherry blossom is to produce cherries. Not at all. The use of cherries is to produce cherry blossom (25. 250).

In what had become a metaphysics of botany, the meaning of plant life was entirely separated from procreation and death. The cherry was de-sexed, and the flower became a transcendent symbol for the triumph of beauty over materialism:

> A flower is to the vegetable substance what a crystal is to the mineral. [...] Each bud more beautiful, itself, than perfectest jewel [...] The glory is in the purity, the serenity, the radiance, – not in the mere continuance of the creature (25. 250).

Beginning his career in the 1840s not as an orthodox evangelical or a Natural Theologian, but as a sceptical, open-minded investigator, Ruskin had envisioned nature along lines not that far removed from Darwin, but believing that it was possible to marry materialism to spiritual and aesthetic accounts of the natural world. The work of Darwin, particularly in *The Descent of Man*, suggested the impossibility of this synthesis, and forced Ruskin to choose aesthetics and culture over materialism. The results, in *Proserpina*, were startling.

VI. *Proserpina*: a text in crisis

Proserpina attempted to achieve a great many things, and undertook more activities than its author was capable of keeping under control. Amidst the often bewildering chaos of this text, Ruskin provided himself with two key tasks. The first was to provide a straightforward account of plant physiology and growth that did not rely on specialist botanical vocabulary. In order to 'put [...] some elements of the science of botany into a form more tenable by ordinary human and childish faculties', he wished to take the study of plants out of the hands of what he saw as conceited scientific authorities (25. 200).

In relation to this, his second main task was also highly significant. In trying to replace all previous names of European plants with ones of his own devising, Ruskin confronted the authority of botanical science, but also its basis in plant sexuality. Because Latin plant names often referred to sexual functions of flowers, Ruskin proposed 'to substitute boldly, to my own pupils, other generic names for the plants thus faithfully hitherto titled' (25. 201). This rather astonishing assault on the orthodox customs of botany led Ruskin to produce a series of names founded on mythology, in ways that were interesting in terms of his attitudes to Darwin, femininity and sexuality. Superimposed on this second major aspect of *Proserpina* – its construction of an alternative *Systemae Proserpinae* of mythological plant names – was an increasingly moralised account of the character, attitude, and behaviour of plants. This moral mythopoesis frequently overwhelmed and distorted the first aspect of Ruskin's task (the account of plant physiology) and the two elements sat uneasily together in the text. In addition to these often warring aspects of *Proserpina* were a number of other discourses, including travel literature, autobiography, lengthy discussions of etymology and the history of languages, and unexpected digressions into other issues apparently extraneous to botany. Because of this multi-focused approach, *Proserpina* was amongst the most complex,

disordered, and inchoate of Ruskin's texts. As a result, it is one of his most frustrating and challenging works.

Kirchhoff and Birch should be commended for rehabilitating *Proserpina*, which cannot now be dismissed as merely 'stray jottings from [the] notebooks' of a disordered mind.[25] It must instead be recognised for its strident anti-Darwinian agenda, and for being, in Birch's words, 'genuinely innovatory' in pursuing a 'fusion of autobiographical, didactic, and literary impulses'.[26] However, if one must broadly accept Birch's contention that *Proserpina* was Ruskin's 'most comprehensive attempt to realize the dream of an alternative science' (if one confines this judgement to his later career), one also needs to consider Kirchhoff's somewhat more cautious reading.[27] He recognises that Ruskin's iconoclasm in *Proserpina* was meant as a critique of the self-aggrandisment of modern science, which had placed more importance on its own status than on active, joyful engagement with nature. Kirchhoff suggests that by setting himself up as an alternative botanical authority, Ruskin ironically risked reproducing the same faults he perceived in the Darwinists: in the *Systemae Proserpinae*, there was a paradoxical combination of anti-authoritarianism and megalomania. As Kirchhoff argues, Ruskin's 'botanical classifications' mirrored 'an entirely human hierarchy of values' in an attempt to focus on values rather than properties, but this led to as many problems as it solved:

> Ironically, the imposition of this moral hierarchy proves as deadening to the immediacy of Nature as the scientific abstraction Ruskin was trying to combat. His legitimate effort to humanize scientific

25. Harrison, p. 158.
26. Birch, *Ruskin's Myths*, p. 173.
27. *Ibid.* My analysis of *Proserpina* of Ruskin, Natural History, and gender is less optimistic than that offered by Sharon Aronofsky Weltman, 'Myth and Gender in Ruskin's Science' in Birch (ed.), pp. 153-174.

> conceptualizations of Nature is subverted by his personal need for a fixed, certain system of values. Taken to an extreme, his anthropocentric classifications express greater authoritarianism than wisdom [...] Ruskin's aims may be honourable, but his pugnaciousness can be hard to stomach.[28]

I would go further than Kirchhoff's analysis: on a number of levels *Proserpina* failed to achieve the same level of analysis as earlier works like 'Of Leaf Beauty' or 'The Work of Iron', because it lost sight of their balance between materialist science and aesthetic culture. Ruskin replaced joyful engagement with a real, physical world of plants with a one-sided and often irrational stress on moral mythopoesis.

It is important to also note that *Proserpina* was an unfinished text, in two respects. Firstly, the project was abandoned in 1886, despite Ruskin having plans for further chapters. More importantly, the work ended without having pursued very far its author's stated intention of providing guidance on the key 'families' of plants which he identified as one of the main subjects of the work. Judged against the statements Ruskin made about what he planned to cover, *Proserpina* was not even half finished.[29] Ruskin became incapable of providing the fixed, comprehensive moral botany that he had planned in 1875, and in fact produced a text which reflected his earlier axiom that 'all true opinions are living, and show their life by being capable of nourishment; therefore of change (7. 9). The change that it mirrored, though, was towards pessimism and despair.

28. Kirchhoff, p. 254.
29. A sense of the brittleness of Ruskin's ongoing struggle to continue with his botany is found in an aside in chapter seven, which poignantly reflects the sense of time slipping away. He confided in his readers, 'I am sorry to see, in re-reading this chapter of my own, which is little more than an endeavour to analyse and arrange the statements contained in his second, that I have done it more petulantly and unkindly than I ought; but I can't do all the work over again, now, – more's the pity." He added, 'I have not looked at this chapter for a year, and shall be sixty before I know where I am; – (I find myself, instead, now, sixty-four)'. The first version of this chapter was written in 1868, but it was only finally published in 1884 (25. 484).

Because of its confusing, disparate, changeable, and highly provisional nature, it would be misleading to concentrate analysis on a single, specific aspect of the text. Rather, an analysis which focuses upon the heterogeneity of the text should prove rewarding. The presence of so many discourses within the text, none of which achieved a privileged or leading position, complicates any attempt to provide a simple analysis, but at the same time opens up the opportunity to place the text within a couple of key contexts, and to then examine the relationship between them. Firstly, I would like to trace the gradual erasure of ecological science from the text, before examining that which replaced it as the major organising principle of this work: mythopoesis. In turning to this latter subject, it will then be possible to look in more detail at the manner in which Ruskin's mythological botany reflected his morality and his views on female sexuality. Having done so, I will argue that the decline of scientific ecology and other materialist methodologies, and the rise of moral mythopoesis were concomitant developments, and reflected Ruskin's alarm at evolutionary theory, and in particular, its focus on sex and reproduction.

VII. The ecology of the earth-gatherers

If one were to examine only the first four chapters of *Proserpina,* one might conclude that they offered a seamless continuation of the methods and message of 'Of Leaf Beauty'. Chapter I, 'Moss', was a particularly triumphant *tour de force* of ecological dynamism, and of a desire to draw social, cultural, and political analogies from the life of plants. However, to arrive at any conclusions from the opening chapters of *Proserpina* would be to misrepresent the totality of the work, and to ignore its development. In its commitment to an alliance of observational, materialist science and socio-cultural analysis, the chapters on 'Moss' and on plant physiology were in fact atypical of most of what followed.

In Chapter I, Ruskin set out to discover what moss was and how it grew. His open admission that he began in ignorance was part of a deliberate strategy:

> It is mortifying enough to write, – but I think thus much ought to be written, – concerning myself, as 'the author of *Modern Painters.*' In three months, I shall be fifty years old: and I don't at this hour – ten o'clock in the morning of the two hundred and sixty-eighth day of my forty-ninth year – know what 'moss' is.

The comic precision of his scene-setting added a very real sense of spontaneity to this exploration. By flagging up his own ignorance of an everyday part of the natural world, Ruskin gently prompted others to do likewise, and to join him on a journey of discovery: 'I *will* know what moss is, if possible, forthwith', he declared, before guiding readers through the step-by-step processes by which he attempted to understand it. (25. 207). This approach was conceived as an assault on the assured self-importance of the botanical authorities that Ruskin cited wearily, and often sarcastically, throughout *Proserpina*.[30] Adding strongly to the anti-authoritarianism of this chapter were its provisional or doubting statements, and the footnoted emendations and clarifications added at a later date. For example, Ruskin declared in the text that Bromeliads, such as pineapples, 'really seem to be a kind of moss, on a vast scale', only to say a few pages later, in a footnote, 'I don't at all find the generalization I made from the botanical books likely to have occurred to me from the real things' because 'no moss leaves that I can find here give me the idea of resemblance to pineapple leaves' (25. 209, 216n). In these remarks, Ruskin

30. Chief amongst those Ruskin cited (incompletely) were Louis Figuier, author of *Histoire des Plantes* (Paris, 1865); William Curtis, author of Curtis, William, *The Botanical Magazine or, Flower Garden Displayed In Which the Most Ornamental Foreign Plants, Cultivated in the Open Ground, the Green-House, and the Stove, are Accurately Represented in their Natural Colours; To Which are added Their Names, Class, Order, Generic and Specific Characters, According to the Celebrated Linnæus; their Places of Growth, and Times of Flowering: Together with the Most Approved Methods of Culture* (London; Stephen Couchman, 1793); and John Lindley, whose *An Introduction to Botany* (London: Longman, Rees, Orme, Brown, Green, & Longman, 1835) caused particular vexation, both in *Proserpina* and 'Of Leaf Beauty'.

made clear that he privileged observation over theory. It was also clear that he was absolutely committed to the process of learning, more than to its termination in facts: 'I work down or up to my mark', Ruskin noted, 'and let the reader see process and progress, not caring to conceal them' (25. 216). As he had remarked in *Modern Painters III*, logical systematics could never render reality knowable, but only distort its identity. If anything, the chapter on 'Moss' was even more radical than 'Of Leaf Beauty' in its commitment to a shared experience of learning, and to the repudiation of the idea of a hierarchy of authority to which the public – and Ruskin – should be subordinated. What this chapter offered in place of orthodox botany was an experience of nature, grounded in science, culture, and art, but not bound within the perimeters of scientific logic, terminology, or method.

If the investigative style of 'Moss' was strongly reminiscent of *Modern Painters*, so was Ruskin's primary concern to view moss within its natural environment. Puzzled by claims in botanical primers that moss never died, Ruskin found that the peculiar mode of growth of moss was a key factor in allowing successive generations of plants to establish on bare ground, and as such provided moss with a kind of immortality:

> The blackness of the root [...] is their funeral blackness; that I perceive is the way the moss leaves die. They do not fall, - they do not visibly decay. But they decay *in*visibly, in continual secession, beneath the ascending crest [...] their final duty is so to die. The main work of other leaves is in their life, - but *these* have to form the earth out of which all other leaves are to grow. Not to cover the rocks with golden velvet only, but to fill their crannies with the dark earth, through which nobler creatures shall one day seek their being (25. 212).

The cyclical nature of ecological exchanges and processes was the focus, just as it had been in earlier works. By creating new soil on which other plants could grow,

and turning rocky sites into marginal niches for perennials, moss was essential to the creation of new habitats. In turning the gaze of readers to the significance of an apparently unimportant group of plants, he continued, in a non-political discourse, to don the 'sage' persona that Landow describes. More significantly, he performed the strategy of highlighting the links between microcosm (the soil building of moss) and macrocosm (the wider habitat) that underpinned texts like 'The Work of Iron'. At this stage, the meaning of moss was still to be found by searching for its connections and interactions, its relations with other organisms, and the dynamism with which it effected transformation of the landscape. Like iron, like trees, like water, like oxygen, moss was explicable not in isolation, but in communion. Even at this late stage in his career, as his optimism about the healing power of nature was brought into question, the moments of optimism on which he could rely were centred on revelations of ecological order still operating in nature.

If the communion traced in works of the period 1850-1860 between vegetable and human life continued here, so did the connection made in the preface of *Modern Painters V* between the growth of a tree and the development of mind. Picking up on a line from one of the epistles of Alexander Pope's *Moral Essays*, in which Pope declared, 'grant but as many sorts of mind as moss', Ruskin showed that his belief in organic consciousness remained in place:

> None of us, I think, yet care to look the fact of the death of our minds in the face. I do not mean the death of our souls, but of our mental work. So far as it is good *art*, indeed, and done in realistic form, it may perhaps not die; but so far as it only good *thought* – good, for its time, and apparently a great achievement therein – that good, useful thought may yet in the future become a foolish thought and then die quite away, – it, and the memory of it, – when better thought and knowledge come (25. 212, 212-3).[31]

31. Cook and Wedderburn cited Alexander Pope, *Moral Essays*, Epistle I., i. 18.

Humans, Ruskin argued, had always been too quick to worry that their ideas would be discredited. Avoiding such conceit, they should instead learn from 'the humility of death' displayed by moss, and realise that 'the better thought could not have come if the weaker thought had not come first, and died in sustaining the better' (25. 213). To learn from moss would be to transform the intellectual lives of humanity:

> If we think honestly, our thoughts will not only live usefully, but even perish usefully – like the moss – and become dark, not without due service. But if we think dishonestly, or malignantly, our thoughts will die like evil fungi, – dripping corrupt dew (25. 212, 213).

The parallels with Ruskin's remarks on trees and minds in *Modern Painters V* were substantial, and 'Moss' clearly represented an ecological work that could stand alongside earlier texts. However, in his reference to 'corrupt dew', Ruskin revealed the point of bifurcation from earlier work that would in time distinguish *Proserpina* from those earlier works. As *Proserpina* developed, Ruskin's description of fungi and other plants as 'evil' was no longer figurative, but indicative of a real belief in the moral qualities of plants. The options presented to Ruskin's readers – between the examples of moss and fungi – represented what would become a stark, moral choice, in a world ever more divided between good and evil.

VIII. An ecological crisis

'Moss' was dated 1868, placing it directly between *Modern Painters* V and the opening instalments of *Proserpina*. I argued earlier that Ruskin's decision, in the wake of *The Descent of Man*, to reject Darwinism and all other materialist sciences, led to an erasure of ecology from later work. The fact that 'Moss' was originally written prior to this date provides supporting evidence for this conclusion: the natural world that Ruskin conceived in 1868 was still ecological, in ways that it was much less likely to be after 1871. 'Moss' was only slightly revised in 1875, before

publication, but other chapters appeared to contain a curious mixture of older and newer material. The hybrid nature of these chapters pointed to broader dislocations occurring during the production of that work. In order to establish why *Proserpina* changed over time, one must examine the history of the text: the chapters as they were published did not always reflect the order in which they were first written.

As Ruskin noted in the introduction, his botanical studies began in 1842, and featured in many of his private diaries and notebooks (25. 204).[32] *Proserpina* drew upon various sources from different dates, which only added to the incoherence of the text. Like 'Moss', a number of other chapters from the first volume, recalled the style and intent of 'Of Leaf Beauty' from *Modern Painters V*, and it seems that at first Ruskin conceived this work as an extension in the world of flowers of that study of trees. Chapters II ('The Root'), III ('The Leaf'), IV ('The Flower'), VIII ('The Stem'), IX ('Outside and In'), X ('The Bark'), and XIV ('The Fruit Gift') in the first volume, offer something close, but not identical, to the style of 'Of Leaf Beauty'. In many of these chapters, Ruskin followed the methodology of that work,

32. Detailed botanical notes can be found in Mss 8, 9, 12, 15 and 50f, covering the period 1856-1880, in the Ruskin Library, Lancaster. These often tended to be factual notes, primarily lists of plants, or brief descriptions, suggesting that the moral, cultural, and aesthetic gloss of the published work was added later. MS50f does have more lengthy sections of prose, very similar to those that would appear in 'Of Leaf Beauty'. MS15, a diary covering the years 1867-70, has several accounts of walks, trips to botanical gardens, and other experiences that appear to have fed into his published botany. In general, the notebooks and diaries suggest that *Proserpina*, or something like it, had been in the pipeline for some time. In 1866, Ruskin began talking about a flower volume (18. xxxvi; 26. 569), and in 1867, in *Time and Tide*, he mentions that he was producing 'a book on botany just now, for young people, chiefly on wild flowers' (16. 413). Amongst the material being produced during this period was the chapter on 'Moss'. A little later, Ruskin's correspondence showed the idea was still active, and that he planned to call the work, *Cora Nivalis*, or ""Snowy Proserpine": an introduction for young people to the study of Alpine and Arctic wild flowers' (36. 597). Although the arctic flowers were ultimately absent from *Proserpina*, the geographical specificity of his original conception became unimportant in the light of his desire to write a moral botany. For the same reason, the emphasis on children's education remained.

beginning with a physiological and functional account of plant existence, and moving outward to consideration of lessons for humanity. For example, he described the 'three great functions' of roots, before outlining what readers should draw from this in their own lives (25. 219). His remarks on roots showed that he maintained an eye for the ecological interconnections of nature:

> Roots bind together the ragged edges of rocks as a hem does the torn edge of a dress [...] While it is always dangerous to pass under a treeless edge of overhanging crag, as soon as it has become beautiful with trees, it is safe also (25. 221).

Ruskin focused on the implications of this at a microcosmic level (the overhanging crag) and the macrocosmic level (larger habitats and topographies):

> The surfaces of mountains are dissolved and disordered, by rain and frost, and chemical decomposition, into mere heaps of loose stones on their desolate summits; but, where the forests grow, soil accumulates and disintegrations cease (25. 221).

Ruskin drew attention to the need to avoid deforestation: 'by cutting down forests on great mountain slopes', Ruskin argued, 'not only is the climate destroyed, but the danger of superficial landslip fearfully increased' (25. 221-2). This understanding of the importance of protecting microclimates, as well as maintaining the structural integrity of mountains, was perceptive ecological thinking.

Only once Ruskin's functional account of roots had embraced a discussion of their gathering and storing of water and nourishment did Ruskin turn to the 'pretty example of patience for us' in the work of roots (25. 225). Other chapters followed the same movement from material to moral investigation. The first half of Chapter VIII, 'The Stem' recalled 'Of Leaf Beauty' in its tone, style, and illustration, and in its concern to begin with structure, function, and then to draw out human analogies.

Parts of the second half of the chapter, dealing with taxonomy, and written in 1875, was particularly reminiscent, but in its increasingly obsessive concern with the meanings of words associated with plants, it showed how much *Proserpina* had departed from *Modern Painters*. Much of Chapter IX, 'Outside and In', was even closer in its resemblance to 'Of Leaf Beauty', no surprise given that Ruskin stated that it was written shortly after *Modern Painters* V, and was probably intended as part of that work (25. 320). Its tone was extremely positive, as was the emphasis on volition, illustrated in Ruskin's remarks on the rigidity of plant stems:

> This structure implies that the plant has a will of its own, and a position which on the whole it will keep, however it may now and then be bent out of it; and that it has a continual battle of a healthy and human-like kind, to wage with surrounding elements (25. 325).

This recalled the passage in 'Of Leaf Beauty' in which Ruskin stated that the position of leaf buds was 'always visibly the result of a volition on the part of the leaf' as it meets 'an external force or fate, to which it is never passively subjected' (7. 49). However, if the above passages are compared to the chapter on roots, the difference is instructive:

> Its root is thus a form of fate to the tree. It condemns, or indulges it, in its place. These semi-living creatures, come what may, shall abide, happy or tormented. No doubt concerning the position in which Providence has placed *them* is to trouble their minds.

Rendered passive by providence, these creatures, still 'semi-living', were now less 'marvellous', and distinctly less dynamic, their energies concentrated on 'seeking light, or shrinking from wind, or grasping at support, within certain limits' (25. 220). Despite the continued focus on external agency, Ruskin began to portray trees as frail, lacklustre, limited organisms, shadows of the energetic, wilful creatures of

'Leaf Beauty'. Fortitude had supplanted dynamism; resistance had lost its triumphant nature and had become dogged and pessimistic. This movement marked an absolutely fundamental analogue of the change represented by *Proserpina*, and of the breakdown of the positive, dynamic ecology of 'Of Leaf Beauty'. Some of the physiological chapters, such as 'The Leaf' and 'The Flower', began to depart from the methods of *Modern Painters*. 'The Flower', for example, began not with an account of morphology or function, but with Ruskin's declarations about the aesthetic purity of cherry blossom. This reversal of the procedure of 'Of Leaf Beauty', 'The Root', 'The Stem', and 'Outside and In' showed that even in some of the nominally physiological chapters of *Proserpina*, Ruskin moved away from previous methods and towards unsupported assertions and anxious questions about morality.

Ruskin's presentation of tree growth in *Modern Painters* delighted in the physical energy of trees, and their ability to dynamically re-shape their existence. Joy at organic dynamism and co-operative 'righteousness' ebbed in the 1870s as co-operative interaction between species disappeared from his descriptions. Worse still, the dynamic vitality of certain plants was sometimes undimmed, but re-directed: their energy became malign, rather than positive. Whereas earlier work emphasised the beneficence of trees, *Proserpina* represented flora pessimistically.

In 'Of Leaf Beauty', botany and social commentary proceeded with little interruption and growing rhetorical force, producing a work that was linear, coherent, and which followed the organic logic of tree growth in its development. The same can hardly be said of *Proserpina*, an often interrupted work undertaken in a period of his career when playful discursiveness was a deliberate stylistic feature. *Proserpina* articulated this deliberate waywardness: mythology, etymology, literature, religion, and recollections were routinely interspersed with botanical observations in an apparently random manner. In the work as a whole an attempt

was made to sustain a single project, but this proceeded only fitfully once the opening chapters on the 'general laws of vegetable form' were completed. Ruskin's chief concern – to provide an alternative nomenclature to the 'debased' system of his day – was neither complete nor consistent. He even complained that he could not always remember his own new plant names (25. 438n). Continuity between chapters published months and sometimes years apart, and drawn from varied sources, was often entirely lacking.

IX. The apocalyptic metaphysics of *Proserpina*

The breakdown of a readily apparent ordering mechanism within *Proserpina*, an organising principle that might provide coherence to the whole, reflected Ruskin's growing movement away from ecological science, and his increasing sense that nature itself no longer provided stable, positive typologies. Having argued that the ecological positivity of 'Moss' was a feature of only a few chapters of *Proserpina* – those written earliest in the process – I would like now to look at what replaced ecology as the principal driving force of this work. The darker vision of much of *Proserpina* existed only as a (fore)shadow in the comments on fungi in 'Moss'. The investigative nature of the chapter on 'Moss', its frank admission of ignorance, and its attempt to show every step in understanding the function, structure, and lessons of moss, was meant by Ruskin as a model for *Proserpina*:

> This book is literally to be one of studies – not of statements [...] let the reader see process and progress [...] this book will be nothing but process. I don't mean to assert anything positively from the first to the last (25. 216).

However, this manifesto was abandoned quite quickly after the publication of 'Moss', as Ruskin began to assert many things extremely positively. 'Moss' began with an intention to investigate freely and without preconception – in the manner of

Modern Painters. Once *Proserpina* progressed, though, he gradually changed tack, looking instead to an inner vision, to interpret the meaning of plants.

There is, in the choice of *Proserpina* as title, an in-built mingling of hope and despair, as a passage from *The Queen of the Air* (1869) demonstrated. Ruskin spoke there of 'the rule of the first spirit, Demeter, the earth mother', before discussing Proserpine as a symbol of seasonal change:

> As the most tender image of this appearing and fading life, in the birth and fall of flowers, her daughter Proserpine plays in the fields of Sicily and thence is torn away into darkness, and becomes the Queen of Fate – not merely of death, but of the gloom which closes over and ends, not beauty only, but sin (19. 304).

This twofold character – looking at once towards life and death, beauty and sin – was the most characteristic trope of *Proserpina*, an indicator of the divided consciousness that set out to write this work. As the instalments accumulated, the imminent threat of death and sin dominated Ruskin's thoughts. Once the first volume reached towards its close, Ruskin's compulsion grew to find sin in nature, and to argue 'how literally we go back from the living soul symbolized to the strangely accurate earthly symbol, in the prickly weed' (25. 297). Instead of 'progress and process', Ruskin turned emphatically to aesthetics, morality, and mythology, abandoning patient discovery in favour of judgements which were botanically unfounded, and which appealed instead to a Graeco-Christian tradition in which reason and logic were outranked by metaphysics.

The bulk of *Proserpina* was largely devoid of ecological insight. The chapters that made up some of the first, and most of the second, volume of *Proserpina* were concerned with specific plant groups, in which there was little interest in a sustained account of the conditions in which plants grow, nor of their function and morphology. Rather, Ruskin's habitual practice in these chapters was

to pick up on a quixotic detail of a plant, and use it to roll out a moral or religious allegory, and to describe the plant in ethical terms. Its status as an organism within nature was no longer a focus. Instead its status as a participant in a religious battle was emphasised. Like 'Of Leaf Beauty', this text offered guidance to humans, but the lessons it drew from plants were likely to be warnings: plants, like humanity, faced moral choices. In 'The Parable of Jotham' in the first volume, Ruskin argued that readers needed to consider the way that plants grow 'otherwise than botanically':

> Lower organisms suffer and perish, or are gladdened and flourish, under conditions which are in utter precision symbolical, and in utter fidelity representative, of the conditions which induce adversity and prosperity in the kingdoms of men: and the Eternal Demeter, – Mother, and Judge, – brings forth as the herb yielding seed, so also the thorn and the thistle, not to herself, but to *thee* (25. 294).

Plants, which were now figured firmly as subordinate organisms, did not exist for themselves. Their main role was educational, rather than physical. In his curious mixture of Christian and Classical myth, Ruskin highlighted the moral vision that he found in the story of Proserpine – that twofold glance towards sin and redemption – a vision that he now superimposed onto plant life. The purpose of plants was to offer a stark choice, between the pure flower and those plants most closely associated in *Genesis* with the Fall: 'thorns also and thistles shall it bring forth to thee, and thou shalt eat the herb of the field'.[33] Ruskin's earlier scepticism about biblical accounts of Eden seemed to have been replaced by a new commitment to something like an Evangelical reading of nature.

In earlier works, Ruskin had always given the impression that unmanaged natural scenes were beneficent. If one recalls his remarks about the fall of nature in

33. *Genesis*, iii. 18.

'The Dry Land' in *Modern Painters* IV, in which his surface acceptance of the authority of scripture on the subject gave way to a celebration of landscape, the contrast with parts of *Proserpina* could hardly be more striking. In 'The Parable of Jotham', he compared two wild scenes, one being the area around Malham Cove, a scene of loveliness, 'in which every leaf rejoiced, and was at rest', and the other, in his own Brantwood grounds, which had become a 'mass of thorny ruin'. Although this latter scene 'was all Nature's *free* doing' and despite the fact that 'there was not one plant in the whole ruinous and deathful riot of the place, whose nature was not in itself lovely' the brushwood was 'all lost for want of discipline'. The sense of loathing and nausea in Ruskin's account of the Wandel is recalled in this description:

> Black, bird's-nest like entanglement of brittle spray round twisted stems of ill-grown birches strangling each other, and changing half into roots among the rock clefts; knotted stumps of never-blossoming blackthorn, and choked stragglings of holly, all laced and twisted and tethered round with an untouchable, almost unhewable thatch, a foot thick, of dead bramble and rose, laid over rotten ground through which the water soaked unceaselessly, undermining it into merely unctuous clods and clots, knotted together by mossy sponge.

Not only did this recall the disarrangement of natural phenomena found at the Wandel, it also drew attention to a situation in which nature appeared incapable of healing herself: 'she had had her way with it to the uttermost, and clearly needed human help and interference in her business' (25. 293). Crucially, nature was now not merely the site of human pollution, but sometimes also its cause.

The pejorative language of this chapter became a constant feature of *Proserpina*, stressing the motivation and intention of plants to do right or wrong. The trees of 'Leaf Beauty', I noted in the previous chapter, were capable only of good, but in *Proserpina* even freedom could be debased, lacking the self-regulation

which the tree communities had automatically exhibited. In assessing the difference between the harmony of the Malham scene, and his own underwood, Ruskin was struck by 'the thorniness and cruelty of the one and the softness of the other'. The choice of language became biblical, stressing that nature itself could be infected with timeless sin: 'the thorns were there immortal, and the gnarled and sapless roots, and the dusty treacheries of decay' (25. 294). Humankind should turn to the example offered by Malham, where there was 'a fair and perfect freedom, without a diseased bough, or an unwholesome shade' (25. 293). In such passages, there was no doubt that ecology has been displaced from the discourse. Instead of investigating why the Malham and Brantwood habitats had developed in response to external agency, Ruskin turned to spiritual explanations.

Proserpina increasingly worked on the premise that if materialist science was content to discard morality (or to become, in Ruskin's eyes, immoral), his alternative botany would promote morality to a leading role. When he discussed orchids, for example, his vision was based partly upon botanical characteristics, and yet these were interpreted to demonstrate the perceived moral faults of the genus:

> I perceive one constant characteristic to be *some* manner of *distortion*; and I desire that fact, - marking a spiritual (in my sense of the word) character of extreme mystery - to be the first enforced on the mind of the young learner (25. 341-2).[34]

Ruskin's method 'consists essentially in fastening the thoughts of the pupil on the special character of the plant', in order to express 'the power of its race and order in the wider world' (25. 340). At a time when botany was concerned with cell structure and the role of insects in pollination, Ruskin's preoccupation with morality

34. For Ruskin's explanation of 'his sense' of spiritual, see Letter 70, *Fors Clavigera*, where he stated that the presence of 'Spirit' in animals and plants was beyond the understanding of modern science (28. 712-31).

was a deliberate attempt to halt materialism in its tracks.

Birch argues that 'the enduring value of Ruskin's rival venture into scientific writing lies in its dissent', but accepts that the second volume was considerably less insightful and observational than the first.[35] As the instalments of *Proserpina* accrued, the examples of plant morality multiplied and proliferated, leaving behind an often paranoid account of vegetable life. If 'Of Leaf Beauty' used botany to provide a parable of how to live a productive, co-operative life, *Proserpina* obscured, ignored, misrepresented, or abandoned botany in favour of offering an initial aesthetic or moral (and often harshly condemnatory) response to a plant. The keen interest of 'Leaf Beauty' in the relation of plants to external agencies was gradually discarded as a significant theme in *Proserpina*. That morality often contradicted botany, and subdued investigation into the ecology of plants, can be shown by a number of examples of the way that the new Fall played out in the text.

Some plants gave rise to a Ruskinian ire that flew in the face of botanical good sense. Cacti were a prime example of this. These succulents, a Victorian materialist might have noted, were successful because with the gradual onset of arid conditions, their leaves had over aeons been modified into spines, they had thickened their outer layers, altered their stomatic pattern (breathing at night time), adopted a reduced flowering period, and a greater mass-to-surface area ratio. Such organisms, they might elaborate, were a prime example of adaptation to a specific environment and climate change. For Ruskin, however, they displayed only 'a knobbly, knotty, prickly, malignant stubbornness, and incoherent opiniativeness' which was roundly to be condemned. Seaweed, which like cacti, were excellent examples of adaptation to a specialist environment, were characterised as 'crawling about, and coggling, and grovelling, and aggregating anyhow, like the minds of so many people whom one knows!" (25. 326). What Ruskin might have described as

35. Birch, 'Ruskin and the Science of *Proserpina*', p. 143.

'grotesque plants', those which moved furthest away from the example of the European flowering plant, were most often criticised. One could speculate that this was in response to their importance as a demonstration of the variety of life produced by evolutionism, but other factors appear to have also motivated Ruskin.

Weeds were no longer an essential part of a functioning ecosystem, but 'a vegetable which has an innate disposition to *get* into the wrong place' (25. 283). He argued that 'some plants never do' transgress in this indecent fashion, because 'they have no mind' to do so (25. 283, 284). It was not 'mere hardihood and coarseness of make' that guided weeds, but the fact that they were 'ungentle' and displayed 'unworthiness' (25. 285). The volition of trees in 'Leaf Beauty' was played out again in these examples, but in less favourable terms, as the 'minds' of these plants were shown to be engaged in unworthy activities. Darkness was irrevocably abroad in the world of flora in a way that it was not in 1860. For every plant that showed 'virtue' (a word, along with 'lawful' that was endlessly repeated in *Proserpina*) in its actions, there was at least another that is rendered unworthy by faults, such as 'stubbornness [...] and flaccidity [or] spinous obstinacy' (25. 297). 'Inferior flowers', Ruskin contended, were 'produced by some kind of mischief', such as 'ill-breeding' and the offenders 'never suggest the idea of improving themselves' (25. 390). Other, even more serious, miscreants included a species of *Pinguicula*, growing 'in a partly boggish, partly hoggish manner, drenched and desolate; and with something of demoniac temper' and, what was perhaps far worse for Ruskin, 'a discomfortable sensuality' (25. 423). As this final remark implied, sexuality, and in particular, female sexuality, was a key aspect of Ruskin's construction of an alternative botany. In examining the *Systemae Proserpinae*, it will become apparent not only that this issue was crucial, but that it revealed as much about Ruskin's response to *The Descent of Man* as it did about his attitude to gender.

X. The *Systemae Proserpinae*

One outcome of Ruskin's rejection of sexual selection was that the de-sexing of flowers and fruit in his discussion of cherries was extended into a project to entirely re-name all plant species. He attacked what he termed 'the vulgar and ugly mysteries of the so-called science of botany' that accrued because 'the most current and authoritative [plant] names are apt to be founded on some unclean or debasing association, so that to interpret them is to defile the reader's mind' (25. 200, 201). In other words, he wished to remove all references to sex from the botanical names of plants, and therefore he set out to re-name them 'by reference to mythological associations' rather than 'botanical structure' (25. 340). Once Ruskin's *Systemae Proserpinae* was constructed, and then universally accepted, the delicate minds of his readers would no longer be assailed by prurient details of a plant's sex life, but would instead be upraised by the divine examples of goddesses. Ruskin thus proposed to divide all plants into twenty-eight orders, many of them 'queendoms' devoted to female figures in mythology, and to a view of women that reflected a Victorian ideology of desexualised domesticity. The Uranides, for example, were 'sacred to Urania in their divine purity', whilst the Vestales were both 'domestic' and 'modest' (25. 354, 355). The Charites expressed 'true sisterhood', whilst the Artemides, 'dedicate to Artemis for their expression of energy, no less than purity', acted as an example to all womankind (25. 354, 355). That Ruskin's taxonomy was designed to reflect a particular notion of femininity was even reinforced by the grammatical rules by which plants were named:

> Names with the feminine termination "a", if they are real names of girls, will always mean flowers that are perfectly pretty and perfectly good (Lucia, Viola, Margarita, Clarissa). Names terminating in "a" which are not also accepted names of girls, may sometimes be none the less honourable (Primula, Campanula), but for the most part will signify either plants that are only good and worthy in a nursy sort of

> way (Salvia), or that are good without being pretty (Lavendula) or pretty without being good (Kalmia) (25. 344-5).

In such homilies to idealised femininity, there was nothing remotely likely to set the pulses of vulnerable readers racing with impure thoughts. The queendoms of *Proserpina* paralleled the domestic sphere he established for women in 'Of Queen's Gardens', his now infamous essay on gender from 1866.

Ruskin's purpose in *Proserpina* was to attempt to counteract the influence of materialist science on impressionable young (and particularly female) minds:

> These retouchings and changes are inevitable in a work confessedly tentative and suggestive only; but in whatever state of imperfection I may be forced to leave *Proserpina*, it will assuredly be found, up to the point reached, a better foundation for the knowledge of flowers in the minds of young people than any hitherto adopted system of nomenclature (25. 480).

As Ruskin drew towards the point at which abandonment of *Proserpina* became inevitable, his words expressed two characteristic elements of the text. One is that it was supposed to be a work of 'process', and therefore 'confessedly tentative'. That this unrestrained discourse of discovery ran alongside another which sought to fix boundaries to knowledge, names, and the variability of species, was one of the factors which afflicted this text with internal conflicts. The second point was that for Ruskin *Proserpina* was a work which addressed broader issues of education and culture, rather than focusing on merely scientific issues. 'The minds of young people' being the site Ruskin chooses for a battleground with materialism, his attempt to re-invent botanical nomenclature becomes a moral and educational crusade that consistently expressed Ruskin's feelings about sex and reproduction.

In his notes on the floral forms of the Vestales, Ruskin pointed out that he accepted the term 'petal', 'but never the world lip – as applied to flowers'. Because

of this, 'the generic term "Labiatae" is cancelled in *Proserpina*'. Is it speculative to suggest anxiety on Ruskin's part about the etymological link to female sexual morphology? Such anxiety was perhaps confirmed by the replacement terms Ruskin offered for the description of flowers. In place of a terminology in which organs of sexual reproduction (like ovaries and stamens) were used as the basis of many plant names, Ruskin opted for epithets that appeal to a desexualised image of 'maidenhood' or old age: 'these flowers, when I come to examine them, are to be described, not as divided into lips, but into hood, apron, and side pockets' (25. 423n). In a passage in volume II, Ruskin returned to this terminology, elaborating upon it in such a way as to indicate that he prized non-sexual femininity:

> The whole blossom being something like a dress provided at a fairy almshouse for slightly hump-backed old fairies, fond of gossip (25. 515.).

The link between domesticity and virtue may be somewhat muddied here in the unexpected image of a garrulous fairy crone, but was not erased. Rather, by turning to an elderly image of femininity, Ruskin's conceptualisation effectively excluded or obscured sexuality from the domestic female ideal, just as he had done in his remarks on cherry blossom in chapter III.

Such passages revealed confrontation with materialism, and anxieties about procreation. In 'Of Queen's Gardens' a warning about the dangers of sex was cloaked in flower imagery which made it clear that unrestrained sexuality could lead to destruction. Ruskin called for domestic queens to reach out to those 'feeble florets' who endangered themselves through prostitution:

> Far in the darkness of the terrible streets – these feeble florets are lying, with all their fresh leaves torn, and their stems broken: will you never go down to them, nor set them in order in their little fragrant

beds, nor fence them [...] from the fierce wind? (18. 142-3)

Sex threatened to destroy or disfigure 'these living banks of wild violet, and woodbine, and rose', 'these sweet living things', who, if tended for and nurtured, would find their 'purity, washed from the dust, is opening, bud by bud, into the flower of promise' (18. 143). The twofold glance of Persephone – towards life and death, towards creativity and degradation – was expressed in this call for active sympathy. The prostitutes of whom Ruskin spoke were not irredeemably 'fallen women', but capable of redemption. Even so, a clear message runs through Ruskin's works – whether he speaks of women or of flowers: sex and sexuality are at least *potentially* harmful. Again and again, Ruskin's domestic idealisations of women in *Proserpina* called on them to shun overt sexual display. Repeatedly they return to figures who were not sexually mature, such as the chastely dressed crone who was taken to represent the flowers of the order of the virgin goddess, Vesta.

Dresses recur throughout *Proserpina* as figures of chastity. In 'The Stem', Ruskin examined the blossom of hawthorn, a plant 'that all nice people like', and which he held up as an example of floral rectitude. He declared it to be more like 'the spring frock of some prudent little maid of fourteen than a flower'. As he elaborated that 'the dark points of the dead stamens' which mark the petals make the blossom like a 'frock with some little spotty pattern on it to keep it from showing an unintended and inadvertent spot – if fate should ever inflict such a thing!', it offered further evidence of Ruskin's appeal to an idealisation of women in a virginal condition (25. 300).[36] There is uneasiness in Ruskin's light exclamations, an anxiety that this idealised image of femininity would be subject to change, and lost to the inevitability of maturation. The implication of the onset of menstruation and

36. Birch argues that this description is in response to the death of Rose La Touche, the news of whose death reached Ruskin on the morning he sat down to write about may blossom (see Birch, *Ruskin's Myths*, p. 178).

loss of innocence that psychoanalytic commentators might glean from the description of 'inadvertent spots' was never developed, but seems significant. What these examples of dress imagery undoubtedly suggest was that for Ruskin 'perfect' women and 'perfect' flowers were not sexual beings, and that the ideals which Ruskin constructs were never free from that which threatened to undo them.

Even amongst the Vestales, an order prized for their domesticity, miscreants lurked, plants which participated in the lower realms of creation, and which evidenced the inescapable sinfulness of sex. In the chapter on the species *Brunella* in Volume II, Ruskin began with a warning concerning flower forms in general:

> If any of the petals lose their definite character as such, and become swollen, solidified, stiffened, or strained into any other form or function than that of petals, the flower is to be looked upon as affected by some kind of constant evil influence; and, so far as we conceive of any spiritual power being concerned in the protection or affliction of the inferior orders of creatures, it will be felt to bear the aspect of possession by, or pollution by, a more or less degraded Spirit (25. 466).

Almost like a seventeenth century demonologist, Ruskin highlighted the marks by which flowers exhibited complicity with the forces of 'a more or less degraded Spirit'. The overwhelming sense of tumescence in the passage ('swollen, solidified, stiffened') resulted in phallic imagery: it was as if by taking on forms which were suggestive of male genitalia, the flowers entered into a compact which was sexually and morally deviant: the implied sexual act sealed a real pact with the Devil. Ruskin proceeded to list the evidence of guilt in the *Brunella*, not least its initially beguiling appearance: 'the most glowing of violets could not be lovelier than each fine purple gleam of its hooded blossoms', he declared, before showing that such display was not to be trusted. On closer inspection, Ruskin perceived 'a cluster of stiff white hairs, almost bristles, on the top of the hood'. That they were there 'for no

imaginable purpose of use or decoration' was suspicious, and led Ruskin to search for other physical symptoms of malignancy. The evidence emerged when he discovered that from certain angles, 'the lower petal begins to look like some threatening viperine or shark-like jaw, edged with ghastly teeth' and that within the throat of the flower 'there are two projections where the lower petal joins the lateral ones, almost exactly like swollen glands' (25. 468, 469). Ruskin described these as being akin to glands of the throat, but an undertone of ill-defined sexual allusion lurked in the description. Leaving behind empirical botany, he asserted that 'it is not the normal character of a flower petal to have a cluster of bristles growing out of the middle of it, nor to be jagged at the edge into the likeness of a fanged fish's jaw, nor to be swollen or pouted into the likeness of a diseased gland'. What Ruskin wanted to show his young readers was 'a really uncorrupted flower' that resembled 'nothing but itself', but all too often he faced such distortions of proper floral form (25. 470).

The earlier comparison with seventeenth century demonology may seem dramatic, but Ruskin's statements on flowers after 1872 baldly elided female sexuality and devil-worship. In *Fors Clavigera*, he informed female readers who chose to spend time in greenhouses rather than in gardens or fields that very real dangers lurked beneath the glass. The monstrous forms and shapes found in *Brunella* flowers were also to be found amongst many common Victorian hothouse plants. The young girls of England were endangered, Ruskin felt, by contact with some of the more popular New World exotic plants, and should choose instead, the healthy, educational properties of gardening and walking. 'The devil,' he informed them, was afraid 'not at all of camellias and air-plants'. Indeed, 'the Fly-God of Ekron himself superintends –as you may gather from Mr Darwin's recent investigations – the birth and parentage of the orchidaceae'.[37] Satan, however, 'is

37. Ruskin may have been referring to Darwin's *On the Various Contrivances by which British and Foreign Orchids are Fertilised by Insects* (1862), a text to which he referred, in much less obviously condemnatory terms in *Proserpina* (25. 224).

mortally afraid' of flowers like the rose and crocus (29. 182, 183). 'Mr Darwin's recent investigations' had been concerned to show the role played by insects a role in the sexual acts taking place within a flower. Ruskin's disgust was made clear in Volume II of *Proserpina*:

> I observe a paper in the last *Contemporary Review*, announcing for a discovery patent to all mankind that the colours of flowers were made "to attract insects"! They will next hear that the rose was made for canker, and the body of man for the worm (25. 414).[38]

For Ruskin, the pure form of flowers (in those cases where they were indeed still pure) was defiled and violated by the involvement of insects in reproductive acts.

Sexuality became allied to materialism in Ruskin's mind, in that they were both used to support the Darwinian view (and, in *Letters to a College Friend*, the Ruskinian view) that flowers were in essence organisms for creating further organisms in the most efficient possible manner. If the implication of this 'hard' materialist position was to be accepted, flowers would be emptied of their cultural meanings, and Ruskin's entire project to unite moral and natural truths swept aside. His disdain for sexuality cannot be explained away by his unhappy relationships, or by the prurience of his evangelical upbringing. Anxieties in Ruskin's personal, religious, and scientific anxieties cohered around issues of female sexuality. To be female in *Proserpina* was to face a stark choice, on which the future happiness of society depended.

Already, many species had chosen the path opened up by the Fall, and embraced malefic, sexual influence. Others chose a virtuous path, which encompassed ideals of domesticity, and eschewed overt sexuality. Their resistance to temptation at a spiritual level was, through Ruskin's syncretic approach, also

38. Cook and Wedderburn point out that Ruskin referred to Dr Asa Gray, 'The Relation of Insects to Flowers', *Contemporary Review*, April 1882, Vol. 41, 598 *seq* (25. 414n).

made to represent resistance to materialist science, industrialism, and modernity in its many forms in Victorian society – a weighty responsibility, indeed, for the blossoms of Proserpine to bear. The very 'nature' of each queen in Ruskin's garden expressed the potential to turn towards Hades or to 'Sicilian fields', to the temptation of apples or to self-discipline. In this choice, Ruskin condemned femininity: the success of female self-regulation could only ever be provisional, and could never be finally won. Females must always look inward, for it was in their very nature – in their descent from Eve – that problems arose.

It was the articulation of such attitudes in Ruskin's lecture, 'Of Queen's Gardens' from *Sesame and Lilies* that led to Kate Millett's attack on Ruskin as a prime example of Victorian patriarchy.[39] More recently, a debate has opened up on Ruskin's attitude to gender. Sharon Aronofsky Weltman has argued that despite being 'known to many as the foremost voice extolling separate spheres for men and women', Ruskin produced 'mythopoetic prose' that 'surprisingly yields tools to break down fixed categories of gender'. In particular, she suggests that in *The Queen of The Air* and *The Ethics and the Dust*, 'his mythmaking grants unexpected power to women' by ascribing to Athena powers traditionally associated with male gods. For Ruskin, Athena was a goddess not just of war, but of air, wisdom and weaving, and in this last sense, a weaver of worlds. Weltman suggests:

> The Athena that Ruskin creates is bivalent, her powers of evil and

39. Ruskin's insistence that a woman's finer instincts are 'made' to stop men from coming to blows, and that therefore 'there is no suffering, no injustice, no misery, in the earth, but the guilt of it lies with you' (22. 140). In response to this, Kate Millett argued that 'there is a certain humour in Ruskin's proclamation that woman, confined through history to a vicarious and indirect existence, without a deciding voice in any event, with so much of the burden of military, economic and technological events visited upon her, and so little of their glories, is nevertheless solely accountable for morality on the planet' (Kate Millett, *Sexual Politics* (London: Granada, 1969, p. 106).

> destruction blending with powers of good and creation. Ultimately the polarities of air and earth, good and evil, creation and destruction, masculine and feminine that Athena encompasses break down: in his vision of Athena, Ruskin represents the instability of all polar opposition, which he acknowledges as unstable but cannot relinquish [...] The same is true for Ruskin's understanding of gender, so that he continually cultivates and collapses what constitutes any distinction between masculine and feminine.[40]

Birch and O'Gorman also argue that there is a need for a fundamental reappraisal of Ruskin's attitude to gender. In 'Ruskin's "Womanly Mind"', Dinah Birch concedes that *Sesame and Lilies* represents for many 'the supreme expression of all we need to know and despise about Victorian culture', but wishes to challenge what she regards as the assumption, drawn from Millett, that 'a historically-minded feminist can read Ruskin only with the worthy but depressing ambition of familiarizing herself with some of the murkier sources of patriarchy'. She does so by arguing that there 'is a disparity between the arguments advanced in "Of Queen's Gardens" and the way in which Ruskin actually lived and behaved'. He was, she argues, 'actively concerned with the furtherance of education for women' and 'keenly interested in the foundation of the first women's colleges in Oxford.[41] O'Gorman in *Late Ruskin: New Contexts* argues that Ruskin himself was commonly perceived as feminine, and that this led him to play with gender categories in his own work.[42] Similarly, Birch argues that Ruskin's construction of 'separate spheres' in 'Of Queen's Gardens' was an autobiographical discourse, in which Ruskin expressed ideas about his own role and sexuality.

There may be considerable merit in the general movement by these three

40. Weltman, p. 4, p. 5, p. 20.
41. Birch, 'Ruskin's "Womanly Mind"', 308, 309.
42. O'Gorman, p. 125.

critics to re-appraise Ruskin's attitude to gender, and a worthwhile opportunity to make a detailed comparison between 'Of Queen's Gardens' and *Proserpina*, but my immediate concern in closing is to ask: how does *Proserpina* add to the critical debate about Ruskin and gender? Putting aside the enormous difficulties faced by those arguing for specifically gendered languages or texts, there is in *Proserpina* absolutely no evidence at all of the potentially liberating figures which Weltman found in *The Queen of the Air* and *The Ethics of the Dust*, or the more positive and enlightened attitude that Birch rightly locates in Ruskin's personal life and in her reading of 'Of Queen's Gardens'. If anything, *Proserpina* was Ruskin's least positive text in terms of femininity and sexuality. The notion drawn in 'Of Queen's Gardens' of 'separate spheres' for men and women was reproduced with utter rigidity in the male and female orders of the 'Systemae Proserpinae'. Separate terminologies were deemed necessary to provide epithets for 'male' and 'female' genera. Each plant order expressed a discrete sphere of influence (the very specifically domestic realm of the Vestales; the destructive orders of the Moiridae or Draconidae, and so on). In many ways, Ruskin's later botany sought to contain and compartmentalise the elements of nature, just as his earlier botany was concerned with highlighting its connections. If unity was the lesson furnished by nature in 'The Work of Iron', 'Of Leaf Beauty', and 'The Law of Help', division and distrust ultimately triumphed in Ruskin's study of plants in *Proserpina*. The decline of ecology, the Fall of nature, and the rise of a genderised, moralised account of nature went hand in hand, and all arose out of Ruskin's response to *The Descent of Man*.

The Descent of Man, and its theories about humanity and sexuality, ultimately directed Ruskin's decision to become an implacable opponent of Darwin. As overlapping sister sciences, evolutionary theory and ecology both articulated biocentric, dynamic visions of environment that offered a challenge to Christian

readings of nature. If, as I argue, Ruskin threw himself into the latter science prior to 1870, he did so without realising what would become the Darwinist implications of its vision of nature upon the world of human culture. When this became clear, however, he did not immediately reject materialist science. During the 1860s, he believed that it might be possible to separate science and culture in such a way that the latter could be stopped from encroaching on the prerogatives of the latter. Once Darwin began to openly explore the implications of his theory for human sexuality and evolution, this amicable divorce became impossible, and Ruskin was forced to choose absolute opposition to Darwinism. I have shown that Ruskin's opposition to Darwin was finally established, not in the wake of *Origin of Species* during the 1860s, but after the publication of *The Descent of Man* in 1871. Once Ruskin chose opposition, an erasure of ecology took place in his later work. The defiance of later works like *Proserpina*, so intelligently highlighted in the work of Kirchhoff and Birch, was vehement, but also confused, because Ruskin recognised his own earlier participation in these ideas. *The Descent of Man* represented a painful blow, not because Ruskin had always been scientifically conservative, but because he had travelled much of the road alongside Darwin, and had begun to conceive the natural world in ways that would have been familiar to the great Victorian naturalist. Although Birch and Kirchhoff are right to rehabilitate *Proserpina*, they perhaps underestimate the degree to which this work was marred by the loss of the dynamic, ecological discourses that had characterised 'The Work of Iron' and 'Of Leaf Beauty'. Alongside the erasure of ecology, a rise in a moral mythopoesis came to dominate *Proserpina*, revealing that Ruskin came to believe that nature was in some senses Fallen, and that it was the job of botanists to study plants primarily for their moral lessons. It also showed that the issue of gender and sexuality was a constant guiding factor in the construction of his mythopoetic flower queendoms, and that his view of femininity became both reductive and stereotyped. Although the aspects of

Proserpina that I have chosen to highlight – its attitude to ecology, Darwinism, materialism, taxonomy, sex, and gender – might seem disparate and fragmentary, I hope to have shown their very considerable points of overlap and contact. Within Ruskin's darkening vision of nature, his loss of all that had been most sustaining in his earlier experiences of the natural world were accompanied by the growth of painful feelings of despair, decline, and degradation.

In closing, I would like to consider one final point. The science of ecology may have been gradually erased from *Proserpina*, but at another level, ecology was ineradicable in Ruskin's discourses. If ecology is taken to mean a means of ordering and organising systems of knowledge, could an argument be put for its continued influence in texts like *Proserpina* and *Fors Clavigera*? The disparate, fragmentary organisation of *Proserpina*, its failure to set up a convincing nomenclatural system or to complete it, its frequent digressions, and tangents, all indicated that Ruskin refused to apply logical systematisation to his work. If *Proserpina* (and other late works, like *Fors Clavigera*) could be said to have been organised at all, theirs was surely an organic order: these were texts in ongoing states of revision, process, and growth; they had little sense of linearity, or any clear terminal point; and the connections that Ruskin wished his readers to make – between plants, humans, art, and society – remained organic in their arbitrariness. In *Proserpina*, as in earlier works, everything connects, even as the controlling vision behind it became darker. More than ever, these late works asked readers to assemble meaning from constituent elements thrown down at random. The assumption appeared to be that the organising act and principle, located in the subject, was an active process, and an infinitely varied one. As such, and even as Ruskin's distrust of materialist ecology scarred his botany, ecology remained a distinctive presence in Ruskin's work up until the end of his career.

CONCLUSION

This work arose from an initial, half-formed feeling that something significant lay behind the difference in tone and atmosphere between 'Of Truth of Vegetation' and 'Of Leaf Beauty'. In those early, untheorised moments, I felt that Ruskin had been involved in something like a movement from the intellectual landscape of Burke or Wordsworth towards something much more modern. After all the subsequent investigations, this general feeling has, in its broadest aspects, been vindicated, although the enquiries it has necessitated have been longer, more complex, and more difficult than I had either hoped or imagined. What the differences between the tree work of the first and final volumes of *Modern Painters* revealed was the degree to which Ruskin brought to life an ecological view of nature, even before the term ecology had come into being.

My core contention that the ecological tenor, content, and outlook of Ruskin's work has been dramatically overlooked has meant pursuing a number of somewhat discrete, but always related enquiries. I have been keen to argue not only that Ruskin was involved in the discourses of ecological science, but that ecology, as an important cultural formation of the nineteenth century, provided him with a much more wide-ranging, durable, and multivalent model to describe acts of growth, creativity, order, and organisation, in the realms of nature, art, architecture, society, and politics. Moreover, I have suggested that it provided a template by which his own texts were organised. Distinctive markers of ecological thought –mutualism, interaction, relationships between microcosmic and macrocosmic levels of systems, and the overriding force of ongoing, dynamic processes – occurred repeatedly in Ruskin's work, as descriptors of nature, culture, and society, and as textual features of his writings. The cultural reach of ecology – its ability to cross boundaries between science, social issues, and aesthetics – made it an ideal formation within which the polymathic and discursive Ruskin could situate his discourses.

In the introduction I suggested that it might be possible to re-position Ruskin in terms of his place within nineteenth-century debates about science and culture, arguing that it would prove untenable to place him comfortably within the traditions of Evangelicalism, Natural Theology, Romanticism, or Classical science. I argued that markers of much more distinctively modern ideas were features of his thinking. In suggesting that it would be profitable to trace the degree to which he might have ecological allegiances, I also attempted to produce a serviceable definition of that term that did justice to its multiplicity, range, and cultural dynamism.

In the literature review that followed, I concentrated on the familiar notion within Ruskin criticism of unity, tracing the way that different groups of critics argued, variously, that his work lacked any decisive unity, or that it could be united around various features of his work. These unifying foci have included aesthetics, religion, society, and romanticism, but few critics have attempted to ask whether ecology might provide a more coherent and universal point of unity in his work. It proved instructive to see the number of times that critics pointed to the idea of an organic unity within his work, without ever exploring whether this organicism might also be ecological. The task of the chapters that followed was to test this idea.

In the first chapter I posited the idea that an ecological model of composition, as revealed in Ruskin's dendrological and aesthetic work operated at the level of discourse, text, and epistemology. I began with a lengthy comparison of tree writings in volumes I and V of *Modern Painters*, tracing the many features of the changes between the two texts, and arguing that by 1860, Ruskin had achieved a truly ecological vision of nature, society, and culture. The movement (at a linguistic level) between these two texts, from metaphor to analogy, reflected a movement (at an epistemological level) from abstract, logical systems of organisations, to organic, 'living' modes of order. In turn, these changes fed into Ruskin's desire to embrace issues beyond aesthetics, permitting him to analyse society in terms of the ecological

template he promoted in his tree studies. The examinations of 'The Work of Iron' and 'The Law of Help' reinforced this theory, providing further evidence of the degree to which Ruskin embraced an ecological reading of all creative acts, and saw knowledge itself as a growing, changing, ecological force.

The second and third chapters dealt with Ruskin's engagement with science, testing the contentions laid out in the introduction that Ruskin has been mis-positioned as a supporter of Evangelicalism, Natural Theology, or Classical science; or that his opposition to Darwinism was straightforward. In chapter two, I examined his engagements with geology, anatomy, botany, and zoology; his attitude to Evangelical notions of nature, and to issues of biblical literality; and his relationship with Natural Theology, arguing that in all of these cases, Ruskin was much more open to materialist notions and methods in science than is generally acknowledged. The important case study of Ruskin's *Letters to a College Friend* provided a leading component of these enquiries, but one that was supported by a range of other sources and contexts. It was not my aim to suggest that Ruskin was an ardent supporter of materialism. Rather, I wished it to be acknowledged that materialism played a much more important role within his notion of a balanced, cultural science than is often recognised.

Having traced Ruskin's science in the first half of his career (and, in the case of geology, somewhat beyond this), I chose in the third chapter to deal with issues that became significant in the latter half. In attempting to answer why Ruskin turned so emphatically against materialism after 1870, I began with the important question of his response to pollution and industrial expansion, before moving to an even more crucial enquiry into the impact of Darwinism. Following my central contention that Darwin's *The Descent of Man* proved a greater obstacle to Ruskin's peace of mind than *The Origin of Species*, I suggested that his implacable opposition set in only after 1871, and that it arose mostly in response to the moral and educational

implications of Darwinism, rather than as a result of fundamental scientific differences. After doing so, I traced a series of related changes in his late botany, *Proserpina*, including the decline of ecology, the rise of a moralised mythopoetic reading of plants, and the establishment of a highly gendered account of nature in which femininity was constructed as either asexual and domestic, or sexualised and malefic. Arguing that all of these changes were coterminous, and equally related to the impact of Darwin's theory of sexual selection, I suggested that *Proserpina* marked the final breakdown of Ruskin's cultural science. I also speculated that ecology as an organising template continued to guide the textual organisation of his work even as ecological science was erased from his writing. The multivalency of the cultural formation of ecology, and its enduring importance to Ruskin having thus been demonstrated, it remains only to consider some of the implications of these findings, and to suggest routes for further investigation.

A far more straightforward reading of Ruskin's attitudes could be produced if one could argue that he had always been an Evangelical thinker, a Natural Theologian, or had always been resistant to materialism in all its forms. It would also be simpler to suggest, conversely, that his work was always marked by a clear commitment to materialist, or even ecological, thought. Unfortunately, the complexities and ambivalences of Ruskin's responses to these ideas, make analysis much more difficult, and simple conclusions more elusive. Precisely because Ruskin was rarely unambiguous in his support for any particular school of thought, his position is difficult to define with exactitude. His own anxieties and concerns about the scientific and cultural issues raised by study of nature in the Victorian period mark him out as an analogue of the anxiousness and alarm of his age. Ruskin's inability to either firmly maintain a rejection of established, Christian, anthropocentric ideas about nature, or emphatically disprove the newer, materialist vision provided by Darwin, Lyell, and others left him as troubled as any other figure

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reservoirs in the Lake District, for example, offered more than examples of anthropocentric environmentalism. They also revealed that an ecological understanding of natural processes continued to inform his more practical engagements with landscape issues even in the 1880s.[2]

A second obvious area of enquiry that could be extended from the present work is the study of gender issues in the closing chapter. A more detailed examination of the relationship between 'Of Queen's Gardens' and the queendoms of *Proserpina*, conducted in the context of debates over Ruskin, gender, and sexuality, was not advisable within the remit I had laid down. However, it might offer a means of outlining the limitations of recent attempts to rehabilitate Ruskin's position on gender; or to show that whilst he may have been positive in his personal interactions with women, and with female educational establishments, his work in print did not always display the characteristic transgression of gender categories found by Weltman in works like *The Queen of the Air*. It would be instructive, for example, to ask whether Weltman's findings are questionable, or (and this seems much more likely) true in the case of certain texts, but not for others, like *Proserpina*. It might also be possible to return to *Proserpina* to see if there is evidence of any transgression of gender boundaries within its apparently strict compartmentalisation of gender roles.

Another, even more substantial, area of potential enquiry would be Ruskin's relationship with, and influence upon, late nineteenth and early twentieth-century ecologism, as defined by Bramwell as that movement seeking to bring the scientific lessons of ecology to bear upon the organisation and management of communities

2. For Ruskin's preface to Robert Somervell's *The Extension of Railways in the Lake District: a Protest* (1876), see 34. 137-143. For his powerful ecological and environmental arguments against reservoirs, see Ruskin, *Water for Manchester from Thirlmere: the Manchester and Thirlmere Scheme: an Appeal to the Public on the Facts of the Case* (Manchester: John Heywood; Windermere: J. Garnett; London: Simpkin, Marshall & Co, 1877).

and resources. It is already clear to me that Ruskin was one of the principle influences on Patrick Geddes, a major figure in this period of ecological activism, and that others within the anarchist wings of the ecology movement at this time may have been either profoundly influenced by Ruskin or produced work that resembled his in aspects of their respective philosophies. Both Prince Peter Kropotkin and, to a lesser extent, Elisée Reclus seem to owe a debt to the work of Ruskin, particularly in terms of the genesis of the ideas of the former on luxury, the relationship between science and economics, and of mutualism in natural and social communities. To fully explore these ideas, and to fully trace the (patchily) documented impact of Ruskin on other figures within ecologism and utopianism, including Mahatma Gandhi, Leo Tolstoy, the physicist Frederick Soddy, and D. H. Lawrence, would provide an almost entirely new context for Ruskin studies, and one which would considerably reinforce my central contention about Ruskin's immersion in the wider cultural formation of ecology.

Ecology is of course a continuing movement or formation, and as I briefly argued at the close of the second chapter in my remarks on Bateson, Ruskin's kinships should be traced not only (and not primarily) retrospectively towards eighteenth century science, but much more powerfully towards twentieth century thought on landscape, aesthetics, and culture. The resurgence in the past twenty years of what might be termed post-structuralist thought about landscape has rested upon the idea, articulated recently by Cosgrove and Stephen Daniels, that 'it is impossible to extricate the landscape from its cultural and social associations' because 'the meanings of verbal, visual and built landscapes have a complex interwoven history.' Their contention that 'every study of a landscape further transforms its meaning, depositing yet another layer of cultural representation' immediately seems reminiscent of Ruskin's own characteristic practice, and his refusal to separate the scientific, aesthetic, and cultural aspects of studies of nature

and landscape.[3] By pursuing Ruskin's connections to such twentieth century ideas, Ruskin's resistance to Darwinist separation might – as Birch and Kirchhoff imply – be further clarified to stress its connections forwards in time, rather than emphasising atavistic clinging to outmoded ideas.[4] If ecology is defined as an attempt to find the connections, to define relationships, and to map and regulate acts of creativity and growth, Ruskin's immersion in ideas which have a distinctive relationship to post-modern notions about landscape as a cultural phenomenon, might indicate the enduring nature of his ecological vision, and would, perhaps, be the first place to continue the foray into Ruskin and ecology that this work represents.

Mark Frost, July 2005

3. Daniels and Cosgrove, introduction to *The Iconography of Landscape*, p. 1.
4. Ruskin could also be linked to a number of other key writers on landscape, culture, aesthetics, and politics, including the environmental aesthetician, Arnold Berleant, author of *The Aesthetics of Environment* (Philadelphia: Temple University Press, 1992); the historical ecologist, Oliver Rackham, whose argument for closer study of the interaction of human and natural environments has been highly influential. See, for example, Rackham, 'Landscape and the Conservation of Meaning' (Reflection riding memorial Lecture to the Society of Arts, 6 June 1990), *RSA Journal*, January 1991, 903-915; and even figures like Jonathon Porritt, one of the leaders of the current ecological movement, whose arguments in *Seeing Green: the Politics of Ecology Explained* (Oxford: Blackwell, 1988) share much with Ruskin's utopian ideals for the St. George's Guild.

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