DIALOGUES WITH DARWIN

Darwin's Voyage: Circumnavigation, World History, and the Sublime

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Institute for Advanced Studies in the Humanities
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Darwin's bicentenary

2009 marks the bicentenary of Charles Darwin's birth on 12 February 1809, and the 150th anniversary of the publication of *On The Origin of Species*, on 24 November 1859. Darwin's student years in Edinburgh were an important period in his intellectual formation: here he encountered the fruits of the Scottish Enlightenment, from the revolutionary geological theories of James Hutton to important advances in medical theory and practice, and adventurous developments in theological and philosophical thought fostered in the University and the City.

In conjunction with the University of Edinburgh and other Scottish and UK-wide academic and scholarly institutions, the Institute for Advanced Studies in the Humanities (IASH) joined the Edinburgh celebrations for the bicentenary by organising a series of "Dialogues with Darwin: Darwin and Edinburgh". The five symposia, held in the spring of 2009, explored aspects of his work in Scottish contexts including circumnavigation, anatomy, theology, and evolution itself. Together, these talks and discussions led by a series of international and local experts offer new angles for understanding Darwin as both a catalyst in the broader Enlightenment project and a model for its subsequent impact. From Patrick Geddes to Charles Bell to James Crichton-Browne, the Edinburgh connection offers a rich kaleidoscope of historical and intellectual links.

The speakers in the series were Professor Ian Duncan (University of California, Berkeley) on "Darwin, Circumnavigation, and the Aesthetics of World History"; Professor David Fergusson (University of Edinburgh) on "Darwin in Scotland";
Dr. Walter M. Stephen (former Chairman of the Sir Patrick Geddes Memorial Trust) on "Charles Darwin: Some Scottish Connections"; Dr. Gregory Radick (University of Leeds) on "Edinburgh, Enlightenment and Darwin's *Expression of the Emotions*"; and Revd. Dr. John Polkinghorne (St. Edmunds College, Cambridge) on "Evolving Creation". Each paper is published separately in this series of IASH Occasional Papers.

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A graduate of the University of Cambridge (King's College) and Yale University, he has taught in the English Departments at Yale University and the University of Oregon. He is the author of *Modern Romance and Transformations of the Novel: The Gothic, Scott, Dickens* (Cambridge, 1992) and *Scott's Shadow: The Novel in Romantic Edinburgh* (Princeton, 2007), which won the Saltire Society / National Library of Scotland Research Book of the Year award for 2008. Recent and forthcoming essays include discussions of Hugh MacDiarmid's modernist nationalism, Scotland's and Ireland's comparative Romanticisms, sympathy and fanaticism in James Hogg's *Confessions of a Justified Sinner*, and Dickens and the historical novel. He is co-editor of *Scotland and the Borders of Romanticism* (Cambridge, 2004), *Travel Writing 1700-1830: An Anthology* (Oxford, 2005), *Approaches to Teaching Scott's Waverley Novels* (New York, 2009), and *The Edinburgh Companion to James Hogg* (forthcoming, 2011). He has edited several key works of Scottish Romantic fiction, including James Hogg's *Winter Evening Tales* (Edinburgh, 2002), Walter Scott's *Ivanhoe* (Oxford, 1996) and *Rob Roy* (Oxford, 1998). His new edition of Hogg's *Private Memoirs and Confessions of a Justified Sinner* for Oxford World's Classics will appear in 2010. He is currently researching a book on the novel and the science of man from Hume to Darwin.

Synopsis

This essay reads Darwin's *Journal* of his 1831-36 voyage on H.M.S. *Beagle* as a late instance of the circumnavigation narrative, a distinctive literary genre of the long eighteenth century. Darwin reflects upon the belated, post-Enlightenment condition of his voyage, sixty years after the Cook expeditions and the completion of the map of the world. While eighteenth-century circumnavigations might have represented a European imperial will to universal knowledge, Darwin writes in a new era of scientific uncertainty as well as of British geopolitical supremacy. New forms of knowledge are unfolding, among them the history of the earth (Lyell) and the natural history of man (Lamarck). Darwin articulates his awareness of the historical condition of his voyage through a 'Romantic' opening to new knowledge as an aesthetic process. In the *Journal* he deploys two modes of the sublime which articulate contrasting visions of the earth, prepared for him in Alexander von Humboldt's *Personal Narrative* and Charles Lyell's *Principles of Geology*. Where the Humboldtian sublime expresses a vision of the earth as an interconnected living system (a biosphere), the Lyellian sublime expresses an abyssal intuition of 'deep time' and the extinction of populations. Lyell's geology translated history from the human sciences to the science of the earth, but at the cost of excluding from its scope the potentially scandalous natural history of man. To justify that exclusion, Lyell installs an incommensurable difference of scale between the dimensions of geological and human history. Darwin however finds himself observing and reflecting upon the data of comparative anthropology and world history that comprised one of travel writing's key topics, and registering – by virtue of his journal's status as a day-to-day record of his own experience – the psychic collisions of the different scales of geological, racial, national and personal history. In the figure of the Fuegian savage of

Tierra del Fuego he confronts the vanishing point of a sublime that does not modulate into aesthetic wonder or scientific knowledge. Insisting on an insurmountable difference between himself and them, never to be closed by an historical process of 'improvement', Darwin intuits but disavows the Fuegians' extinction as a prospect of the history that he now shares with them, thanks to the voyage that has brought him to their land.

Darwin's Voyage:

Circumnavigation, World History, and the Sublime

> The limit of man's knowledge in any subject possesses a high interest, which is perhaps increased by its close neighborhood to the realms of imagination.
> – Charles Darwin, *Journal and Remarks* [1]

I: *Closing the world*

At the end of the journal of his voyage around the world in HMS *Beagle*, in the course of 'a short retrospect of the advantages and disadvantages, the pains and pleasures, of our five years' wandering', Charles Darwin reflects upon the historical conditions of the enterprise in which he has taken part:

> The short space of sixty years has made an astonishing difference in the facility of distant navigation. Even in the time of Cook a man who left his comfortable fireside for such expeditions underwent severe privations. A yacht now with every luxury of life might circumnavigate the globe. Besides the vast improvements in ships and naval resources, the whole western shores of America are thrown open, and Australia has become the metropolis of a rising continent. How different are the circumstances to a man shipwrecked

> at the present day in the Pacific, to what they were in the time of Cook! since his voyage a hemisphere has been added to the civilized world. (602-3)

Darwin's presence as gentleman naturalist on board the *Beagle* was subsidiary to the ship's mission, the completion of the hydrographic and chronometric survey of the world. The final mapping of the planet's maritime routes supplied an official coda to the two-century-long heroic epoch of British circumnavigation that had lasted from Francis Drake's voyage in *The Golden Hind*, 1577-1580, to the three expeditions led by James Cook, 1768-1780. Acknowledging that his own voyage falls in the aftermath of that heroic epoch, Darwin balances his backward glance (and corrects any implicit mood of romantic nostalgia) with the vision of a triumphant imperial future:

> From seeing the present state, it is impossible not to look forward with high expectations to the future progress of nearly an entire hemisphere. The march of improvement, consequent on the introduction of Christianity throughout the South Sea, probably stands by itself in the records of history. It is the more striking when we remember that only sixty years since, Cook, whose excellent judgment none will dispute, could foresee no prospect of a change. Yet these

> changes have now been effected by the philanthropic spirit of the British nation. (607)

The phrase 'sixty years since' brings into focus the ambient echo of Walter Scott's historical novel *Waverley, or 'Tis Sixty Years Since*, with its concluding retrospect:

> There is no European nation which, within the course of half a century, or little more, has undergone so complete a change as this kingdom of Scotland. The effects of the insurrection of 1745 … commenced this innovation. The gradual influx of wealth, and extension of commerce, have since united to render the present people of Scotland a class of beings as different from their grandfathers as the existing English are from those of Queen Elizabeth's time.[2]

Rather than Scott's romantic structure of feeling – fascination with a lost past tempering pride in national progress – Darwin's repetition of 'sixty years since' fixes his keen awareness of his own relation to a historical process that takes the form of a succession of periods. A period becomes visible with its closure and the onset of a modern condition of 'change'.[3] Darwin assumes the same station as Scott's narrator, looking back from the vantage-point of modernity to the decisive event that marked the end of an ancient

dispensation: the 1745 Jacobite rising, Cook's completion of the map of the Pacific.

Darwin's journal is the last great example of the circumnavigation narrative, a distinctive subgenre of travel literature that flourished in English during the long eighteenth century. Books published with the phrase 'voyage round the world' in their title include the accounts of the famous circumnavigations by William Dampier (published in 1697), Woodes Rogers (1712), George Shelvocke (1723), George Anson (1744), John Byron (1767), George Vancouver (1798), and the three Cook expeditions (1773, 1777, 1790), as well as English translations of notable foreign voyages such as Louis de Bougainville's (1772), I. F. Kruzenshtern's (1813), and Otto von Kotzebue's (1830), and compilations of earlier circumnavigations (e.g., by Drake, Cavendish, et al, 1765). With stray later exceptions the phrase fades away from British book titles after the 1830s, its disappearance marking the successful mapping of the planet's coastlines and the consolidation of imperial supremacy in the wake of the Napoleonic wars. Although 'voyage round the world' does not appear in the first edition title of Darwin's *Journal and Remarks* (1839: last of the three-volume set of narratives of the two voyages of the *Beagle*, 1826-30 and 1831-36), the publisher of the second (revised) edition, John Murray, added the phrase for the book's reissue in 1845 in a series intended for the popular market,

the Colonial and Home Library: *Journal of Researches into the Natural History and Geology of the Countries Visited during the Voyage of H.M.S. Beagle Round the World: Under the Command of Capt. Fitz Roy, R.N.*[4]

Its capacity to include a quasi-encyclopedic range of themes and discourses made travel-writing one of the major literary genres of the European Enlightenment. The journal of a voyage could accommodate an objective record of philosophical observation of different lands and peoples – potentially representing 'the world' – as well as a subjective record of the author's personal experience, his (in published form, it was usually 'his') sensations and reflections. In his *Journal* Darwin develops the combination of memoir and scientific survey into a potent synthesis of Romantic self-formation (*Bildung*) with the aspiration to a form of universal knowledge predicated on the geopolitical work of circumnavigation. That knowledge comprehends the controversial phenomena of human history as well as the flourishing branches of natural history. Along with the geographical distribution of flora and fauna, the formation of geological strata and coral reefs, Darwin takes note of the decline and birth of colonial empires, and intervenes in contemporary debates on slavery and the fate of 'savage' peoples. His survey of the world registers the contemporary breakup and recombination of those meta-disciplinary themes of Enlightenment, the history of

the world and the science of man, into radical new mutations: the natural history of man, scandalously revised in the transmutationist hypothesis of Jean-Baptiste Lamarck, and the history of the earth, recast by Charles Lyell in *Principles of Geology*, the successive volumes of which Darwin was reading during the voyage of the *Beagle*.[5]

Scholars have made much of Darwin's reading of Milton as well as Lyell during the voyage;[6] Darwin also refers in the course of his *Beagle* writings to the earlier circumnavigations by Dampier, Rogers, Anson, Byron, Bougainville, Cook, and others. However the book he mentions with greatest frequency and enthusiasm is Alexander von Humboldt's *Personal Narrative of Travels to the Equinoctial Regions of the New Continent in the Years 1799-1804*. '[M]y whole course of life is due to having read and reread as a Youth [Humboldt's] Personal Narrative', Darwin later wrote;[7] he began planning an expedition to Tenerife after reading it (in Helen Maria Williams's translation) while an undergraduate at Cambridge, and he took (at least) the first two volumes with him on the *Beagle*. 'The principal intertextual influence on Darwin's own travel account', as Nigel Leask has argued, Humboldt's synthesis of memoir and scientific survey provided a model of literary technique as well as an example of 'professional self-fashioning'.[8] In the introduction to the *Personal Narrative* Humboldt criticizes the pre-disciplinary shortcomings of eighteenth-century travel writing, while

acknowledging its potential scientific value: travelers have 'seldom [been] possessed of sufficient variety of knowledge' to reap the harvest of their experience, and the genre has failed to keep pace with recent advances in the natural sciences.[9] Humboldt places a particular stress on the limitations of 'maritime expeditions and circumnavigatory voyages' as 'less fitted to advance the progress of geology and other parts of physical science, than travels into the interior of a continent'.[10] Now that the map of the world's littorals has been filled in, Humboldt pronounces the epitaph of circumnavigation in the name of a science it is no longer equipped to realize - in his own phrase, 'a science of which we as yet possess scarcely the outline, and which has been vaguely denominated Natural History of the World, Theory of the Earth, or Physical Geography.'[11]

No doubt (as Leask contends) Humboldt's remarks provided Darwin with scientific license for his own inland sojourns and cross-country expeditions during the voyage of the *Beagle* (during which he spent twice as much time on land as at sea).[12] They would also have helped bring into focus the historical situation of his enterprise, setting sail after the heroic age of exploration but before a new kind of world-knowledge has taken shape. That interim is the condition for Darwin's as well as Humboldt's Romanticism – the more radical Romanticism that is the topic of this paper. Humboldt's descriptions of the tropical rainforest,

exhibiting what Darwin called a 'rare union of poetry with science',[13] prepared the younger man for scientific discovery as – first and foremost - an aesthetic experience. 'As the force of impressions generally depends on preconceived ideas, I may add, that all mine were taken from the vivid descriptions in the Personal Narrative of Humboldt, which far exceed in merit any thing I have read on the subject', Darwin acknowledged: 'Yet with these high-wrought ideas, my feelings were far from partaking of any tinge of disappointment on first landing on the shores of Brazil' (604). Darwin would tone down the raptures of his diary entries when revising them for publication. 'The mind is a chaos of delight, out of which a world of future & more quiet pleasure will arise', he exulted: 'I am at present fit only to read Humboldt; he like another Sun illumines everything I behold.'[14] Darwin recognizes – even in the glow of his first excitement – a highly mediated, temporally extensive, quintessentially Romantic structure of aesthetic experience. 'The majestic scenes of nature, like the sublime works of poetry and the arts', Humboldt had written, 'leave remembrances that are incessantly awakening, and which, through the whole of life, mingle with all our feelings of what is grand and beautiful.'[15] Darwin drew upon a still more resonant model, one closer to home: that of Wordsworthian poetics. The 'chaos of delight' which attends the act of observation supplies a store of impressions for later recollection in tranquility.

(For the moment it renders Darwin fit only to resume reading Humboldt, as though firing himself up for another encounter, in an ecstatic feedback-loop.) Crucially, this structure of aesthetic experience will also constitute the structure of scientific discovery, in which 'recollection in tranquility' entails the analysis and ordering of the data of observation into a coherent system. In a well-known instance, Darwin's observations of the fauna of the Galapagos would not begin to make sense until his specimens were being catalogued back in London.

Late in life, Darwin acknowledged that his voyage of scientific discovery was also a voyage of self-formation:

> I discovered, though unconsciously & insensibly that the pleasure of observing & reasoning was a much higher one than that of skill & sport. The primeval instincts of the barbarian slowly yielded to the acquired tastes of the civilised man. That my mind became developed through my pursuits during the voyage, is rendered probable by a remark made by my Father, who was the most acute observer whom I ever saw, of a sceptical disposition, & far from being a believer in phrenology; for on first seeing me after the Voyage, he turned round to my sisters, & exclaimed, "why the shape of his head is quite altered."[16]

The acquisition of culture is measured by the precepts of an aesthetic education, as a progression (unconscious and insensible, as Wordsworth prescribes) from 'primeval instincts' to 'acquired tastes'. The traveler recapitulates within himself a universal history of human development from barbarian to civilized man. The personal context imbues the scientific principle (ontogeny recapitulates phylogeny) with a local irony which scarcely disavows the claim, nevertheless, that the shape of Darwin's head, after the circumnavigation, is the shape of the world. Writing after the major formulations of his theory, in the *Origin of Species* and *Descent of Man*, Darwin is able to boast (while seeming to do the opposite) that his work contains the world. Looking back at the voyage as the formative event of his life, he invokes an epistemic closure that subsumes all kinds and levels of history - from personal history (legible in the formation of his head) and family history (implicit in the recognition by his father) to national history and world history - into the grand, all-encompassing register of natural history. That closure may be realized overtly in *The Descent of Man*, with its claim of explanatory authority over the human sciences, including moral philosophy, the history of religion, and aesthetics: but it has not yet taken place – two decades earlier - in the *Beagle* writings themselves. Faithful to their uncertain, transitional, open-ended historical moment, those writings are alert to – they test and explore – the frictions and collisions

between different levels of historical scale. The sentimental, ethical and political resolutions of human history, in particular, trouble the aesthetic discourse – a regulated mode of the sublime - with which Darwin seeks to stabilize the formation of scientific knowledge.

II. *Planetary consciousness*

In the second half of the eighteenth century the European powers (France and Great Britain foremost among them) completed the map of the world's coastlines, developed new technologies for measuring a planetary grid of space and time, and established a repertoire of secular discourses of universal knowledge. These discourses included philosophical or conjectural history, which accounted for the development of all human societies, and Linnaean taxonomy, which accounted for the synchronic disposition of living beings. By the turn of the century the project of universal knowledge had come to bear on the world in the most literal sense, the sense of the world as a material object, in that science 'which has been vaguely denominated Natural History of the World, Theory of the Earth, or Physical Geography', and which would assume a decisive new form in the early 1830s in Lyellian geohistory.

The critique of the project of universal knowledge has become a leitmotif of recent studies of Enlightenment travel-

writing. Two influential books situate the genre within an imperialist advancement of science which justified, as it was furthered by, the global expeditions of the European powers. In *Imperial Eyes* (1992; 2007) Mary Louise Pratt identifies 'the systematizing of nature' as 'a European project of a new kind, a new form of what one might call planetary consciousness among Europeans':

> For three centuries European knowledge-making apparatuses had been construing the planet above all in navigational terms. These terms gave rise to two totalizing or planetary projects. One was circumnavigation, a double deed that consists of sailing round the world then writing an account of it . . . The second . . . was the mapping of the world's coastlines.[17]

For Jonathan Lamb, in *Preserving the Self in the South Seas* (2001), 'the completion of the map of the world' underwrites a 'spatial theodicy running from terra incognita to a spectacle of the visible world', realized in the natural histories and ethnographies as well as geographic, hydrographic and astronomical charts published in the wake of the great voyages.[18] 'The focus of this empire of science is the human eye, and its limits are the space and time of the world'.[19]

These accounts (and others like them) elucidate an immense, complex array of strategic, scientific and discursive projects. At the same time, perhaps, they run the risk of reproducing – if not installing – the totalizing discourse that is their object of critique, and not only as an effect of their own retrospective station. Lamb's analysis, at least (in a silent critique of Pratt's), emphasizes the 'new sort of ignorance' and 'anxiety' that attended this emergent world-knowledge:[20]

> The fear of emptiness at the heart of the adventure, like the anxiety that taste is arbitrary, and that the *je ne sais quoi* is simply a way of disguising the nothing which is all that it amounts to, prevented the voyagers from acquiring the self-consciousness that would have allowed them to stabilize and justify their delight.[21]

Lamb highlights the byproduct of a chronically adrift, disoriented, unstable self on the far side of the world and its rhetorical symptom, the jagged, irrational interjection of the writer's all too partial 'I' into the universalizing operations of scientific prose. Cognitive blockages and lapses ('ignorance . . . bewilderment . . . bafflement . . . imbecility' [22]) break up the horizon of a 'planetary consciousness'.

We can certainly read moments of bafflement in Darwin's *Beagle* writings, signaled with the interjection of a bewildered rather than rationally sovereign 'I': but these blots of opacity work, the present essay will suggest, to somewhat different effect than in the eighteenth-century texts analysed by Lamb. For one thing, it is difficult to detect either a 'fear of emptiness at the heart of the adventure' or a failure of 'self-consciousness' as the basis for 'delight' in Darwin's writing. On the contrary, we find Darwin applying self-consciousness not just to fix and clarify his delight but to grasp the mysterious aesthetic enjoyment that emerges from emptiness. The difference falls in Darwin's historical moment, and it can be summed up in the word 'Romanticism'. Darwin availed himself of a theoretical equipment, namely aesthetics, to manage the experience of imaginative disturbance. By recognizing it as (in various ways) sublime, he would attempt to recover that disturbance as a mode of cognition. So far as Darwin could harness the sublime to the biospheric vision of Humboldt and to the geohistory of Lyell, he was spectacularly successful. But the transmutation of the sublime into scientific knowledge breaks down when Darwin confronts the vanishing-point of the new world history and of modern planetary consciousness: the natural history of man.

The new geology, of which Lyell's *Principles* was the culminating achievement, revolutionized earth science by bringing

to bear upon it the most prestigious of the late-Enlightenment human sciences, history.[23] The ideological cost of that achievement was the exclusion of human history itself from the new world history. Darwin would follow Lyell's strategy and omit the potentially scandalous topic of mankind when he came to write the *Origin of Species*. The diversity of human societies constituted a key topic of Enlightenment travel writing, however, making it a major vehicle for scientific speculation on the natural history of man. In Lamb's summary: 'as maritime exploration begins to incorporate ethnological data, a new form of world history is to emerge, based upon the cultural differences observed in America and the Pacific islands, manifesting the four stages of human development . . . in the form of the "great map of mankind".'[24] Thus Humboldt, a student of the 'father of anthropology' J. F. Blumenbach, included observations of South American Indians and conjectures on their history in his *Personal Narrative*, and Robert FitzRoy, Darwin's messmate and captain of the *Beagle*, contributed an account of 'the early migrations of the human race' to his own narrative of the voyage.

The phrase 'the great map of mankind' was coined by Edmund Burke in a letter to the Scottish historian William Robertson, hailing the publication of Robertson's *History of America* in 1777. The third of Captain Cook's voyages was still in progress, and Cook's and George Forster's accounts of the second voyage

had just come out. With the completion of the modernizing project of global exploration, 'we need no longer go to History to trace [human nature] in all its stages and periods', writes Burke: 'now the great Map of Mankind is unroll'd at once, and there is no state or Gradation of barbarism, and no mode of refinement which we have not at the same moment under our View.'[25] Burke refers to the 'stadial' schema of universal history, pioneered by Adam Smith in his Glasgow University lectures on jurisprudence and developed by Robertson and other Scottish Enlightenment philosophers, which tracked the development of all human societies through a fixed sequence of socioeconomic stages. In particular, Burke refers to a principle made much of in recent commentary: the temporal unevenness of historical development as a planetary geography comes into focus, and with it a comparative view of different human societies inhabiting the same chronological moment.[26] Thus, past historical stages of advanced civilizations, such as commercial Britain, can be discovered in 'savage' or 'barbarian' societies in remote parts of the earth, such as the Americas or South Pacific. As another Scottish philosopher, Adam Ferguson, writes in his *History of Civil Society* (1767): 'It is in [the American Indians'] present condition that we are to behold, as in a mirrour, the features of our own progenitors; and from thence we are to draw our conclusions with respect to the influence of

situations, in which we have reason to believe that our fathers were placed.'[27]

Darwin, as we shall see, recurs to this particular formulation, and the analogical principle of conjectural history continues to inform the argument of his later work. He himself understood his circumnavigation as affording not just a voyage through space but a journey back in time, or rather, a journey to different times, accommodating different stages of human society as well as prehistoric life-forms and ecologies, and even geological states from the earth's deep past. (On the Galapagos: 'I was well repaid by the Cyclopian scene . . . These huge reptiles, surrounded by the black lava, the leafless shrubs, and large cacti, appeared to my fancy like some antediluvian animals', p. 456.) The voyage south took him to the Catholic slave state of Brazil, exemplifying the cruelty of Britain's own residual attachment to the slave trade, to the wars of extermination waged against the native peoples of the Argentine pampas, to the new British colonies flourishing across the Pacific, and to various savage societies: some of which were being folded into the progress of improvement (in Tahiti and New Zealand) while others, disturbingly, appeared to be left outside it, stranded in dearth and darkness, at the end of the world – in Tierra del Fuego. The preterite figure of the Feugian savage at once focuses and blocks a general discourse of morality and sentiment, attached to the scale of human history, which threatens to undo

the aesthetic discourse Darwin forges to accommodate his vision of a new world history during the voyage of the *Beagle*.

III: *Two types of the sublime*

In the 'short retrospect' that concludes the *Journal*, Darwin reckons the 'advantages and disadvantages' of his experience on the voyage in aesthetic terms - of pain and pleasure, the beautiful and the sublime - rather than of useful knowledge. He acknowledges aesthetic judgment as a philosophically complex faculty which is refined by scientific training and analysis:

> [T]here is a growing pleasure in comparing the character of scenery in different countries, which to a certain degree is distinct from merely admiring its beauty. It depends more on an acquaintance with the individual parts of each view. I am strongly induced to believe that, as in music, the person who understands every note will, if he also possesses a proper taste, more thoroughly enjoy the whole, so he who examines each part of a fine view, may also thoroughly comprehend the full and combined effect. Hence, a traveller should be a botanist, for in all views plants form the chief embellishment. Group masses of naked rock even in the wildest forms, and they may for a time afford a sublime spectacle, but they will soon grow monotonous. Paint them with bright and varied

> colours, they will become fantastic; clothe them with vegetation, they must form at least a decent, if not a most beautiful picture. (604)

Darwin draws upon Humboldt's conception of nature as an organic totality of relations which the trained observer can apprehend aesthetically:[28] enriching the classic formula of the picturesque, according to which beautiful detail mitigates the incipient monotony of the sublime. Nor is the sublime a single phenomenon. A storm viewed at sea cannot rival the 'incomparably finer spectacle when beheld on shore, where the waving trees, the wild flight of the birds, the dark shadows and bright lights, the rushing of the torrents, all proclaim the strife of the unloosed elements … On a forlorn and weather-beaten coast, the scene is indeed different, but the feelings partake more of horror than of wild delight' (603). The distinction between 'horror' and 'wild delight', deriving from Edmund Burke's influential treatise *On the Sublime and the Beautiful*, enlivens the Lucretian commonplace of the storm viewed from on shore.[29]

Darwin goes on to contrast 'the picturesque beauty of many parts of Europe' with the varieties of the sublime that prevail once the traveler ventures beyond the civilized part of the world. 'Among the scenes which are deeply impressed on my mind'," he writes, 'none exceed in sublimity the primeval forests undefaced

by the hand of man; whether those of Brazil, where the powers of Life are predominant, or those of Tierra del Fuego, where Death and Decay prevail' (604). Darwin develops Burke's distinction between the sublime and the beautiful to identify different modes of the sublime: what we might call a beautiful sublime, associated with 'the powers of Life', and its antithesis, associated with 'Death and Decay', which comprises, as we shall see, a more challenging set of effects than simply 'horror'. These aesthetic modes correspond with the visions of the earth prepared for Darwin, respectively, by Humboldt and by Lyell, and to that extent they chart the development of Darwin's thinking during the voyage. An ecstatic overload of sensory data characterizes the Humboldtian sublime:

> I believe from what I have seen Humboldts glorious descriptions are & will for ever be unparalleled: but even he with his dark blue skies & the rare union of poetry with science which he so strongly displays when writing on tropical scenery, with all this falls far short of the truth. The delight one experiences in such times bewilders the mind, — if the eye attempts to follow the flight of a gaudy butter-fly, it is arrested by some strange tree or fruit; if watching an insect one forgets it in the stranger flower it is crawling over, — if turning to admire the splendour of the scenery, the

> individual character of the foreground fixes the attention. The mind is a chaos of delight . . .[30]

Darwin's diary entry amplifies Humboldt's account of the traveler entering the rainforest for the first time: 'If he feel strongly the beauty of picturesque scenery, he can scarcely define the various emotions which crowd upon his mind; he can scarcely distinguish what most excites his admiration'.[31] In a new epiphany of the world, the imagination opens onto the plenitude of life itself as a dynamic totality of organic relations. Darwin again: 'Well may we affirm, that every part of the world is habitable! Whether lakes of brine, or those subterranean ones hidden beneath volcanic mountains—warm mineral springs; the wide expanse and depths of the ocean; the upper regions of the atmosphere; and even the surface of perpetual snow;—all support organic beings' (77). In Humboldtian vein, Darwin apprehends the earth as a complex of living systems, a biosphere.

The other mode of the sublime is pure, absolute, uncontaminated by beauty – the sublime of 'Death and Decay'. It attends a privation rather than repletion of the senses. Its temporal structure is one of uncanny recurrence rather than instantaneous rapture. But its hold is no less compelling:

> In calling up images of the past, I find the plains of Patagonia frequently cross before my eyes: yet these plains are pronounced by all most wretched and useless. They are characterized only by negative possessions; without habitations, without water, without trees, without mountains, they support merely a few dwarf plants. Why then, and the case is not peculiar to myself, have these arid wastes taken so firm possession of the memory?… I can scarcely analyze these feelings: but it must be partly owing to the free scope given to the imagination. (605)

Here Darwin articulates a recognizably Romantic structure of the sublime, more like Kant's or Wordsworth's ('I can scarcely analyze these feelings') than Burke's. Its full effect is felt at a temporal distance from the event, in memory and reflection. Instead of being overwhelmed by a blissful excess of sensory stimuli, the observer finds his imagination haunted by a coalescence of 'negative possessions'. Darwin's description echoes the 'litotic' rhetoric, analyzed by Lamb, which expresses the disorientation of the eighteenth-century voyager on the blank side of the world. (Consciously or not, Darwin may be recalling Dampier's descriptions of his landfalls on the coast of New Holland.[32]) Unlike Dampier and the other cases cited by Lamb, however, Darwin strives to articulate an aesthetic enjoyment – however irrational or

perverse - which occupies the void. Here Darwin's Romanticism – his situation in a literary and aesthetic as well as a scientific history – tells the difference between his account and those of travelers who sailed in the heroic age of circumnavigation, when the map of the world was still open, its horizons as yet unbounded. Paradoxically, the closure of the world makes it possible for Darwin to enjoy access to a higher aesthetic value through the apprehension of 'negative possessions', in the form of **a freedom** of the imagination.

That freedom is promptly put to work. The 'free scope' opened for the imagination becomes the enhanced cognitive range required to apprehend the new, vastly enlarged dimensions – the 'deep time' – of Lyell's new earth history.[33] 'The plains of Patagonia', Darwin continues, 'bear the stamp of having thus lasted for ages, and there appears no limit to their duration through future time' (605). This part of the 'retrospect' glosses Darwin's journal entry of 28 December 1833:

> All was stillness and desolation. One reflected how many ages the plain had thus lasted, and how many more it was doomed thus to continue. Yet in passing over these scenes, without one bright object near, an ill-defined but strong sense of pleasure is vividly excited. (198)[34]

In the 1845 *Journal of Researches* Darwin interpolates lines from Percy Shelley's poem 'Mont Blanc' into this passage:

> None can reply—all seems eternal now.
> The wilderness has a mysterious tongue
> Which teaches awful doubt.[35]

The citation from one of the sublime masterpieces of English Romantic poetry (especially striking, since Shelley's reputation was only just being established in the early 1840s) reinforces the heightened pedagogical emphasis of the second edition, in which Darwin makes a more programmatic attempt to harness 'awful doubt' as a cognitive aid to Lyellian geohistory. 'Where on the face of the earth can we find a spot, on which close investigation will not discover signs of that endless cycle of change, to which this earth has been, is, and will be subjected?'[36] There lingers, nevertheless, a temporal as well as rhetorical gap between the pedagogical theme (clarified in the successive published versions of the journal), and the tentative, veiled, troubling quality of the pleasure that Darwin recognizes.[37]

Condensing and summarizing his analysis of Patagonian tertiary formations in the 1839 edition of the *Journal*, in 1845, Darwin comments:

> When we consider that all these pebbles, countless as the grains of sand in the desert, have been derived from the slow falling of masses of rock on the old coast-lines and banks of rivers; and that these fragments have been dashed into smaller pieces, and that each of them has since been slowly rolled, rounded, and far transported, the mind is stupified in thinking over the long, absolutely necessary, lapse of years.[38]

Darwin rationalizes and domesticates the sublime – and removes its catastrophic threat - by calibrating it to the gradualist scale of everyday life. The minute-by-minute, microscopic accretion of phenomena piles up across the overwhelming magnitudes of geological time, raising mountain ranges and shearing continents. Examples recur. Darwin listens to the white noise of the river Maipu, in the Andes, caused by the friction of pebbles swept along by the flood:

> The sound spoke eloquently to the geologist: the thousands and thousands of stones, which, striking against each other, make the one dull uniform sound, are all hurrying in one direction. It is like thinking of time, where the minute that now glides past is irrecoverable. So is it with these stones; the ocean is their eternity, and each note of that wild music tells of one other step towards their destiny.

> It is not possible for the mind to comprehend, except by a slow process, any effect which is produced by a cause repeated so often, that the multiplier itself ceases to convey any more definite idea, than the savage receives when he points to the hairs of his head. […] [W]hen listening to the rattling noise of these torrents, and calling to mind that whole races of animals have passed away from the surface of the globe, during the period throughout which, night and day, these stones have gone rattling onwards in their course, I have thought to myself, can any mountains, any continent, withstand such waste?[39]

The gesture towards the 'savage' merits attention. He is at once the antitype to rational computation, and thus scientific knowledge, and at the same time a type of the observer – of Darwin himself – striving to reassert cognitive mastery in the face of an abysmal infinitude. The figure of the savage also points towards the historical correlatives of this geological meditation, in the scales of the life sciences and human history: the extinction of animal species, which Darwin mentions, and the extinction of human populations, which he does not mention, but for which the baffled savage stands in.

IV. *The scales of history*

At stake in these and analogous passages is the disjunction, so great as to make them appear incommensurable, between different timescales: in this case, the scales of geological history and the human time of daily life within which empirical observation takes place. The disjunction opens, in turn, the thematic or referential content of the sublime: privation, waste, ruin, 'Death and Decay'.

On a planetary scale, Darwin commits his thinking to a Lyellian history of gradual, incremental transformations over vast extents of time, as opposed to the jaggedly irruptive temporality of a catastrophist geohistory. The 'elevating and depressing power of earthquakes', Lyell had written, 'which visits, in succession, every zone, and fills the earth with monuments of ruin and disorder, is, nevertheless, a conservative principle in the highest degree, and, above all others, essential to the stability of the system.'[40] The difference between human history (prone to 'ruin and disorder') and geological homeostasis (the transcendent 'stability of the system') is so great as to constitute them in separate dimensions. Darwin's *Journal*, however, by virtue of its status as a travelogue, a day-to-day record of individual experience and observation, records the occasional convergence of the scales of geological, racial, national, and personal history. That convergence may be violent and distressing, as Darwin finds during the great Chilean earthquake of February 1835. He is able to observe the

metamorphosis of the earth's crust, a process that normally unfolds over millennia, concentrated into mere minutes – into a historical event. And he registers that event, the condensation of geological time into human time, as catastrophic:

> A bad earthquake at once destroys the oldest associations: the world, the very emblem of all that is solid, has moved beneath our feet like a crust over a fluid;—one second of time has conveyed to the mind a strange idea of insecurity, which hours of reflection would never have created. (369)

Darwin goes on to imagine the total collapse of Great Britain's economic, political and social order should it be struck by an earthquake of comparable magnitude.[41]

Visiting the ruined city of Concepción, he acknowledges a limit of what he is able to represent:

> I have not attempted to give any detailed description of the appearance of Concepcion, for I feel it is quite impossible to convey the mingled feelings with which one beholds such a spectacle. Several of the officers visited it before me, but their strongest language failed to communicate a just idea of the desolation. It is a bitter and humiliating thing to see works, which have cost men so much time and labour, overthrown

> in one minute; yet compassion for the inhabitants is almost instantly forgotten, from the interest excited in finding that state of things produced in a moment of time, which one is accustomed to attribute to a succession of ages. In my opinion, we have scarcely beheld since leaving England, any other sight so deeply interesting. (376-7)

The disturbance and bafflement in the passage arise from the collision between states of feeling attached to the different scales of geological and human history. To the geologist, the spectacle of 'that state of things produced in a moment of time, which one is accustomed to attribute to a succession of ages', must be 'deeply interesting.' But scientific interest clashes with the pathos of the scene's human content - the 'bitter and humiliating' sight of civilization overthrown, 'compassion for the inhabitants'. Again, Darwin rehearses the Kantian structure of the sublime, in which a cognitive or imaginative blockage is subsumed into the larger aesthetic range of 'interest'. This time, however, the process occupies the scale of human history, and so carries with it pathetic and ethical disturbances that are harder to resolve: at least, not without a renunciation of human feeling altogether.

Death – mass death, the extinction of populations – is the prospect that opens here, and it forms an ethical crux in Darwin's thinking. Darwin finds the evidence of species extinctions, crucial

data in the Lyellian theory of the earth, scattered across the sedimentary deposits of South America ('the whole area of the Pampas is one wide sepulchre for these extinct quadrupeds', 155). Darwin takes care to assert that extinction happens gradually, with the members of a population dwindling away in units over many generations, rather than perishing in a single crash. Extinction, that is, is not so much an *event* – an historical phenomenon – as it is a *process* – a natural phenomenon:

> To admit that species generally become rare before they become extinct—to feel no surprise at the comparative rarity of one species with another, and yet to call in some extraordinary agent and to marvel greatly when a species ceases to exist, appears to me much the same as to admit that sickness in the individual is the prelude to death—to feel no surprise at sickness—but when the sick man dies, to wonder, and to believe that he died through violence.[42]

The analogy with human fatalities through sickness and murder is suggestive since the politically organized destruction of human populations is one of the phenomena that falls under Darwin's observation in the course of his voyage. He witnesses General Juan Manuel de Rosas' 1832-35 campaign to exterminate the Pampas Indians, and makes landfall at Tasmania just three years after the

removal of the survivors of the so-called 'Black War' to Flinders Island:

> This most cruel step seems to have been quite unavoidable, as the only means of stopping a fearful succession of robberies, burnings, and murders, committed by the blacks; but which sooner or later must have ended in their utter destruction. I fear there is no doubt that this train of evil and its consequences, originated in the infamous conduct of some of our countrymen. Thirty years is a short period, in which to have banished the last aboriginal from his native island,—and that island nearly as large as Ireland. (533)

While he is able to represent the earthquake as an exceptional irruption of natural forces into human history, and thus to rationalize its catastrophic violence in terms of a collision of scales, elsewhere Darwin finds himself viewing extinction as an event that happens fully inside human history – that is, the world history of global colonization in which his circumnavigation participates.

Riding on the fringes of Rosas' campaign, Darwin understands himself as visiting a barbaric stage of historical development which lies in the remote past of modern Europe. (He characterizes Rosas as a type of cruel but picturesque warlord out of Walter Scott.) The relation of historical distance allows Darwin a

set of modulated responses to the campaign, including a cool acceptance of the inevitability if not necessity of the genocide, horror at reported atrocities, and even a regret at the vanishing of the wild savages. Typically, that regret assumes an aesthetic, self-consciously 'romantic' mode, as in the story Darwin tells of an Indian chief's escape with his son from Rosas' troops: 'What a fine picture one can form in one's mind,—the naked, bronze-like figure of the old man with his little boy, riding like a Mazeppa on the white horse, thus leaving far behind him the host of his pursuers!' (104-5; Darwin alludes, not altogether appositely, to the 1819 poem by Byron.) The Indians' imminent extinction is the historical condition that frames the 'fine picture', making it available for contemplation.

These responses become more vexed as Darwin moves away from the former Spanish and Portuguese empires (where he can deplore the legacies of bad colonialism) into the range of the new British settlements in the South Pacific. Darwin reflects upon the bands of aborigines he sees straggling across the Australian colony:

> Wherever the European has trod, death seems to pursue the aboriginal. We may look to the wide extent of the Americas, Polynesia, the Cape of Good Hope, and Australia, and we find the same result. […] The varieties of man seem to act on

> each other in the same way as different species of animals--the stronger always extirpating the weaker. It was melancholy in New Zealand to hear the fine energetic natives saying, that they knew the land was doomed to pass from their children. (520)

Darwin follows Lyell in the iteration of what Patrick Brantlinger calls 'extinction discourse': a pseudo-analysis that naturalizes the disappearance of the natives, once European settlement has begun, as a mysterious, maybe regrettable, but in any case inevitable process. The 'Darwinian revolution', Brantlinger argues, 'did not much alter and in several ways much strengthened extinction discourse.'[43] Nevertheless, Darwin's own stance towards human extinction is rather more fraught than either the quoted meditation or Brantlinger's commentary may admit.

Occupying a position at the very nadir or margin of the 'map of mankind', the savage is a key figure in the discourse of universal history, and a key figure in Darwin's voyage. He is a figure of human origins and ends, of the murky borders between nature and culture and between animal and man, and also of the extreme ethical consequences of the imperial mission: a historical process that will issue in his salvation (Christian conversion, assimilation into the march of civilization), or else his annihilation. For Darwin it was the inhabitants of Tierra del Fuego, the Haush

and Yamana peoples, who more than any others instantiated 'man in his lowest and most savage' -- and therefore most vulnerable – 'state':

> Of individual objects, perhaps no one is more certain to create astonishment than the first sight in his native haunt of a real barbarian,—of man in his lowest and most savage state. One's mind hurries back over past centuries, and then asks, could our progenitors have been such as these? Men, whose very signs and expressions are less intelligible to us than those of the domesticated animals; men, who do not possess the instinct of those animals, nor yet appear to boast of human reason, or at least of arts consequent on that reason. I do not believe it is possible to describe or paint the difference between savage and civilized man. (605-6)

This passage from the 'short retrospect' (which Darwin will repeat and refine throughout his career) develops Adam Ferguson's metaphor of the savage as a mirror in which we may behold our ancestral self. Except that Darwin balks at the recognition. 'Astonishment' designates an aesthetic zero-degree: that state of cognitive blockage, of (in Cannon Schmitt's phrase) 'shock nothing less than categorical in its intensity',[44] which designates the sublime. This time, however, there is no Kantian redemption. Darwin's reaction to the savage remains negative, aversive, a

blend of horror and disgust that fails to modulate into rational satisfaction or aesthetic wonder.[45]

'I do not believe it is possible to describe or paint the difference between savage and civilized man': Darwin's astonishment, reiterated in his original diary, in his letters home from the *Beagle*, and in the published editions of the journal, expresses a difference that he grasps as unspeakable, intractable. 'I could not have believed how wide was the difference, between savage and civilized man. It is greater than between a wild and domesticated animal, in as much as in man there is a greater power of improvement' (228). 'Viewing such men, one can hardly make oneself believe they are fellow-creatures, and inhabitants of the same world' (235). Kinship -- the knowledge that these are indeed fellow creatures, the types of 'our progenitors' -- is the condition that, perversely, makes the savages' difference seem absolute: that makes it uncanny, in the classical (Freudian) sense of a phenomenon that appears to be alien but is in fact old and familiar. Equally perversely, man's 'greater power of improvement' is what makes the difference seem more insurmountable than the difference between wild and domestic animals: as though these men will never be able to avail themselves of that power, will never set forth on the road of improvement. They seem, instead, not to be 'inhabitants of the same world' as Darwin. Indeed, the apparition of the savages

overcasts their setting with an otherworldly gloom: 'A single glance at the landscape was sufficient to show me, how widely different it was from any thing I had ever beheld' (227); '[i]n the Strait of Magellan looking due south from Port Famine, the distant channels between the mountains appear from their gloominess to lead beyond the confines of this world' (233). It is as though the natives are ghosts, already dead; these are the forests 'where Death and Decay prevail' (604).

The historical prospect of extinction, I am suggesting, is the burden of the difference that blocks Darwin's thought of the savage. Over the next hundred years the inhabitants of Tierra del Fuego would indeed fall victim to the forces of European settler violence and disease that Darwin noted elsewhere in the course of his voyage. Darwin imagines a scenario of Fuegian extinction in a conjectural flight, like the vision of England shattered by an earthquake:

> Yet if in any country a forest was destroyed, I do not believe nearly so many species of animals would perish as would here, from the destruction of the kelp. Amidst the leaves of the plant numerous fish live, which nowhere else could find food or shelter; with their destruction the many cormorants and other fishing birds, the otters, seals, and porpoises, would soon perish also; and lastly, the Fuegian savage, the

> miserable lord of this miserable land, would redouble his cannibal feast, decrease in numbers, and perhaps cease to exist. (305)

The fantasy of extinction is licensed by its ascription to a natural cause, an ecological collapse, rather than to human invaders. (And rather than being devoured by others, the savages devour themselves.) In other words, Darwin veers away from imagining the Fuegians' extinction as an event in human history - as a consequence of European imperial expansion, the process that has brought Darwin himself to the tip of South America. The savages are specters of a future catastrophe, the cause of which remains veiled from Darwin's historical consciousness.

The case of the Fuegian savage inserts an irresoluble difference into the moral economy of human history as it falls within what Darwin would later call 'the economy of nature'. Famously, he would keep recurring to the scene of his Fuegian encounter in his later writings – most elaborately, and scandalously, in the conclusion to the *Descent of Man*. There, as Darwin formally assimilates the human into his grand theory, he holds onto his youthful intuition of the savage's recalcitrant difference: not as a logical contradiction in the theory but as the authentic trace of his own experience, the signature of his own, locally and historically embedded witnessing.[46] As Darwin looks

into the mirror of the savage, he sees no common future that will bring them together: instead, a catastrophic darkness. It would be one of the principles of natural selection that a creature prospers – becomes a species - through the destruction of its collateral branches and ancestral types. Following Lyell's omission of human history from his new world history, Darwin repeatedly invokes 'the war of nature' in the *Origin of Species*, only to deflect ethical or political considerations into a justifying discourse of aesthetic exaltation:

> Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows. There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.[47]

For now, the bloody stumblings of human history are not allowed to impede the sublime choreography of planetary life.

Notes

[1] Where page numbers are given, they refer to Charles Darwin, *Journal and Remarks,* 1832-1836 (London, 1839), Vol. 3 of P. Parker King, Robert Fitzroy, and Darwin, *Narrative of the Surveying Voyages* of *His Majesty's Ships Adventure and Beagle, Between the Years 1826 and 1836* (3 vols.; London, 1839).
[2] Walter Scott, *Waverley, or, 'Tis Sixty Year's Since*, ed. P. D. Garside (Edinburgh, 2007), p. 340. Compare also Darwin's first view of Sydney Cove: 'Here, in a less promising country, scores of years have effected many times more, than the same number of centuries have done in South America' (*Journal and Remarks*, p. 515).
[3] On the new, Romantic sense of historical time, marked by an awareness of periodicity and of history as 'normal change', see James Chandler, *England in 1819*: *The Politics of Literary Culture and the Case of Romantic Historicism* (Chicago, 1998), pp. 105–40, and Jerome Christensen, *Romanticism at the End of History* (Baltimore, 2000), pp. 3–8.
[4] In this essay I shall refer to the first edition of 1839 under the short title *Journal and Remarks* and to the 1845 edition under the short title *Journal of Researches*. References that do not distinguish between the editions will be made under the generic short title *Journal*. Quotations in the text, unless otherwise noted, are from *Journal and Remarks*.
[5] For these scientific contexts see Dov Ospovat, *The Development of Darwin's Theory: Natural History, Natural Theology, and Natural Selection, 1838-1859* (Cambridge, 1981); Robert J. Richards, *Darwin and the Emergence of Evolutionary Theories of Mind and Behavior* (Chicago, 1987); Adrian Desmond, *The Politics of Evolution: Morphology, Medicine and Reform in Radical London* (Chicago, 1989); Martin J.S. Rudwick, *Worlds before Adam: The Reconstruction of Geohistory in the Age of Reform* (Chicago, 2008).
[6] See, e.g., Gillian Beer, *Darwin's Plots: Evolutionary Narrative in Darwin, George Eliot, and Nineteenth-Century Fiction* (London, 1985), pp. 27-32.
[7] Charles Darwin, *Correspondence*, ed. Frederick Burkhardt et al (16 vols.; Cambridge, 1985), vol. 3, p. 140.
[8] Nigel Leask, "Darwin's 'Second Sun': Alexander von Humboldt and the Genesis of The Voyage of the Beagle", in *Literature, Science, Psychoanalysis, 1830-1970: Essays in Honour of Gillian Beer*, ed. Helen Small and Trudi Tate (Oxford, 2003), pp. 13-36 (pp. 16, 20, 33). On Darwin and Humboldt see also Robert J. Richards, *The Romantic Conception of Life: Science and Philosophy in the Age of Goethe* (Chicago, 2002), pp. 514-25; Philip Sloan, 'The Making of a Philosophical Naturalist', in *The Cambridge Companion to Darwin*, ed. Jonathan Hodge and Gregory Radick (Cambridge, 2003), pp. 24-25, 33-35.
[9] Alexander von Humboldt, *Personal Narrative of Travels to the Equinoctial Regions of America, During the years 1799-1804* (3 vols.; London, 1852) vol. 1, p. x.
[10] Ibid., vol. 1, p. xi.
[11] Ibid., vol. 1, pp. ix-x.
[12] Leask, op.cit., p. 20.
[13] Charles Darwin, *Charles Darwin's Beagle Diary*, ed. R. D. Keynes (Cambridge, 1988), p. 42 (February 28th, 1832).
[14] Darwin, *Beagle Diary*, p. 42. Darwin's sister Caroline complained 'that you had, probably from reading so much of Humboldt, got his phraseology & occasionally made use of the kind of flowery French expressions which he uses, instead of your

own simple straight forward & far more agreeable style': Charles Darwin, *The* Beagle *Letters*, ed. Frederick Burkhardt (Cambridge, 2008), p. 236.
[15] Humboldt, op.cit., vol. 2, p. 290. For a detailed account of the roots of Darwin's view of nature in Humboldt and in German Romantic *Naturphilosophie* more generally, see Richards, *The Romantic Conception of Life*, pp. 514-25.
[16] Charles Darwin, 'Recollections of the Development of My Mind and Character', in *Evolutionary Writings*, ed. James A. Secord (Oxford, 2008), p. 388.
[17] Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (London, 1992), p. 29.
[18] Jonathan Lamb, *Preserving the Self in the South Seas*, *1680-1840* (Chicago, 2001), pp. 3, 55.
[19] Ibid., p. 77.
[20] Ibid., p. 4.
[21] Ibid., p. 109.
[22] Ibid., p. 5.
[23] See Martin J. S. Rudwick, *Bursting the Limits of Time: The Reconstruction of Geohistory in the Age of Revolution* (Chicago, 2005), pp. 2-6
[24] Lamb, op.cit., p. 77.
[25] Edmund Burke to William Robertson, 9 June 1777: *The Correspondence of Edmund Burke*, ed. G. H. Guttridge (10 vols.; Cambridge, 1958-78), vol. 3, p. 351.
[26] See, e.g., Chandler, op.cit., pp. 127-135.
[27] Adam Ferguson, *An Essay on the History of Civil Society* (1767), ed. Fania Oz-Salzberger (Cambridge, 1995), p. 80.
[28] See Richards, op.cit., pp. 520-22.
[29] See Hans Blumenberg, *Shipwreck with Spectator: Paradigms of a Metaphor for Existence*, trans. Steven Rendall (Cambridge, Mass., 1997).
[30] Darwin, *Beagle Diary*, p. 42. On Darwin's representation of the South American rainforest and a Humboldtian 'tropical aesthetic' see James Paradis, 'Darwin and Landscape', in *Victorian Science and Victorian Values: Literary Perspectives*, ed. Paradis and Thomas Postlewait (New Brunswick, NJ, 1985), pp. 85-110; James Krasner, 'A Chaos of Delight: Perception and Illusion in Darwin's Scientific Writing', *Representations* 31 (Summer 1990), 118-141; and Leask, 'Darwin's "Second Sun"', pp. 22-26. Against Paradis's claim that Darwin expresses a Coleridgean transcendentalism – 'the sensation of the moment leads to some more profound reality and truth, some sense of natural supernaturalism determined through intuition' (p. 96) – Krasner argues, correctly in my view, that Darwin adheres to a (Burkean) empiricist and sensationalist language of 'visual overstimulation' (pp. 126-9).
[31] Humboldt, op.cit., vol. 1, pp. 215-6.
[32] See Lamb, op.cit., pp. 111-13: 'William Dampier's account of his two arrivals on the coast of New Holland is a collection of absent things. He produces a litany of that which is not.' (112)
[33] See Krasner, 'A Chaos of Delight', on the shift from 'organic multiplicity' to 'geological history' during the voyage; and, especially, Gary Willingham-McLain, 'Darwin's "Eye of Reason": Natural Selection and the Mathematical Sublime', *Victorian Literature and Culture* (1997), 67-85, for an account of Darwin's adaptation of the Kantian mathematical sublime to represent the complexity and dynamism of evolutionary process in the *Origin of Species*; on Lyellian 'deep time', see pp. 79-81.

[34] Compare Darwin's *Beagle Diary* entry for December 28th, 1833: 'All is stillness & desolation. One reflects how many centuries it has thus been & how many more it will thus remain. — Yet in this scene without one bright object, there is a high pleasure, which I can neither explain or comprehend', p. 209.
[35] Charles Darwin, *Journal of Researches into the Natural History and Geology of the Countries Visited during the Voyage of H.M.S. Beagle Round the World* (London, 1845), p. 168.
[36] Darwin, *Journal of Researches*, p. 495.
[37] Darwin's admission of aesthetic enjoyment and his Lyellian rationalization differentiate his response to the Patagonian plain from Humboldt's analogous account of the Venezuelan Llanos, the 'depressing… monotony' of which disables the Kantian sublime that should attend 'the aspect of a boundless horizon': *Personal Narrative*, Vol. 3, pp. 99-100.
[38] Darwin, *Journal of Researches*, p. 171.
[39] Darwin, *Journal and Remarks*, pp. 385-6. Compare Charles Lyell, *Principles of Geology*, ed. James A. Secord (London, 1997), p. 105: 'When earthy matter has once been intermixed with running water, a new mechanical power is obtained by the attrition of sand and pebbles, borne along with violence by a stream…'
[40] Lyell, ibid., pp. 178-179. See also Lyell's reflection on the relation between geological and human historical scales in the case of Chilean earthquakes, p. 30.
[41] Compare Lyell in *Principles of Geology*, p. 373: 'If the new period of disturbance were first to commence by some great earthquake in the dead of the night, how terrific would be the carnage! England would at once be bankrupt; all papers, records, and accounts would from that moment be lost. Government being unable to collect the taxes, and failing to maintain its authority, the hand of violence and rapine would go uncontrolled. In every large town famine would be proclaimed, pestilence and death following in its train.' The same 'ruins of empire' fantasy is cited by Burke as an instance of the perverse enjoyment of the sublime: 'This noble capital, the pride of England and of Europe, I believe no man is so strangely wicked as to desire to see destroyed by a conflagration or an earthquake, though he should be removed himself to the greatest distance from the danger. But suppose such a fatal accident to have happened, what numbers from all parts would crowd to behold the ruins, and amongst them many who would have been content never to have seen London in its glory!' *A Philosophical Inquiry into the Origin of Our Ideas of the Sublime and Beautiful*, ed. Adam Phillips (Oxford, 1990), p. 44.
[42] Darwin, *Journal of Researches*, p. 176.
[43] Patrick Brantlinger, *Dark Vanishings: Discourse on the Extinction of Primitive Races, 1800-1930* (Ithaca, NY, 2003), pp. 164-70 (p. 164).
[44] Cannon Schmitt, 'Darwin's Savage Mnemonics', *Representations* 88 (2004), 55-80 (p. 60).
[45] Darwin's Fuegian encounter has been the topic of much recent discussion. In what follows, I condense and sharpen an argument made earlier in Ian Duncan, 'Darwin and the Savages', *Yale Journal of Criticism* 4 (1991), 13-45. See also Michael Taussig, *Mimesis and Alterity: A Particular History of the Senses* (London, 1993), pp. 73-96; Gillian Beer, *Open Fields: Science in Cultural Encounter* (Oxford, 1996), pp. 64-70; and Schmitt, 'Darwin's Savage Mnemonics'.

[46] For a different view of the case compare Schmitt's argument that the savage represents a residue of the authentically human in Darwin's thought: 'Darwin's Savage Mnemonics', 60-67.
[47] Charles Darwin, *On the Origin of Species*, ed. Gillian Beer (Oxford, 2008), p. 360.

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