

## Darwin's Sublime: The Contest Between Reason and Imagination in *On the Origin of Species*

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**Abstract.** Recent Darwin scholarship has provided grounds for recognising the *Origin* as a literary as well as a scientific achievement. While Darwin was an acute observer, a gifted experimentalist and indefatigable theorist, this essay argues that it was also crucial to his impact that the *Origin* transcended the putative divide between the scientific and the literary. Analysis of Darwin's development as a writer between his journal-keeping on *HMS Beagle* and his construction of the *Origin* argues the latter draws on the pattern of the Romantic or Kantian sublime. The *Origin* repeatedly uses strategies which challenge the natural-theological appeal to the imagination in conceiving nature. Darwin's sublime coaches the *Origin*'s readers into a position from which to envision nature that reduces and contains its otherwise overwhelming complexity. As such, it was Darwin's literary achievement that enabled him to fashion a new 'habit of looking at things in a given way' that is the centrepiece of the scientific revolution bearing his name.

**Keywords:** Darwin, imagination, Kant, poetics, Romantic, science, sublime

Darwin is now recognised not only as the founder of the science of the evolution of the species, but as “the first Darwinian author,” the creator of a style much more than an explanatory hypothesis.<sup>1</sup>

The idea that *On the Origin of Species* owes any of its success to its literary qualities has been slow to gain ground. George Eliot's<sup>2</sup> early judgement that the book, whilst epoch-making scientifically, was “ill-written” prevailed for a century. Sporadic attempts by literary critics

<sup>1</sup> Stengers, 1997, p. 169.

<sup>2</sup> Eliot, 1954, p. 227.

like Baird and Hyman<sup>3</sup> to argue that the *Origin* was a form of imaginative literature, being a “dramatic poem” held together by an organizing metaphor of “the tangled bank,” appeared ridiculous to the scientifically-inclined.<sup>4</sup> In the late 1960s Darwin’s book was still being seen as unliterary. “Scientifically, the *Origin* is a classic ... But verbally it is a rag-and-bone shop.”<sup>5</sup> These perceptions hark back to Darwin’s<sup>6</sup> own self-deprecating remarks about his literary skills.

A first step toward the reappraisal of the *Origin* as a literary achievement was the realization that Darwin’s effort to portray himself as a particular kind of (ingenuous) author was both unusual in a scientist and crucial to the book’s success. Thus the arguments that writers had previously advanced *against* Darwin’s literary sophistication rebounded. Darwin unfailingly presented himself as a plain man without literary skill, “artless” but candid, “courteous, trustworthy and friendly,” a true gentleman-scientist, with great sympathy for his readers’ presumed doubts and confusions.<sup>7</sup> He went out of his way to stress the difficulties he had tried to overcome in the *Origin* and his apologetic awareness of the book’s imperfections, to such an extent that, in his son’s words, he ends up seeming so candid and humble as to be “almost pathetic.”<sup>8</sup> It took authors like Campbell and Bulhof<sup>9</sup> to point out that, given the *Origin*’s status as an ‘abstract’ of a much longer book<sup>10</sup> from which, with the exception of “a few facts in illustration,” all the details of supporting evidence “on which my conclusions have been grounded” had perforce been omitted, it was crucial that Darwin’s readers *did* find him to be trustworthy: “I cannot here give references and authorities for my several statements; and I must trust to the reader reposing some confidence in my accuracy.”<sup>11</sup> Darwin was acutely aware

<sup>3</sup> Baird, 1946; Hyman, 1962, pp. 26, 33.

<sup>4</sup> Among Charles Darwin’s chief precursors was his grand-father Darwin (1803; Bradley, 1994), whose book *The Temple of Nature* was a long poem on evolutionary themes with long scholarly footnotes fleshing out the science behind his verses. Hence a Darwin writing poetically on evolutionary topics was not unprecedented.

<sup>5</sup> Cannon, 1968, p. 172

<sup>6</sup> Darwin, 1882; cf. Culler, 1968.

<sup>7</sup> Browne, 2002, pp. 54–55.

<sup>8</sup> Darwin, 1950, p. 115.

<sup>9</sup> Campbell, 1970; Bulhof, 1992.

<sup>10</sup> It was an abstract of Darwin’s “Big Book,” the writing of which the arrival of Wallace’s paper on evolution by natural selection interrupted. Much of the Big Book was eventually published in different places (Stauffer, 1975) – but Darwin never elaborated the *Origin* into a longer text on the same topic.

<sup>11</sup> Darwin, 1859, pp. 65–66.

that it was the success of his self-presentation as a candid, respectable and highly-dedicated scientist that would make or break his book.

Darwin's skill at portraying himself as an "artless" narrator without literary skills is what shows the *Origin* to be a deeply rhetorical document. It has long been observed that the highest art is to conceal art ("*Art est celare artem*"). Hence, paradoxically, Darwin's rhetorical success is to be measured by the degree to which his book was *not* seen as rhetorical, but as the work of a literary innocent: "although the art of rhetoric may make a speech or book striking, if its artistry is detected, that very fact may be advanced as reason for rejecting it."<sup>12</sup>

### The Poetics of the *Origin*

This essay argues that Darwin's artistry extends well beyond his self-presentation as an 'artless' but sincere author. In the first place, it is impossible to observe the process of evolution as such. The action of natural selection on a population over the course of hundreds of thousands of years is too slow to be seen. Evolutionary theorising must therefore involve "a form of imaginative history [because] it cannot be experimentally demonstrated sufficiently in any present moment."<sup>13</sup> While, wherever possible, Darwin went to great lengths to base each step of his argument on observation or experiment (see pp. 25–26 below), a principal aim of the *Origin* was to get his readers to adopt a grand new vision of nature embracing aeons, a vision that transcends any given observation. To this end, he needed to engage readers' imaginations. So Darwin often asks his readers to *imagine* a scenario from the past which would help explain some problem of theory. Indeed, his principal illustration in the *Origin*'s crucial Chapter IV on "Natural Selection; or the Survival of the Fittest" is entirely imaginary, being a long commentary on the made-up family tree of "the species of a genus large in its own country."<sup>14</sup> Yet, despite their imaginary status, Darwin's success depended on his readers feeling that: "He did not *invent* laws. He described them. Indeed, it was essential to his project that it should be accepted not as invention, but as description."<sup>15</sup>

<sup>12</sup> Campbell, 1987, p. 72; Bulhof, 1992, pp. 11–24.

<sup>13</sup> Beer, 1983, p. 8.

<sup>14</sup> Darwin, 1859, p. 159.

<sup>15</sup> Beer, 1983, p. 51.

Arguments that the *Origin* is written to *persuade* its readers of his particular “view of life”<sup>16</sup> do not explain how the ‘what’ of that view is constructed. This question shifts us from viewing the *Origin* as a rhetorical text – designed to persuade – to consider its poetics. The term ‘poetics’ is generally defined in contrast to its better-known cousin ‘rhetoric.’ ‘Rhetoric’ refers to the way in which a text is constructed so that it may persuade its readers of a thesis or to undertake a course of action. Scholars like Campbell<sup>17</sup> argue *The Origin* to be “rhetorical from the ground up,” designed to persuade readers of a particular thesis: that nature has evolved. Here, by contrast, in considering the *poetics* of Darwin’s text, I consider how the *Origin*’s language is “constitutive for the way in which we, human beings, experience ourselves and reality.”<sup>18</sup> To speak of a book’s poetics is to refer, not to its persuasive power, but to something more primary: the way it portrays life, its power to flesh out a vision of the world, to “open up a space, create a ‘clearing’ full of beings within Being, in which both the space and its contents emerge together.”<sup>19</sup>

A number of authors have addressed the place of poetics in the *Origin*.<sup>20</sup> Their focus has been on the figures of speech that help constitute Darwin’s vision, especially metaphors (e.g. struggle, battle, colonization, genealogy) and similes (e.g. the tree), his use of personification (e.g. that nature ‘selects’), the imagery in the *Origin* (e.g. “tangled bank,” “niche,” “open fields”),<sup>21</sup> Darwin’s literary precursors (e.g. the Romantic poets; the Bible; Lyell; Chambers; Paley)<sup>22</sup> and the literary genres his narrative employs (e.g. myth, travelogue, legend).<sup>23</sup> Beyond this, a number of authors have examined how the literary qualities of the *Origin* found creative responses in the novels and plays of Darwin’s contemporaries and successors (e.g. Samuel Butler, Charles Kingsley, George Eliot, Charles Dickens, Thomas Hardy, and Bernard Shaw).<sup>24</sup>

<sup>16</sup> Darwin, 1859, p. 459.

<sup>17</sup> Campbell, 1987, p. 69.

<sup>18</sup> Bulhof, 1992, pp. 58–59.

<sup>19</sup> Shotter, 1993, p. 415.

<sup>20</sup> Bulhof, 1992; Beer, 1983; but see also Baird, 1946; Hyman, 1962; Cannon, 1968; Culler, 1968; Stengers, 1997; Beer and Martins, 1990; Flint, 1995; Depew and Weber, 1995; Young, 1985; Browne, 2002.

<sup>21</sup> “Tangled bank,” Hyman, 1962; “niche,” Cannon, 1968, p. 164; “open fields;” Beer, 1996.

<sup>22</sup> See Culler, 1968; Manier, 1978; Gaull, 1979; Kohn, 1996; Secord, 2000; Richards, 2002, 2005; and below.

<sup>23</sup> Beer, 1983; Bulhof, 1992.

<sup>24</sup> Culler, 1968; Beer, 1983; Flint, 1995; Browne, 2002.

Nothing that has been said so far implies that the *Origin* was structured by an integrated 'poetic,' even if Darwin's writing was 'poetical' (e.g. metaphorical). Thus, despite the new appreciation of Darwin's literary sophistication epitomised by Beer and Bulhof, there is nothing to gainsay Cannon's perception that the poetical features of the *Origin*, while invigorating, were incidental to its overall structure. Aply refuting Hyman's<sup>25</sup> claim that "the tangled bank" was the "great organizing metaphor" of the book, Cannon<sup>26</sup> argues that Darwin's metaphors were inconsistent and his imagery was "badly mixed-up" such that "the chain of life, the scale of nature, and the balance of nature are intermingled loosely and imprecisely." He concludes that Darwin had no literary "procedure" unless "muddling-through can be characterised by that word."<sup>27</sup> It is this perceived lack of any over-arching literary design, despite the growing volume of scholarship on Darwin's artistry, that still allows writers to downplay the importance of the more aesthetically ambitious passages in the *Origin* as "elaborate and [hence] atypical"<sup>28</sup>:

The book ends with a paragraph which repeats the image of an entangled bank mentioned in Chapter 3, goes onto the war of nature, and ends with the powers "breathed into" a few forms and the earth cycling about the sun. As far as I can see, these are attempts at "fine writing;" they do not affect the argument or express the nature of Darwin's vision ... I can locate each one of these images in the verbal grab-bag of the period; what I cannot do is relate them to one another or to anything important that Darwin was saying.<sup>29</sup>

I argue, on the contrary, that the *Origin* does have an over-arching literary structure which renders crucial the passages that Cannon and Myers dismiss. This structure was developed over the years between Darwin's *Beagle* voyage and his publication of the *Origin* and is modeled on the 'egotistical' or Romantic sublime. Hence, far from being a few borrowed phrases almost randomly 'grabbed' by Darwin to help wind up his ill-written 'abstract,'<sup>30</sup> the eloquent paragraphs Cannon disparages have a venerable ancestry in Darwin's efforts to verbalize his evolutionary vision. Darwin's poetical concluding statement is to be found in

<sup>25</sup> Hyman, 1959, p. 33.

<sup>26</sup> Cannon, 1968, pp. 167, 164.

<sup>27</sup> Cannon, 1968, p. 165.

<sup>28</sup> Myers, 1990, p. 13.

<sup>29</sup> Cannon, 1968, p. 167.

<sup>30</sup> cf. Cannon, 1968, p. 155.

almost identical form in both his early essays on evolution from 1842 and 1844,<sup>31</sup> and its precursors have been traced by Francis Darwin back to a preliminary formulation in a Notebook from 1837.<sup>32</sup> We only see its importance, however, when we realize that Darwin's aim in the *Origin* was not just to make an argument but to set up a new vantage-point from which to study nature (including, human nature). Darwin's means to this end seemingly conformed to the traditional aspiration to unadorned "plainness" in scientific language,<sup>33</sup> but nevertheless depended on language for its success. Before examining how the *Origin* reshaped the dynamics of scientific vision, however, we need to gain some understanding of the "sublime" upon which Darwin drew to achieve his ends.

### Conceptual History of the Sublime

The history of the concept of the sublime in British literary criticism is usually said to have had three phases: rhetorical, natural and subjective. Reference to the sublime first became a feature of aesthetic discussion in Britain during the late seventeenth century. A common reference-point was Longinus' Greek treatise *On the Sublime* (c. 100AD). Longinus<sup>34</sup> interest was in the principles of rhetoric or, more precisely, in what was so special about the construction of those "sublime" texts from which "the greatest poets and writers have derived their eminence and gained an immortality of renown." Significantly, Longinus compares the effects of sublime texts to the effects of "grandeur" in Nature.

Increasing stress on the sublime effects of Nature (rather than of discourse) ushers in the second phase in the development of the concept "sublime:" the "natural" sublime. This is where what moves the viewer to awe, fear or terror is not a text but Nature itself: "Eruptions, Earthquakes, the Sea wrought into a horrible Tempest. The Alps amidst those amazing Prospects ... Sublimity must be the character of your Peice [sic]," the poet James Thomson advised a friend in 1726.<sup>35</sup> As we shall see, the young Darwin was adept at finding sublimity directly in Nature.

<sup>31</sup> Darwin, 1909.

<sup>32</sup> See Darwin, 1909, p. xxviii on these passages. They do not have a counterpart in the draft of his 'Big Book' (Darwin, 1975) – but then this book was abandoned before he reached the final chapter so that he could rush out the 'abstract' which was the *Origin*. Hence it contains no concluding statement, poetic or otherwise.

<sup>33</sup> See Sprat, 1959, p. 114 on the aspiration to 'mathematical plainness' in scientific language at the dawn of the Royal Society.

<sup>34</sup> Longinus, 100, Pt. I, iii.

<sup>35</sup> Thomson, quoted in Cohen, 1980, p. 138.

The third phase in conceptualisation of the sublime is marked by a turn 'inwards.' This is the turn charted by Monk<sup>36</sup> in his history of the sublime, a history which he found to culminate in Kant's "Analytic of the Sublime."<sup>37</sup> In contrast to the Beautiful, for which Kant finds grounds external to ourselves in objectively harmonious forms of nature, Kant says we must seek grounds for the Sublime "merely in ourselves and in our attitude of thought which introduces sublimity into the representation of nature."<sup>38</sup> From this viewpoint, nature is "formless" and any sublimity we find 'in' nature we have, in point of fact, projected onto it for our own subjective reasons. For example, the faint glimmer of an entity that appears objectively (sensorially) to be tiny, like the flicker of a star, may be judged by an astronomer to be enormous. Alternatively, what appears as a vast and terrifying shadow may be cast by something small. Hence our judgement of a thing's being 'sublimely' vast is always relative, "aesthetical" or subjective, depending on the projection onto nature of our own ideas, ideas coined in what Kant calls a "supersensible faculty."

If "the sublime is not to be sought in the things of nature, but only in our Ideas,"<sup>39</sup> why do we produce such ideas? Kant's answer is that the inability of our imagination to grasp some 'empirical' aspect of nature, like huge waves at sea, becomes a way of representing our intuition that there exists a 'supersensible' sphere 'beyond' nature. What we find to be unimaginably vast or complex in nature gives us a sense of the limits of our capacity for understanding what we perceive, that is, our inability to intuit that Thing-in-Itself ("noumenon") which is ultimately what gives meaning to the perceptible phenomena surrounding us. At the same time, our imagination's failure comes to symbolise what is most important to us (for Kant): the existence of the supersensible conceptual realm of Reason which transcends nature, "in comparison with which everything [in nature] is small. Apprehension of the sublime swells where the sensory, phenomenal world of nature stretches our comprehension so thin that we glimpse through it something more essential or "supersensible." Thus in our mind we find a superiority to nature even in its immensity."<sup>40</sup> What was at first a defeat of the human subject's imaginative faculties by the size and power of nature is turned into a victory that confirms the subject's superiority over nature, reminding us of the power of our capacity for reason which gives us autonomy and

<sup>36</sup> Monk, 1960.

<sup>37</sup> This is a section of Kant's *Critique of Judgement*, 1790.

<sup>38</sup> Kant, 1790, p. 104.

<sup>39</sup> Kant, 1790, p. 109.

<sup>40</sup> Kant, 1790, p. 125.

ultimate independence from the natural world. “Thus the powerlessness of the imagination becomes the *sign* of the omnipotence of reason.”<sup>41</sup>

Kant’s “subjective” sublime extends into what Weiskel<sup>42</sup> calls the “Romantic” sublime, a form that dominated Romantic poetry in Britain in the early nineteenth century: a paradoxical affirmation of the boundlessness of the human spirit based on a recognition of human limitations. Weiskel illustrates this dynamic from a passage of *The Prelude*<sup>43</sup> that reconstructs Wordsworth’s efforts to cross the Alps at the Simplon Pass. Hiking with a friend, the poet missed his way and suddenly found himself on the brink of the Gondo Gorge. He describes being confronted by “immeasurable height,” a tumult of noise, brightness and storm, torrents falling from “black drizzling crags” to “the giddy prospect of the raving stream.” It proved too much for him and his senses were “usurped.” In retrospect however, Wordsworth’s struggle to understand and express this experience leads him to new faith in his own boundlessness, his own exaltation to infinitude, his own sublime.

Weiskel underlines the ‘egotistical’ quality of the Wordsworthian, Romantic sublime: it aggrandizes the perceiver, revealing his genius. Weiskel notes three steps in its production. First comes habitual perception, marked by a smooth fit between mind and world. Thus prior to going astray, *The Prelude* describes a sense of harmonious contentment: whatever Wordsworth saw as he climbed “was fitted to our unripe intellect and heart.”<sup>44</sup> Step two is the knock-out. Suddenly, as when confronted by the Gondo Gorge, the perceiver is overwhelmed. The mind reels, vanquished by nature’s vastness, whether that be conceived as terrifying power or bewildering proliferation. In step three, the sublime experience is recast after “retrospection and meditation,”<sup>45</sup> revealing a higher order of meaning:

I was lost;  
 Halted without an effort to break through;  
 But to my conscious soul I now can say –  
 “I recognise thy glory”: in such strength  
 Of usurpation, when the light of sense  
 Goes out, but with a flash that has revealed  
 The invisible world, doth greatness make abode,

<sup>41</sup> Lyotard, 1994, p. 94.

<sup>42</sup> Weiskel, 1976.

<sup>43</sup> Wordsworth, 1805, Bk. VI.

<sup>44</sup> Wordsworth, 1805, p. 683.

<sup>45</sup> Mortensen, 1998, p. 119.



There harbours; whether we be young or old,  
 Our destiny, our being's heart and home,  
 Is with infinitude, and only there; ...<sup>46</sup>

Step three goes beyond recovery: it opens the perceiver's eyes to a new transcendent order of understanding, a new balance between inner and outer. In Weiskel's terms, the very indeterminacy which at first over-awed the poet is later taken to symbolize his accession to his own sublime, supersensible rationality. The mind is not just rescued from a traumatic excess of meaning. The dizzying profusion of sensible impressions is suppressed by the triumph of the writer's heroic will to truth: "sheer cognitive exhaustion ... [is] followed by a compensatory positive movement, the mind's exultation in its own rational faculty, in its ability to think a totality that cannot be taken in through the senses."<sup>47</sup>

### Darwin and the Sublime

The nub of my thesis is that the three steps Weiskel describes as producing Wordsworth's lofty viewpoint on nature have their parallel in the developmental process that generated the *Origin's* celebrated "view of life." While Kohn, Richards and Leask<sup>48</sup> all highlight in different ways the role of aesthetics in the construction of the *Origin*, the case made here focuses particularly on the way the sublime frames the contest between reason and imagination in the *Origin*. Kohn stresses the importance of sublimity in Darwin's response to nature. But Kohn's emphasis is not on the subjective sublime. Kohn<sup>49</sup> focuses on what he calls the slow "reconciliation" of Darwin's sense of nature's awesome destructiveness, at its most intense on his circumnavigation in *HMS Beagle* (1831–1836), with his sense of the beautiful. He argues that, over the 25 years before 1859, this reconciliation produced two key metaphors in the *Origin*, the image of the "entangled bank"<sup>50</sup> and the imagery of natural selection driving "ten thousand sharp wedges" into the face of Nature.<sup>51</sup> At the same time, Kohn confirms that Darwin was

<sup>46</sup> Wordsworth, 1805, pp. 305f.

<sup>47</sup> Hertz, 1977, p. 79.

<sup>48</sup> Kohn, 1996; Richards, 2002; Leask, 2003.

<sup>49</sup> Kohn, 1996, pp. 13, 41 passim.

<sup>50</sup> Darwin, 1859, p. 459; see below.

<sup>51</sup> Darwin, 1859, p. 119.

steeped in a culture of painting and literature suffused by thinking about the sublime.

Familiarity with ideas of the sublime was nothing unusual in Darwin's time. Indeed, inspection of the travel diaries written by Darwin's contemporaries who had explored remoter regions of the globe show how widely in the early nineteenth century ideas of the natural sublime structured emotional responses to the spectacular in what Ryan calls "the imperial construction of the land."<sup>52</sup> Most notable for Darwin was the *Personal Narrative*<sup>53</sup> written by the scientific traveller Alexander von Humboldt, the book that not only inspired the undergraduate Darwin to travel to the tropics but accompanied him on the *Beagle's* voyage, serving as his guide and interpreter when overwhelmed by the exotic new scenes he saw.<sup>54</sup>

Humboldt lived in the circle of Goethe, Schelling, Schiller and Fichte, all exponents of the sublime. Founders of the German Romantic movement, they saw art as a way of gaining access to a scientific understanding of nature. Humboldt had a strong sense of the sublime, a volume of highlights from his travels being translated under the title, *Views of Nature or Contemplation on the Sublime Phenomena of Creation with Scientific Illustrations*.<sup>55</sup> While there is no evidence that Darwin had read Kant, he had plenty of other entrées to the German Romantic movement, as Kohn and Richards document.<sup>56</sup> These included his mentor in Edinburgh William McGillivray and his professor at Cambridge, Henslow. Nor were these links unusual. Many of the leading biologists of his day were influenced by Kant's philosophy of nature and Romantic "archetype" theory, including Carus, von Baer and Owen.<sup>57</sup> Furthermore, after his return from his circumnavigation, Darwin began specifically to read up on the sublime. The last chapter of his *Voyage of the Beagle* contains a lengthy retrospective survey of the sublime scenes he had met on his travels. His reading notebooks show that this interest was not superficial. Shortly after disembarking, he read Burke's *Essay on the Sublime and Beautiful* and Dugald Stewart's essay *The Sublime*.<sup>58</sup> Stewart was another thinker who had links to Kant.<sup>59</sup>

<sup>52</sup> Ryan, 1996, pp. 84–86; Dixon, 1986.

<sup>53</sup> von Humboldt, 1829.

<sup>54</sup> Leask, 2003.

<sup>55</sup> von Humboldt, 1844.

<sup>56</sup> Kohn, 1996; Richards, 2002.

<sup>57</sup> Richards, 2002, p. 517.

<sup>58</sup> Burke, 1756; Stewart, 1810.

<sup>59</sup> Friday, 2005.

Interestingly, Darwin's lengthy notes on Stewart's essay show that he was beginning to develop a "subjectivist" take on the concept. He starts off by remarking that the literal meaning of sublime is height, so the current meaning must have been arrived at from the associations of the perceiver with height to "something extraordinary and of great power," and thereby to God, infinity, eternity, darkness and "the vast ocean." These perceptions were further heightened by "the emotions of terror and wonderment so often concomitant with the sublime." All this together produces a "superiority and inward glorying:"

It appears to me, that we may often trace the source of this "inward glorying" to the greatness of the object itself or to the ideas excited & associated with it, as the idea of Deity with vastness of Eternity, which superiority we transfer to ourselves in the same manner as we are acted on by sympathy.<sup>60</sup>

Whilst this is not a truly Kantian conception, Darwin clearly recognises that sublimity is not external to the subject or 'in' Nature, but has a crucial subjective dynamic which may be unwittingly "transferred" between object and subject. It is just such a transferral that we see in Darwin's construction of the discourse that became *On the Origin of Species*.

### **From the Grandeur of the Rainforest to the Grandeur of "My Theory"**

When Darwin first read Humboldt's *Personal Narrative*, he was an undergraduate at Cambridge University with Christian convictions, aspiring to a rural vicarage. Shortly after graduation came the invitation to accompany Robert Fitzroy on *HMS Beagle*, with all the opportunities for natural history that implied. He accepted with mixed feelings. Indeed his elderly autobiography describes the months leading up to the *Beagle's* departure as "the most miserable which I ever spent."<sup>61</sup> Holed up on board for months in Plymouth Sound, he was constantly sea-sick, cramped, lonely and spasmodically subject to terrifying "heart attacks" (possibly psycho-somatic; Bowlby, 1990). The one thing that did not fail to whet Darwin's anticipation was the grandeur of the scenery he expected to see on his explorations. After escaping his "floating prison" for a cliff-walk one day (12/12/1831), he wrote: "There is no pleasure

<sup>60</sup> Darwin, 1839, in Gruber and Barrett, 1974, pp. 387–388.

<sup>61</sup> Darwin, 1882, p. 79.

equal to that which fine scenery and exercise creates, it is to this I look forward with more enthusiasm than any other part of the voyage.”<sup>62</sup>

The early months of 1832 saw Darwin record his many vexations as the *Beagle* crossed the Atlantic. Yet one senses a rising current of expectation. He was re-reading *Personal Narrative*: “the night does its best to soothe our sorrow; the air is still and deliciously warm ... Already I can understand Humboldt’s enthusiasm about the tropical nights; the sky is so clear and lofty, and stars innumerable shine so bright, that like little moons, they cast their glitter on the waves.”<sup>63</sup> The Cape Verde Islands gave him a glimpse of the expected glory, but the glimpse fast faded. The isle of Fernando was a sharper disappointment. Its forest was beautiful and “ought to have satisfied me. But I am sure all the grandeur of the Tropics has not yet been seen by me. We had no gaudy birds, no humming birds, no large flowers ...”<sup>64</sup> Then, at last, in northern Brazil, he got his fill:

28<sup>th</sup> [February, 1832] ... About 11 o’clock we entered the bay of All Saints, on the northern side of which is situated the town of Bahia or San Salvador. It would be difficult [to] imagine, before seeing this view, any thing so magnificent ... The town is fairly embosomed in a luxuriant wood & situated on a steep bank overlooks the calm waters of the great bay of All Saints ... But these beauties are as nothing compared to the Vegetation; I believe from what I have seen Humboldt’s 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 of 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 butterfly, it is arrested by some strange tree or fruit; if watching an insect one forgets in the strange 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, out of which a world of future & more quiet pleasure will arise. I am at present fit only to read Humboldt; he like another sun illumines all I behold.<sup>65</sup>

During his adventures over the next 4 years, he labelled other ominous natural scenes “sublime:” “black mountains half-enveloped in clouds,”

<sup>62</sup> Darwin, 1988, p. 12.

<sup>63</sup> Darwin, 1988, p. 20.

<sup>64</sup> Darwin, 1988, p. 39.

<sup>65</sup> Darwin, 1988, pp. 41–42.

“the shades of night ... gradually covering the highest summits,” “vast piles of snow, which never melt, and seem destined to last as long as the world holds together,” a storm at sea (“the water was white with the flying spray; the wind lulled and roared again through the rigging”). Nonetheless the “sublime forests” of the north Brazil remained his touchstone for natural grandeur.<sup>66</sup> Returning to Bahia in 1836 for his last sight of tropical America, Darwin found the rainforest’s splendour undimmed: “epithet after epithet is found too weak to convey to those who have not had an opportunity of experiencing these sensations, a true picture of the mind.”<sup>67</sup> As with so many contemporary explorers: he was so awed by primeval luxuriance that words failed him.<sup>68</sup> Yet he looked forward to creating “a world of future and more quiet pleasure” out of what overwhelms him now. He will seek a “mechanism” to explain and thereby transcend the “chaos of delight,” a mechanism that he would later call “sublimely grand.”<sup>69</sup> He looks forward to making what Weiskel called step three of the sublime: creating his own totalizing vision.

Note that Darwin’s jungle experiences set off a dynamic that was both scientific and literary. The forest even exceeds Humboldt! Nature is never just nature. It is always represented somehow. To reappropriate imaginatively and intellectually the nature that had made the rain-forest was hence a two-fold task. He would not only need to *explain* nature by natural laws. He would also need to *rework the way that his literary precursors had portrayed* nature.<sup>70</sup> No longer could he follow his peers in linking nature’s sublimity to proofs “that there is more in man than the mere breath of his body.”<sup>71</sup> He would henceforth need to write “against the grain of a language that valued design and took for granted god-head” in order to express his theories of production.<sup>72</sup>

Darwin’s solution to this dual problem was the *Origin*. Witness its last paragraph. Darwin famously invites us to “contemplate an entangled bank” which is described as a bewilderingly complex web of interdependent species, a myriad of plants, singing birds, flitting insects and “worms crawling through the damp earth.”<sup>73</sup> Here is Brazil again, but

<sup>66</sup> Darwin, 1832, pp. 232–233.

<sup>67</sup> Darwin, 1988, p. 434.

<sup>68</sup> Ryan, 1996, pp. 83–86.

<sup>69</sup> Desmond and Moore, 1991, p. 330.

<sup>70</sup> This innovative reworking of precursor texts is what Bloom (1973) called the creation of the writer’s “counter-sublime.”

<sup>71</sup> Darwin, 1882, p. 91; Dixon, 1986, p. 13.

<sup>72</sup> Beer and Martins, 1990, p. 168.

<sup>73</sup> Darwin, 1859, p. 459.

modulated to a more prosaic English key. In the same breath we are told that this multiplicity has “all been produced by laws acting around us.” The laws are enumerated, the fifth and last-named being natural selection. Finally, lest we should feel that Darwin’s scientific reworking of *Genesis* had cheated nature of its glory, as Romantic poets like Wordsworth were apt to claim, we are asked to think again<sup>74</sup>:

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 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.<sup>75</sup>

Here is phase three of Darwin’s sublime. Here, after many years of meditation, he had found a “world of future and more quiet pleasure.” No longer was he to be overwhelmed by what he once called “the grandeur” of Nature. Darwin now finds that the grandeur attaches to *his own view* of nature. He had developed a form of rationality which both transcended and contained what in Brazil had seemed so super-significant as to usurp the bounds of sense. Nature is subordinated to reason: “Nature is sacrificed on the altar of the law.”<sup>76</sup> By re-establishing the reign of natural laws, he had reasserted the cognitive continuities which the experience of the jungle had threatened. At the same time he had both repressed and recast the religious poetry to which his prose was heir: “the herb yielding seed after its kind,” the fowls that fly above the earth and “the creeping thing” that creepeth upon the earth.<sup>77</sup> Life begins, as it begins in *Genesis*, with powers being “breathed into” the aboriginal dust. There is even a hint of the Gospel story when famine and death give rise to “the most exalted object we are capable of conceiving.”

<sup>74</sup> While I say that Darwin sought to recast the *Genesis* myth, it is no less true that he sought to reform natural theology – replacing Paley’s argument from contrivance to one based on the laws of nature. It should also be noted that, in the second edition to the *Origin*, Darwin (1860) added to “originally breathed” the words “by the Creator,” suggesting that Darwin in 1859–1860 was a deist who did not believe that the laws of nature were self-explanatory (John Brooke, personal communication).

<sup>75</sup> Darwin, 1859, pp. 459–460.

<sup>76</sup> Lyotard, 1994, p. 188.

<sup>77</sup> *Genesis*, Chapter 1.

The laws Darwin proclaimed were laws of Creation. However meek, he had transcended even the “highest eminence” of human authorship and now stood on the same footing as “the Creator”<sup>78</sup>:

Authors of the highest eminence seem to be fully satisfied with the view that each species has been independently created. To my mind it accords better with what we know of the laws impressed on matter by the Creator, that the production and extinction of the past and present inhabitants of the world should have been due to secondary causes, like those determining the birth and death of the individual. When I view all beings not as special creations, but as the lineal descendants of some few beings which lived long before the first bed of the Silurian system was deposited, they seem to me to become ennobled.<sup>79</sup>

### The New Way to Envision Nature

While this paper stresses the contest between reason and imagination in the *Origin*, it should not be forgotten that Darwin was an indefatigable observer and experimentalist who, wherever he could, based his arguments on observation. As Richards underlines, Darwin set a high value on developing imaginative ‘castles in the air’ as a first step to scientific discovery: “imaginative constructions lie at the root of his thought about evolution and decisively control aspects of his theory.”<sup>80</sup> Nevertheless, scientific reasoning requires empirical support and the *Origin* recruits experimental evidence for whatever steps in its reasoning could be so supported. Thus the *Origin*’s first chapter, “Variation under Domestication,” is intended to demonstrate experimentally the efficacy of systematic selection, both deliberate and unconscious, and to argue, especially in the last section, that there is no ‘in principle’ difference between natural and artificial selection. Likewise, the book’s second chapter “Variation under Nature” summarises the results of Darwin’s attempt at a mathematical demonstration of patterns of speciation to

<sup>78</sup> The sublime positions its author to have “greatness of mind come near to God’s ... [and] have a great and mighty spirit, far above the weakness of men” (Drayton, in Bloom, 1973, p. 100).

<sup>79</sup> Darwin, 1859, p. 458. “Noble” is the word that Kant uses to describe the rational product of the sublime (see Lyotard, 1994, p. 25).

<sup>80</sup> Richards, 2005, pp. 170ff.

support his theory, an analysis more fully expounded in his “Big Book.”<sup>81</sup> Throughout the *Origin*, Darwin reports experiments, both his own and those of others, on such topics as the number of days for which seeds and molluscs remain viable when immersed in sea-water, the fertility of seeds regurgitated by birds, the pollination of clover by bees, bees’ instinctive building of honeycombs, and the dramatic effects of change of land-use on ecology and biodiversity. These observations and experiments go to reinforce particular steps in the argument of the *Origin*. But here I want to focus on the book’s larger strategy in developing a new way to envision nature.

A central feature of the *Origin*’s architecture is Darwin’s<sup>82</sup> counterposing of two ‘views’: “the ordinary view” or “the view that most naturalists entertain, and which I formerly entertained – namely, that each species has been independently created” is posed against what Darwin calls “my view,” “my theory” or “this view of life.” To succeed his readers, or at least the younger-minded naturalists among them,<sup>83</sup> needed to be persuaded to drop the ‘ordinary’ view of nature in favour of Darwin’s view. To that end, a great deal of the *Origin* is focused on reshaping the dynamic by which most naturalists had hitherto arrived at their vision of nature. The book assumes that this ‘ordinary’ dynamic is a version of the natural sublime: certain great facts of nature are so astonishing, so truly wonderful, remarkable, extraordinary, beautiful, staggering or exquisitely constructed (to cite some of Darwin’s favourite adjectives from the *Origin*), that the naturalist is forced to imagine that they must have been independently created by God.<sup>84</sup> The *Origin*’s aim is to undo this dynamic and so replace the naturalist’s traditional reliance on his or her imaginative resources (especially those rooted in natural theology) with the train of reasoning published in the *Origin*. The *Origin* aims to replace the natural sublime with a version of the Romantic sublime.

Witness for example, Darwin’s attempt to explain how “organs of extreme perfection and complication” such as the eagle’s eye could have resulted from natural selection. He sets off by sympathising with the apparent absurdity of this project but notes that this absurdity relates to

<sup>81</sup> Darwin, 1975.

<sup>82</sup> Darwin, 1859, pp. 69, 192, 459. This same opposition of views is to be found in the *Origin*’s precursor, *Natural Selection*, Darwin, 1975.

<sup>83</sup> Darwin, 1859, p. 453.

<sup>84</sup> Darwin, 1882, p. 91.



the imagination, not to reason: the difficulty of believing, therefore, “though insuperable by our imagination, can hardly be considered real.”<sup>85</sup> He then coaches us through several paragraphs of close argument, directing our attention in turn to certain significant facts, concluding:

He who will go thus far, if he find on finishing this treatise that large bodies of facts, otherwise inexplicable, can be explained by the theory of descent, ought not to hesitate to go further, and to admit that a structure even as perfect as the eye of an eagle might be formed by natural selection, although in this case he does not know any of the transitional grades. *His reason ought to conquer his imagination; ...*<sup>86</sup>

This gives the formula for many key set-pieces in the *Origin* – a formula that is already well-developed in Darwin’s ‘Big Book,’ *Natural Selection*, of which the *Origin* became the abstract. Darwin acknowledges some “truly wonderful” fact of nature but implores us not to imagine we understand how it came about (i.e. that it is a divine creation). For example: “We need not marvel at extinctions; if we must marvel, let it be at our presumption in imagining for a moment that we understand the many complex contingencies, on which the existence of each species depends.”<sup>87</sup> Imagination is a false friend. Hence we should “no longer look at an organic being as a savage looks at a ship, as at something wholly beyond his comprehension.”<sup>88</sup> Rather than letting our imaginations take over – as in a cargo cult – we need to reason our way towards explanation: we need to recognise that “every production of nature ... has had a history ... [and is] the summing up of many contrivances, useful to the possessor” etc.<sup>89</sup>

Darwin finds he needs to surmount three obstacles to achieve his aim, corresponding to the three phases of the Romantic sublime described by Weiskel. The first obstacle is the facility with which our imaginations complacently marvel at Nature’s *prima facie* appearance: “We behold the face of nature bright with gladness, we often see superabundance of food; we do not see, or we forget, that the birds which are idly singing

<sup>85</sup> Darwin, 1859, p. 217.

<sup>86</sup> Darwin, 1859, pp. 218–219; emphasis added.

<sup>87</sup> Darwin, 1859, p. 325.

<sup>88</sup> Darwin, 1859, p. 456.

<sup>89</sup> Darwin, 1859, p. 456.

round us mostly live on insects or seeds, and are thus constantly destroying life, or ... are [being] destroyed by birds and beasts of prey.”<sup>90</sup> “We continually over-rate the perfection of the geological record.”<sup>91</sup> “I was filled with astonishment [at finding the tooth of a horse alongside the remains of a Mastodon] ... But [after consulting Professor Owen, Darwin realised] how utterly groundless was my astonishment!”<sup>92</sup>

Secondly, and masked by our superficial readiness to imagine we know how natural diversity originated, is the need to recognise our “profound ignorance”<sup>93</sup> of the “inextricable web of affinities” and “infinite complexity of the coadaptations between all organic beings,” causing the “infinite diversity in structure, constitutions, and habits” of the life-forms that surround us.<sup>94</sup> Darwin believed that the imagination was no help in conceiving such infinitude, something “appearing to our imagination insuperably great.”<sup>95</sup> Hence much of the *Origin* is taken up with driving home points that underline the ordinary naturalist’s unwitting ignorance of the complex and multitudinous processes that underpin natural variety. To get this point across, and thereby to shift the reader from the marvelling contentment of the first phase of the formation of the Romantic sublime (according to Weiskel), to the second phase – of awe at Nature’s overwhelming infinitude – Darwin repeatedly stresses the vanity of attempts to conceive nature’s vastness and complexity. Thus, again and again Darwin reminds us how impossible it is for our imaginations to encompass the gigantic span of geological time which “impresses my mind almost in the same manner as does the vain endeavour to grapple with the idea of eternity.”<sup>96</sup> “What an infinite number of years, which the mind cannot grasp, must have succeeded each other in the long roll of years!”<sup>97</sup> The variety of life-forms, and therefore the reach of natural selection, proves equally unimaginable: “We must suppose each new state ... to be multiplied by the million; ... In living bodies, variation will cause slight alterations, generation will multiply them almost infinitely, and natural selection will pick out with unerring skill each improvement ... Let this process go for millions on

<sup>90</sup> Darwin, 1859, p. 116.

<sup>91</sup> Darwin, 1859, p. 309.

<sup>92</sup> Darwin, 1859, p. 322.

<sup>93</sup> e.g. Darwin, 1859, pp. 124, 202, 226, 312, 350, 393, 437, 440, 453.

<sup>94</sup> Darwin, 1859, pp. 153, 169, 415.

<sup>95</sup> Darwin, 1859, p. 435.

<sup>96</sup> Darwin, 1859, p. 296.

<sup>97</sup> Darwin, 1859, p. 297.

millions of years, and during each year on millions of individuals of many kinds ..." etc.<sup>98</sup> Ungraspable too are the "prodigious" "vast" "geometrical" Malthusian powers of generation of living populations such that, without natural checks, "the number of species will almost instantaneously increase to any amount" of "countless" "multitudes."<sup>99</sup> It is at this point, "when the mathematical composition of the units that make up the object achieves very great magnitudes" and the imagination falters, that Kant<sup>100</sup> says the subjective sublime of 'egotistical' reason comes into its own: Weiskel's third phase.

On cue, Darwin's third step is to show that only reason or, more precisely, hard-won scientific expertise, is capable of rescuing us from the *Origin's* overthrow of the facile imaginative dynamic that underpins the natural (theological) sublime: Darwin's unsettling of the natural sublime allows him to present his own theory as the centrepiece of a new and more secure way of looking at nature. Thus a standard feature of the *Origin* is argument that sets out by presenting some natural phenomenon that we might commonly marvel at (e.g. a bird in flight, the eagle's eye, extinctions, change of ecology with climate or altitude, the sterility of hybrids). Darwin then reminds us of some additional "highly important" factors of which we are either ignorant, of which we hold false opinions or which we tend to overlook but need to "bear in mind." In this way he leads us through a series of "facts and inferences," often gleaned from the work of "careful observers" and "high authorities," which give us "reason to believe" what Darwin has not "any great difficulty" in believing, namely, in the validity of "my theory:" that the diversity of nature has been produced by 'natural laws' (of "descent with modification" or "natural selection").

Given Darwin's self-confessed inability always to provide the reader with the "long arrays" of "dry facts" required to prove his theses, he is constantly forced to stand on his, or his eminent colleagues,' status as scientific experts: "I can only repeat my assurance, that I do not speak without good evidence."<sup>101</sup> This way of writing sets up a crucial dependency in the reader. Right from the *Origin's* opening discussion of the breeding of distinct varieties of domesticated animals like pigeons, sheep and horses, Darwin introduces us to the idea that there is an immense gap between the differences visible to an educated and an uneducated eye: "differences which," in the case of the pigeon-fancier,

<sup>98</sup> Darwin, 1859, p. 219.

<sup>99</sup> Darwin, 1859, pp. 119ff.

<sup>100</sup> Kant, 1790, pp. 102, 197–198; see Lyotard, 1994, pp. 92ff.

<sup>101</sup> Darwin, 1859, p. 238.

“I for one have vainly attempted to appreciate,” he disarmingly adds.<sup>102</sup> His argument is studded with references to the work of other scientists, ushered in by laudatory epithets: “the highest authority, Prof. Dana,”<sup>103</sup> “that excellent botanist, Aug St. Hilaire,”<sup>104</sup> “our great palaeontologist, Owen,”<sup>105</sup> “that one great authority, Sir Charles Lyell.”<sup>106</sup> As with pigeons, the ordinary lay observer is in the dark, so the trained scientist must come to the reader’s aid: “A man must for years examine for himself great piles of superimposed strata ... before he can hope to comprehend anything of the lapse of time, the monuments of which we see around us.”<sup>107</sup> In the case of species change, the *Origin* constantly reminds us that its author has been working on the problem for decades and “has not been hasty in coming to a conclusion.” Darwin is the expert and it is to his text he expects us to defer. He has looked long and hard at nature and is telling us what he sees, namely, “that all the forms of life, ancient and recent, make together one grand system; for all are connected by generation.”<sup>108</sup> In the process he turns what was formerly his defect, his inability to conceive natural profusion, into his chief advantage. It is now our defect, not his. Again and again he stresses that “we are as yet profoundly ignorant” of the many aspects of Nature that bear on his theory, “nor do we know how ignorant we are.”<sup>109</sup> But Darwin has transcended our ignorance. He has perceived the “one grand system.” Given our ignorance and his expertise, it is hard to gainsay him.

One consequence of this dynamic is that Darwin appears to be the only begetter of ‘his’ evolutionary theory. This gives the *Origin* an intensely autobiographical almost prophetic tone. It poses Darwin’s authority as coming directly from first-hand contact with nature. Like Wordsworth teetering on the rim of the Gondo Gorge, Darwin’s understanding is represented as having come from being “much struck” by certain “great classes” of fact, facts, he reminds us, to which he has unique access by virtue of his voyage on the *Beagle* and decades of subsequent research.<sup>110</sup> This stance has consequences, some of which

<sup>102</sup> Darwin, 1859, p. 91.

<sup>103</sup> Darwin, 1859, p. 376.

<sup>104</sup> Darwin, 1859, p. 418.

<sup>105</sup> Darwin, 1859, p. 329.

<sup>106</sup> Darwin, 1859, p. 310.

<sup>107</sup> Darwin, 1859, p. 294.

<sup>108</sup> Darwin, 1859, p. 342.

<sup>109</sup> Darwin, 1859, p. 440.

<sup>110</sup> Darwin, 1859, p. 65.

appear to have been unintended. Darwin is led to treat as irrelevant all the authors who had previously written on evolution. This is characteristic of authors of the sublime. The self is the only origin of insight: "To claim originality in literature ... is to repress the proprietary dynamic of the intertextual economy."<sup>111</sup> If Darwin could stand as sole originator, he might avoid the political and theological debates that embroiled previous writers on evolution: Chambers, Lamarck, Erasmus Darwin, Buffon.<sup>112</sup> But while the sidelining of his sources might bring benefits, it also brought rebukes.<sup>113</sup> Darwin belatedly added "An historical Sketch of the Progress of recent Opinion on the Origin of Species" to preface the third edition of the *Origin*, mentioning some thirty precursors he had initially omitted.

Darwin's repression of the intertextuality of his theory (which is quite misleading, given his copious reading of evolutionary works during the 20 years prior to the *Origin's* publication)<sup>114</sup> is what allows him to refer to his "view of life" as "my theory," focusing his readers' attention on the "one long argument" that is the backbone of his book.<sup>115</sup> "Filled with pride and joy," wrote Longinus,<sup>116</sup> "we come to believe we have created what we have only heard." Hence, like another great exponent of the Romantic sublime, Wordsworth, Darwin came across to some of his early readers as "egotistical."<sup>117</sup> This quality of his writing may strike some as unintended, contradicting as it does his humble mien. Writing to his friend Hooker on the 27th March 1861, he makes an embarrassed admission:

Here is a good joke: H. C. Watson ... says that in the first four paragraphs of the [*Origin's*] introduction, the words "I," "me," "my," occur forty-three times! I was dimly conscious of the accursed fact. He says it can be explained phrenologically, which I suppose civilly means, that I am the most egotistically self-sufficient man alive; perhaps so.<sup>118</sup>

<sup>111</sup> Fry, 1995, p. 144.

<sup>112</sup> Desmond, 1989.

<sup>113</sup> e.g. Butler, 1879.

<sup>114</sup> Butler, 1879; Manier, 1978; Bradley, 1994.

<sup>115</sup> Hodge, 1977.

<sup>116</sup> Longinus, 100AD, Pt.VII, ii.

<sup>117</sup> Gaull, 1979.

<sup>118</sup> Darwin, 1861, p. 36.

## Conclusion

There is an increasingly robust tradition of scholarship that documents the literary qualities of Darwin's writing in the *Origin*. In a past that stretches back to the birth of the Royal Society, the poetical and rhetorical capacities of language have been opposed to its use for scientific purposes.<sup>119</sup> My aim has been to show that the *Origin* transcends this putative divide, a divide that was growing ever more stark in Darwin's day, as the elevated truths yielded by great 'imaginative' Literature were increasingly opposed to the more reliable if mundane truths attainable through science.<sup>120</sup> Darwin's book is discreetly unified by an overarching poetic, constructed on the pattern of the Romantic sublime. It is this poetic that underpins one of the principal scientific achievements of the *Origin* by reshaping what Cannon calls scientists' "*habit of looking at things in a given way* which [is what] a master scientist transmits to his disciples."<sup>121</sup>

Darwin's *Origin* gives us what von Humboldt's *Cosmos* gave Darwin, "a grand coup d'oeil of the whole universe."<sup>122</sup> But Darwin's vision differs from Humboldt's in being based on a different kind of sublime, Kantian or 'subjective' rather than natural-theological. Kant's analysis of the sublime suggests that a genius succeeds by projecting outwards his own supersensible reasoning *about* nature *onto* nature. This model of scientific discovery is very similar to the "hypothetico-deductive" one Darwin espoused.<sup>123</sup> In Heisenberg's words, "the best scientific theory is self-projection."<sup>124</sup> Darwin's theory allows us to see the overwhelming diversity of nature in a new way, one that is reasoned rather than imagined, and it is thus his theory "ennobles" nature.

Nature is no longer to be imagined as a work of God. On the contrary, in the *Origin* reason prevails: the genius of Darwin's "thought imposes its own finality on what remains of nature when natural form is no longer 'given' (*data*)" (as Kant writes of the sublime).<sup>125</sup> And if it is Darwin's voice that endows the natural world with such grandeur, then it is important that his style should come across to the reader as what Kant and Lyotard call "candid:" "stripped of ornament, of embellish-

<sup>119</sup> e.g. Sprat, 1959.

<sup>120</sup> Williams, 1977, pp. 50ff.

<sup>121</sup> 1968, p. 178, his emphasis.

<sup>122</sup> von Humboldt, 1848; Darwin, 1848, p. 135; quoted in Richards, 2002.

<sup>123</sup> Ghiselin, 1969.

<sup>124</sup> Quoted in Gaull, 1979, p. 34.

<sup>125</sup> Lyotard, 1994, p. 184.

ment, of artifice, as if it came straight from the mouth of the predicator, from the divine voice."<sup>126</sup> In Kant this is the 'artless finality' of sublime style," a style that appears to be just what Darwin's son Francis and Janet Browne perceive the *Origin's* style to be.

Two questions must be left open. The first: how aware was Darwin of the literary strategies he employed in the *Origin*? A number of authors have argued that Darwin was often deliberately strategic in the way that he presented his case for evolution. For example, Gruber and Barrett have highlighted Darwin's claims to have taken an inductive approach to Nature, working "on true Baconian principles, and without any theory collected fact on a wholesale scale" when devising his evolutionary theory.<sup>127</sup> But these "give an extremely misleading picture" of the method revealed in Darwin's notebooks, where he champions making imaginative "castles in the air" as a route to scientific discovery and states, "without making theories, I am convinced there would be no observations."<sup>128</sup> Letters written while drafting the *Origin* show he thought long and hard about how best to express his argument. For example, he wrote to Wallace in 1857: "You ask whether I shall discuss 'man.' I think I shall avoid the whole subject, as so surrounded with prejudices," a crucial strategic decision according to Gillian Beer.<sup>129</sup> The presentation of his ideas continued to preoccupy him after the *Origin* was published.<sup>130</sup> Yet it is not essential to my argument to suppose that Darwin deliberately and disingenuously presented himself as an 'artless' author in the *Origin* or that he was aware of using the sublime to frame its argument. He wrote the *Origin* extremely fast by his standards, and the way he wrote is likely to have 'gone beyond' his reading and his thinking in ways which were partly unwitting. As a result the *Origin* remains "one of the most extraordinary examples of a work which included more than the maker of it at the time knew, despite all that he *did* know."<sup>131</sup>

Finally, what are the implications for contemporary scholarship of the argument that Darwin used literary means to effect the scientific revolution that bears his name? One possible advantage of the argument that Darwin's "habit of looking at things" is underpinned by his creation of a specific kind of sublime is the insight it promises into the

<sup>126</sup> Lyotard, 1994, pp. 156f.

<sup>127</sup> Gruber and Barrett, 1974; Darwin, 1882, p. 120.

<sup>128</sup> Campbell, 1987, p. 73; Browne, 2002; Richards, 2005.

<sup>129</sup> Darwin, 1857; Beer, 1983.

<sup>130</sup> Campbell, 1987.

<sup>131</sup> Beer, 1983, p. 2.

impact of evolutionary approaches on the study of human behaviour. Those who wish to adopt a natural scientific approach to studying human action need to find a discursive way to set up “a certain high degree of isolation of the phenomenon from the observer.”<sup>132</sup> Only then can they justify constructing statistical models of behaviour which deal anonymously with large masses of people and refer to average behaviour rather than describing and analysing the moral dramas embodied in individual experience.<sup>133</sup> It was into just such a detached subject-position, which looks down on one’s fellow humans from what Wiener called “the cold heights of ubiquity and eternity,” that the ‘grandeur’ of Darwin’s sublime invited pioneering social scientists.

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<sup>132</sup> Wiener, 1961, pp. 164–166; Nagel, 1986.

<sup>133</sup> It was Wiener’s (1961, pp. 164–166) opposition of “statistical” to “dynamical” approaches that Levi-Strauss (1951) appropriated in his ‘structuralist’ anthropology. Both men were critical of “statistical” approaches to sociality, approaches which, like the second law of thermodynamics, deal only with large masses and refer to average behaviour not to individual behaviour, whilst denying the inevitable coupling between observer and observed in social inquiry. As Jacob (1974, pp. 196ff.) argues, one of Darwin’s key bequests to the life sciences has been to render plausible the statistical approach: “For Darwin, as for Boltzmann and Gibbs, the laws of nature apply not to individuals but to large populations. Although there might be irregularities in the behaviour of each unit, in the end the large numbers involved impose regularity on the whole ...”.



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