

## Darwin at the Cape

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Of the thirteen ports where HMS *Beagle* called on its homeward voyage from South America to England, it stayed longer at Simon's Bay (31 May – 18 June 1836) than anywhere else except for the Galápagos Islands. Yet Charles Robert Darwin, the 27-year-old naturalist on board, practically ignored the Cape in his subsequent publications and many Darwin scholars hardly mention the visit. This silence raises two questions: why did Darwin have so little to say about the Cape, and did the visit in any way contribute to his intellectual development? There are two possible answers. After four and a half years of voyaging, Darwin was stale and found the Cape environment well-studied but uninspiring. At the Cape, secondly, Darwin met Sir John Herschel, the leading British scientist of the day, then cataloguing southern hemisphere stars. Herschel probably directed him to granite outcrops in the Cape Town hinterland, about which Darwin made notes but published little. More importantly, Herschel, through an earlier book and in discussion, made Darwin aware of his ideal of scientific explanation: to look for one comprehensive 'true cause' which could be transferred from one set of phenomena to another. Herschel also showed Darwin his garden of Cape fynbos bulbs, which led the former to speculate on 'the origination of fresh species' as a natural process. For Darwin the Cape must have been an important place of encounter with ideas, some already half formed in his mind and others new, which he developed fully in the years to come.

In the late afternoon of Tuesday 31 May 1836, the surveying vessel HMS *Beagle*, backed by a southwesterly breeze, entered False Bay and dropped anchor at Simon's Bay, four years and five months after leaving Plymouth Sound. The British Admiralty's orders to Captain Robert FitzRoy, the ship's commander, were twofold. First and foremost, he was to conclude the charting of the far southern coast of South America, a task that FitzRoy completed with meticulous skill by the middle of 1835. The second assignment was to measure meridian distances on a westward navigation of the southern hemisphere and, as part of the process, to calibrate a battery of 22 new chronometers which the *Beagle* took aboard for eventual use in the Royal Navy.<sup>1</sup> FitzRoy was required to break the long runs across the oceans into short stretches, touching land frequently to obtain longitudes and to check the accuracy of the chronometers.<sup>2</sup> The Cape was one port of call he could

not miss. The Royal Observatory, five kilometres outside Cape Town and on its way to become the most important observatory in the southern hemisphere, was well placed and equipped for calibrating chronometers.<sup>3</sup> The *Beagle's* crew of 76, although cramped aboard the three-master of 242 tons for three weeks since leaving Mauritius, was probably not pleased. The Atlantic Ocean was the last lap home and they were anxious to complete their voyage.

### The naturalist on deck

Among the sailors on the deck gazing at the 200 or so whitewashed cottages at the foot of the bleak slope of Swartkop, stood the 27-year-old Charles Robert Darwin. A son from a well-to-do provincial family related to the Wedgwoods of pottery fame, and an undistinguished student with an ordinary BA degree from Cambridge,<sup>4</sup> Darwin was invited by FitzRoy to accompany the voyage at his own expense as a naturalist. Well aware that coordinates and charts provided only the outlines of the countries visited, FitzRoy wanted 'a person to examine the land' and, as a cushion against the boredom of a long voyage, a companion of his own class and education to share his mess table.<sup>5-8</sup> He got more than he bargained for.

Notwithstanding his diffidence as a student, Darwin was well prepared for the collecting tasks which were expected of a naturalist. During his two unsuccessful years at Edinburgh University, he learned how to collect invertebrate

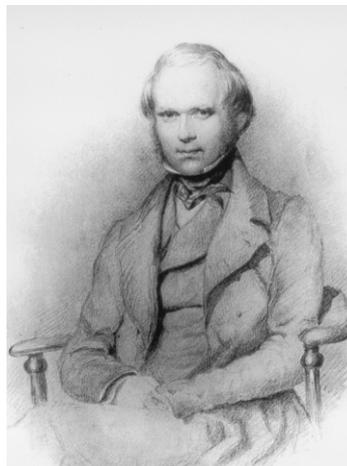


Fig. 1. Charles Darwin at the age of 31, four years after visiting the Cape. (Drawing by George Richmond, reproduced by permission of Cambridge University Library.)

marine fauna. Later at Cambridge, he assiduously gathered beetles and plants, and in August 1831, just four months before the *Beagle's* departure, he spent three weeks geologizing in North Wales with Adam Sedgwick, the best English field geologist of the day. Moreover, Darwin was a voracious reader and during 1831 three books landed on his desk which were to guide his thoughts over the five years ahead. In January, while still at Cambridge, Darwin got hold of Sir John Herschel's *Preliminary Discourse on the Study of Natural Philosophy* (1830),<sup>9</sup> with its exalted view of the scientist's search for truth. Later that year Darwin read Alexander von Humboldt's *Personal Narrative of a Voyage to the Equinoctial Regions of the New Continent, 1799-1804* (1818),<sup>10</sup> which fired his yearning for far-off, exuberant tropical lands. Finally, as Darwin was waiting to embark, he devoured the first volume of Lyell's *Principles of Geology* (1830),<sup>11</sup> which concentrated his eclectic interests on one particular segment of earth-space: the rocks and landforms of the crust. The book also suggested a useful guide to interpret them: Lyell's famous dictum that the present was the key to the past. All three books were subsequently shelved in the *Beagle's* well-stocked library and accompanied Darwin on his voyage around the world.

When the *Beagle* arrived in Simon's Bay, Darwin's main concern was geology and his ambition was to make his name in the world of science by writing a general narrative in the manner of Von Humboldt. Without formal education in science, he regarded geology as an accessible point of entry.<sup>12,13</sup> From Peru in July 1835, he had confided to his cousin William Darwin Fox: '[Geology] is so much larger a field for thought than ... the other branches of Natural History ... [It] is a capital science to begin with, as it requires nothing but a little reading, thinking and hammering'.<sup>14</sup> But rocks and landforms were only elements in a larger scheme of things. Even before leaving Plymouth, Darwin started condensing his field notes into a diary, the master text for an eventual narrative, and, as the voyage progressed, the entries grew in range and insight. By the time the *Beagle* entered Simon's Bay, the diary, compiled during idle hours at sea, amounted to 731 hand-written pages.<sup>15</sup> Simultaneously, a vast collection of conscientiously catalogued rock, fossil and biological specimens disappeared into the *Beagle's* hold to be sent from suitable ports to England where they were received and stored by Darwin's friend and mentor at Cambridge, John

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Stevens Henslow. Sections of the diary accompanied them.<sup>16</sup>

Of the 13 ports of call after leaving Callao on the coast of Peru on 7 September 1835, the *Beagle* lay longer at anchor only at the Galápagos Islands than in Simon's Bay. Yet Darwin seldom referred to the Cape in his subsequent publications and many Darwin scholars hardly mention the visit.<sup>17</sup> Why pay attention to such an apparently obscure episode in Darwin's career? First, Darwin was an accurate observer whose diary, letters and notes, in the case of the Cape initially unpublished, gave vivid contemporary images of the lands he passed through.<sup>18–20</sup> They have historical significance in their own right. Second and more importantly, Darwin was the greatest scientist of the 19th century, whose conception of change over time transformed not only the biological and social sciences but, indeed, humankind's view of the universe. Under different names and guises evolution, variation, competition, inheritance, survival, reproduction and natural selection are still important themes in the discourse of science.<sup>21,22</sup> How Darwin arrived at these concepts and braided them into a coherent system of thought, provide insight into the working of a creative mind.

Darwin's visit to the Cape raises two questions. First, why did he have so little to say about the Cape and, second, did the visit in any way contribute to his intellectual development? I will argue that although the Cape environment did not appeal to Darwin, mostly for personal reasons, the people he met in Cape Town made him aware of the problem of scientific explanation in general and new ways of thinking about organic diversity in particular. Before following up these arguments, it will be worthwhile to trace Darwin's time ashore.

### Eighteen days ashore<sup>23</sup>

Because the drab Simon's Bay had little to offer, Darwin, always eager to go on land, departed for Cape Town on Wednesday 1 June. He reached the town late in the evening and found himself sharing quarters with Anglo-Indians escaping from the sultry Asian monsoon to enjoy the temperate climate of the Cape. Irritated by the carousing of these 'nabobs' and 'proser's',<sup>24</sup> Darwin retreated to new accommodation the following day, attended to his money matters, answered correspondence, admired Table Mountain and explored Cape Town, then an urban concentration of 15 000 inhabitants 'laid out with the rectangular precision of a Spanish city'.

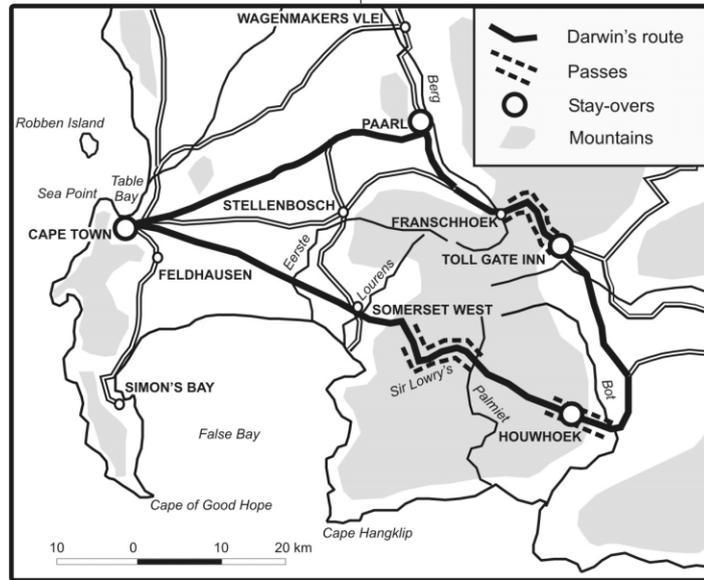


Fig. 2. Darwin's ride of 4–7 June 1836 took him across three mountain passes but not into the semi-arid interior.

He had one windfall. It so happened that Sir John Herschel, author of *Preliminary Discourse*, was then staying in Cape Town to catalogue southern hemisphere stars, clusters and nebulae.<sup>25</sup> Darwin and FitzRoy lost no time to call on Sir John on 3 June at Feldhausen estate, the Herschels' residence ten kilometres southeast of the town proper and around the corner from Devil's Peak in the present suburb of Claremont. At the time Feldhausen was one of the Peninsula's most stately homes: a gabled Cape-Dutch house sheltering in a forest of pine and oak and situated at the intersection of three solemnly straight avenues.<sup>26</sup>

Eager to see South African antelope, Darwin hired two horses and the services of an English-speaking Khoi groom and set out on a 170-km circular ride through the Cape Town hinterland on Saturday 4 June, the region already known to locals as 'de Boland' (Fig. 2).<sup>27</sup> Crossing the sandy strip eastwards over the Cape Flats, Darwin soon realized why teams of 18 to 20 oxen were necessary to pull wagons to Cape Town, an arrangement which surprised him the previous day. Arriving at Paarl in the afternoon, he climbed the soaring granite rocks of Paarl Mountain, took notes and observed the Drakenstein Mountains and Paarl village basking in 'an air of quiet and respectable comfort'. The next day, Sunday 5 June, Darwin followed the Berg River up valley and crossed the Franschhoek Pass to spend the evening at the Toll Gate Inn at its southern entrance. On Monday 6 June, he searched his way further southwards along monotonous bypaths over the Rûens and then turned westwards to spend the night at the house of an English

farmer, probably the present Houwhoek. Closing the circle on Tuesday 7 June, Darwin and his groom descended Sir Lowry's Pass with 'its noble view of the whole of False Bay and Table Mountain' and re-crossed the sandy Flats to Cape Town.

The week between 8 and 15 June had its rainy days, but there was also time for geological rambles and socializing with local savants. 'There are many pleasant people at the Cape,' Darwin wrote to Henslow from St Helena.<sup>28</sup> Among them was the medical officer of the Cape garrison, Dr Andrew Smith, just back from an extended visit to the deep interior and afterwards his most important source of information on South Africa. Darwin also met the 'most kind and hospitable' Astronomer Royal, Thomas Maclear; the Colonial Secretary Colonel John Bell and his observant wife Lady Catherine, and the touchy Captain James Alexander, soon to depart for Damaraland.<sup>29</sup> The high point of the visit was an invitation to FitzRoy and Darwin to dine with the Herschels at Feldhausen on the evening of 15 June. In Darwin's words the occasion was 'the most notable event which, for a long period, I have had the good fortune to enjoy.'

Among these civilized people of his own class and education, Darwin recognized both the network of science and the props of an empire of which Cape Town was one of the most strategic hubs:

'If London is the centre of civilized Europe', Lady Margaret Herschel wrote to her aunt, 'this seems to be the centre of the rest of the world — for we live in the midst of accounts and arrivals from India, China, Australia and America — All teem with

interest, and the different Governors and Admirals passing and repassing towards their Governments and Stations, make a point of visiting us ...'.<sup>30</sup>

Darwin, the progressive Whig, saw the colonies of the temperate South as 'little embryo Englands, cores of expanding and flourishing civilization. Nevertheless, as he also noted in Mauritius, the small community of British officials was remote from the metropole, isolated from the locals and sharply critical of their unsophisticated surroundings. At the Cape, a frustrated officer's wife blurted out, 'the birds have no song, the flowers no smell and the women no morals'.<sup>31</sup> The scandalized Sir John, who loved the country, contested the second of these assertions, in Latin!

With the chronometers cleaned and calibrated, FitzRoy and Darwin departed for Simon's Bay on Thursday 16 June, but a strong northwester kept the *Beagle* at bay until Saturday the 18th. By then the dedicated Darwin was so sure of his surroundings that he used the Friday for one last geological excursion.

#### 'A bleak and desolate aspect'

From Darwin's correspondence, and especially his diary, it is clear that he was not enamoured of the Cape. The diary entries made lively reading, but Darwin's comments on the South African natural environment were trivial and his impressions of society reflected those of the official class with whom he was in contact. After completing his circular trip on 7 June, he remarked: 'I saw so little worth seeing that I have scarcely anything to say'.<sup>32</sup> He found the Cape landscape devoid of animals, people and homesteads, 'cheerless' and 'very desert'. Looking from Paarl Mountain, the clarity of the view reminded him of northern Chile, 'but the rocks there possess at least a brilliant colouring'. In contrast, the Berg River fynbos was pale brownish green, while the Franschoek Mountains were 'destitute of trees and even of brushwood', and dominated by white siliceous sandstone which 'gave to the country a bleak and desolate aspect' (Fig. 3). His worst censure was reserved for the Rûens: 'I never saw a ... less interesting country'.<sup>33</sup>

A dearth of material on the Cape is also apparent from Darwin's publications. His only published report on his observations appeared in the relatively minor *Geological Observations on Volcanic islands* (1844),<sup>34</sup> where the geology of the Cape Peninsula was allotted two pages in a monograph of 270 pages. In the *Journal of Researches*



Fig. 3. The Herschels crossing Franschoek Pass, October 1836. 'The pass is a considerable work ...' Darwin commented five months earlier. (Source: Herschel Album no. 1, South African National Library.)

(1839),<sup>35</sup> Darwin's most comprehensive account of the *Beagle's* voyage, he simply by-passed the Cape on the way from Mauritius to St Helena; in *On the Origin of Species* (1859),<sup>36,37</sup> fynbos attracted two obscure references while Darwin's *Autobiography* mentioned the Cape only as the place where he met Sir John Herschel.<sup>38</sup>

Why did the Cape have so little appeal to Darwin? First and foremost was his state of mind. The *Beagle* was on its final lap home, the crew had been restless since Tahiti, and Darwin's impressions of New Zealand and Australia were scarcely more favourable than those of the Cape. He was stale and homesick. Smelling the decaying oak leaves while driving through Wynberg on his way to Cape Town on Wednesday 1 June, he remembered the English autumn and longed for 'the country of countries'.<sup>39</sup> From St Helena he wrote to Henslow: 'No schoolboys ever sung the half sentimental and half jovial strain of 'dulce domum' [*sweet home*] with more fervour, than we all feel inclined to do'.<sup>40</sup> The Cape also held disappointments. All the way from the Kokos (Keeling) Islands, the crew was looking forward to catch up with the mail which failed to reach them in Australia. They had to settle for a small parcel of twelve letters addressed specifically to Cape Town, of which only one was directed to Darwin.<sup>41</sup> Given this mindset, Darwin's homework on the Cape was suspect. Of the books in the *Beagle's* library from which he made notes, only one specialized on the Cape Colony, namely, Burchell's *Travels in the Interior of Southern Africa* (1821). Darwin seemed to have thought that by crossing the Franschoek Mountains he would reach the semi-arid interior to observe the vast herds of game

which so fascinated Burchell.<sup>42</sup>

Secondly, while Darwin was probing into the world of science, the Cape of the 1830s was no longer a *terra incognita* and he lacked the time to discover new features. 'It is a most dangerous task', he noted cautiously from Mauritius, 'to publish accounts of parts of the world which have been so frequently visited'.<sup>43</sup> Between the 1690s and 1810s, a whole line of observant travellers, from William Dampier to Johann Reinhold Forster and Abel Clarke, called at the Cape on their way to and from the East, while others, such as De la Caille, Sparrman, Barrow, Lichtenstein and Burchell, stayed longer and learned more. Moreover the Cape was geologically old and stable with none of the young tell-tale features which made Patagonia, Tierra del Fuego, the Cordillera and the Galápagos Islands so fascinating. Early 19th-century travellers had a taste for the exotic, and Darwin was no exception: the Cape was simply too ordinary. The complex fynbos vegetation might have caught his fancy, but botany was the one field science where the young Darwin, in contrast to the mature Darwin, felt himself deficient. 'I know no more about the plants which I had collected than the Man in the Moon', he admitted ruefully to a botanist shortly after his arrival back in England.<sup>44</sup>

Finally, just as today, not everyone in the 1830s thought the Cape attractive. Darwin's appreciation of landscapes seemed to have polarized towards two extremes. On the one hand, he was overwhelmed by the sublimity of the primeval South American forests, 'whether those of Brazil, where the power of life is predominant, or those of Tierra del Fuego, where death prevails'.<sup>45</sup> But, as a Shropshire lad, Darwin also esteemed the well-ordered English countryside: the rural idyll of tree-lined avenues, green meadows and enclosed fields worked by an industrious yeomanry. The Cape landscapes of the 1830s fitted neither of these visions: the scrubby mountain slopes were bare without the present plantations and exotics, the uplands were unfenced grazing and the valleys patchily cultivated. Unruly hedges of thorn, quince and agaves protected the blotches of cropland and cultivated vineyards against wandering stock. Most Cape-Dutch homesteads of the Berg River valley were built during the 1810s and 1820s, but they were spaced three to five kilometres apart; the sheltering oaks of today were still saplings and the farmyards were trampled by draught animals. They seemed incongruous and not yet woven into the cultural landscape.

'The white houses', Darwin observed, 'stand out as if picked out of a street and then by chance dropped in the open country'.<sup>46</sup> And while Darwin was not above harsh superlatives when dismissing an unpleasant sight, most 19th-century visitors shared his perception of the Rûens. Even the mild-mannered Bishop Latrobe, on his way to Genadendal in 1816, thought the area dreary, comfortless and scorching 'because (it) is not clothed with the rich verdure and plantations with which our English vallies [sic] and the ascent of our hills abound'.<sup>47</sup>

### Granite and gradualism

Darwin's reticence about the Cape did not mean that he saw nothing of scientific interest. Through his association with the geologists Jameson in Edinburgh and Sedgwick in Cambridge, he was very much aware of the controversy between the 'neptunists', who interpreted granite as a chemical precipitate in a primeval ocean, and the 'plutonists', who saw it as an igneous rock which solidified from a hot, fluid magma. At all the *Beagle's* landfalls — northeastern Brazil, southern Chile and western Australia — Darwin displayed a more than passing interest in granite. 'Granite to the Geologist is classical ground,' he observed at Cape Tremontes in southern Chile in December 1834, 'and has given rise to more discussion concerning its origin than that of any other rock formation. We see it generally as the fundamental rock, however formed ..., the deepest layer in the crust to which man is able to penetrate'.<sup>48</sup>

Lyell, Darwin's mentor in geological matters, was a confirmed plutonist and the third volume of *Principles of Geology*, where he argued his case, reached the *Beagle* in the Falklands in May 1834. One of Lyell's pieces of evidence in favour of plutonism was a sketch by Captain Basil Hall, made in 1813, showing granite veins intruded into slates at what was probably Platteklouf Gorge, along the plinth of the Table Mountain amphitheatre. Hall's work was presented to the Royal Society of Edinburgh in a lecture by John Playfair and hailed as an *instantia crucis*, the crucial confirmation of the plutonist theory. 'I know not,' Playfair told his audience, 'that we have ever before had an example of a fact which so directly ascertains ... that granite does not derive its origin from an aqueous disposition'.<sup>49</sup> Three years later, Playfair's views were echoed by Abel Clarke, who inspected the much more extensive granite-slate contacts on an exposed wave platform along the Green (today Sea) Point coastline. 'The leading

feature stamped on all the facts', Clarke concluded, 'is exceeding commotion at the period of mixture of the two formations. To conceive that they were deposited in a period of rest (as the neptunists would have it), seems to me impossible for any one crediting the evidence of the senses'.<sup>50</sup>

Arriving at the Cape and aware of Lyell's reference to Hall, Darwin must have enquired about granite outcrops and was probably directed to the Paarl pluton by Herschel, who scaled the highest of its three domes, today known as Brittany Rock, only five months earlier.<sup>51</sup> Darwin rode from Cape Town to Paarl on Saturday 4 June 1836, a trip of approximately six and a half hours, and probably only had time to climb Paarl Rock, the dome closest to the village. He marvelled at the core stones at the top, but his brief notes contained little site-related detail:

At the village of Paarle [sic] there are some extraordinary fine examples of loose balls of enormous size lying on the summits of the base of mammiform hills of granite. Parallel and vertical fissures cross the mountains in directions at right angles to each other. They now seem of various widths and it would appear that the great balls are only the remnants of the vertical masses. Besides the general decomposition, circumscribed patches of granite yield to weather, much more readily than the adjoining parts ... It seems certain that no other cause than the quiet action of weather has removed the central parts.<sup>52</sup>

After returning to Cape Town on Tuesday 7 June, Darwin had more time available and was conducted by Dr Andrew Smith to the Cape Peninsula's prime geological site: the Sea Point granite-slate contacts. By 1836 the controversy between the neptunists and plutonists — an affair among British rather than Continental geologists — was already settled in favour of the plutonists<sup>53</sup> and Darwin could only provide a belated confirmation of an already closed issue. Nevertheless his interpretation of the site was thoroughly professional compared with his predecessors' and intentionally framed to disprove a rearguard opponent of plutonism. A German critic (Keilhau) reported exposures where cleavage planes in slate xenoliths embedded in granite maintained the same orientation as in the surrounding rocks, implying that an intrusive liquid would have swirled small xenoliths around. Darwin observed a similar consistency of cleavages at Sea Point, but argued that the xenoliths there might have been parts of a slate overmass 'worn down and denuded by erosion'.<sup>54</sup>

Darwin's descriptions of Cape granites

all but vanished in his vast oeuvre. The notes on Paarl Rock were never published and those on the Sea Point contacts shrunk to 'some brief notes' in *Geological Observations on Volcanic Islands* (1844). Nevertheless, phrases like 'the quiet action of weather' and 'worn down and denuded' reflected a clear shift from his Cambridge years. They were premised not on the cataclysms still postulated by the natural theologians of the 1830s, but on Lyell's gradualism, the notion that natural processes acted slowly and persistently over long periods of time. The idea that gradualism might also be a framework within which the myriad of organic forms observed during the voyage could be explained, was something on which Darwin was already mulling. Warned by his sister, Catherine, that extracts from his letters attracted attention, and ambitious to be meshed into the British network of science,<sup>55</sup> he kept his ideas to himself and bided his time to search for a more comprehensive explanatory framework. The problem was where?

### A true cause for organic diversity

According to conventional wisdom, Darwin was so overwhelmed by the richness in species at the Galápagos Islands that his thoughts inexorably turned to evolution. His personal notes, however, suggest that he grasped the significance of his zoological collections only when the taxonomic results became available, six months after the *Beagle's* return to England.<sup>56</sup> The notion of evolution, a term he seldom used, developed slowly and cautiously in Darwin's mind. He opened his notebook on 'the transmutation of species' (the so-called Notebook B) in July 1837<sup>57</sup> and started tracking a mechanism which could explain the gradual change of one species into another, while reading Malthus's *Principle of Population* in September 1838: the concept of natural selection brought about by the survival of the fittest. After further pondering, Darwin systematized his ideas in a sketch completed in 1842 and in a more comprehensive essay in 1844. Neither of these drafts was published but they were precursors to *On the Origin of Species*, and carried the intellectual imprint of one man more than anyone else apart from Darwin himself. That person was Sir John Herschel.<sup>58-61</sup>

Darwin's link with Herschel went back to January 1831, when he read the *Preliminary Discourse*. However, when embarking on the *Beagle*, his role model was not Herschel but Alexander von Humboldt. From this intrepid traveller Darwin

learned to observe, describe, collect and explain, but in his relentless search for causes he was willing to go beyond his mentor. While Von Humboldt was a more robust and wider-ranging observer, his explanations were *ad hoc* expositions and his 'unity-in-diversity' as much a philosophical as a scientific position.<sup>62</sup> The form that scientific explanation should take was first suggested to Darwin by Herschel's *Preliminary Discourse* and later confirmed by William Whewell,<sup>63</sup> who arrived at a similar conclusion from different premises.<sup>60</sup> As a follower of Newton, Herschel believed in a universe ruled by law and distinguished between 'lower' empirical laws and 'higher' fundamental laws which demonstrated causes. The scientist, Herschel<sup>64</sup> urged, should look for a *vera causa*, one all-encompassing and sufficient true cause which explained the phenomena observed and could be extended to explain and anticipate new phenomena outside the scientist's original purview. Moreover, a true cause should be 'recognized as having a real existence in nature and not merely being hypotheses or figures of the mind'.

Meeting Herschel personally at Cape Town gave direction to Darwin's searching thoughts. Herschel had himself encountered the richness of organic forms. After moving in at Feldhausen in May 1834, he cleared the nook between the northwest and northeast avenues of the estate for a garden of fynbos bulbs. He was fascinated by the close similarities among the different species of *watsonia*, *gladioli* and *babiana*, the different populations of the same species at different sites, the ever-changing colour mutations of flowers of the same species, and the threat of extinction hovering over some rare and highly restricted ones.<sup>65</sup> In a remarkably prescient letter, thanking Lyell for a complimentary copy of the fourth edition of the *Principles of Geology*, Herschel expressed admiration for Lyell's courage to face 'the mystery of mysteries, the replacement of extinct species by others'.<sup>66</sup> And, for a fleeting moment, he considered the possibility that the Creator might operate 'through a series of intermediate causes and that in consequence the origination of fresh species, could it ever become under our cognizance, would be found to be a natural in contradistinction to a miraculous process'.<sup>66</sup> The letter was dated 20 February 1836, hardly three months before Darwin's visit.

Darwin had one opportunity for in-depth discussion with Herschel and that was at Feldhausen during the afternoon



Fig. 4. Feldhausen, where the Herschels received Darwin and FitzRoy on the evening of 15 June 1836. (Source: Herschel Album no. 2, South African National Library.)

and evening of Wednesday 15 June 1836, a showery winter's day (Fig. 4). In his diary Herschel noted: 'Capt F and Mr D came at 4 and we walked together up to Newlands'.<sup>67</sup> No one would ever know to what extent he shared his thoughts with Darwin and FitzRoy as they returned along the northeastern avenue back to Feldhausen, but it is highly unlikely that he limited himself to social trivialities. After all, he did show Darwin and FitzRoy the 'pretty garden full of Cape bulbs of his own collecting' and, while geology was their most important area of discussion, the conversation also veered to the problem of explanation.<sup>68</sup> Back in England Darwin reread the *Preliminary Discourse* in July 1837 just when he started scribbling in his 'transmutation of species' notebook. A year later, after perusing Herschel's Lyell letter in print, Darwin jotted down in Notebook E: 'Herschel calls the appearance of new species, the mystery of mysteries & has a grand passage on the problem'.<sup>69</sup> Eventually, the very title of Darwin's book, *On the Origin of Species*, was a re-rendering of the phrase Herschel wrote down at the Cape 22 years before, the expression 'that mystery of mysteries' resurfaced in its first paragraph and its author was hailed as '... one of the greatest of our philosophers'.<sup>70</sup> In 1859, when Herschel was strangely dismissive of natural selection, Darwin took it as 'a great blow and discouragement' and later wrote Herschel a less than charitable response to his book, *Physical Geography*. Fifteen years afterwards, nevertheless, as Darwin was reminiscing in his *Autobiography* about eminent acquaintances outside his immediate circle of friends, he put Sir John's name first and specifically within the context of Feldhausen:

I felt a high reverence for Sir J Herschel, and was delighted to dine with him at his charming house at the Cape of Good Hope and afterwards at his London House .... He never talked much, but every word he uttered was worth listening to.<sup>71</sup>

Although Darwin was not impressed with the Cape, the journey there might have played a more important role in the development of his ideas than most commentators have considered. The *Beagle* dropped anchor at Simon's Bay just as Darwin's thoughts were turning from observation and description to explanation. From Mauritius he shared his anxiety about the new approach with his sister Caroline:

I am just beginning to discover the difficulty of expressing one's ideas on paper. As long as it consists only of description, it is pretty easy; but where reasoning comes into play, to make a proper connection ... is ... a difficulty of which I had no idea.<sup>72</sup>

At a critical stage of Darwin's thinking, Herschel reminded him, perhaps indirectly, that the best way to establish a proper connection among facts was by explanation and that a true cause should be able to explain both granite landforms and the diversity of fynbos bulbs. The most recent biographies of Darwin do not ignore the Herschel connection,<sup>73,74</sup> but they miss the importance of Cape Town as a place of encounter. Meeting the author of one of his anchor books 8500 km from home and being drawn into discussion by a person who, *on account of his Cape experience*, was wondering over the same questions as Darwin did, could not but have inspired the young scientist.

## Epilogue

Ironically, Darwin's visit to the Cape had a more immediate sequel than his long gestation on evolution. The *Beagle's* call came a year after the conclusion of the Sixth Frontier War, just as the British Minister of Colonies, under pressure from the missionary lobby, overturned Governor Sir Benjamin D'Urban's frontier arrangements. The British officials at the Cape felt snubbed and in the colony's eastern district, the Boers, convinced that Exeter Hall was seeking their ruin 'under the cloak of religion', prepared for their Great Trek to the north. In the eyes of white colonial society the missionaries were the culprits, a judgement which the Herschels rejected. With the missionary activists Philip and Fairbairn regular visitors at Feldhausen, their group saw themselves, in the words of Lady Herschel, as members of that 'mournful minority at the Cape' who guarded the dictates of humanity and justice.<sup>75</sup> FitzRoy and Darwin must have heard the arguments during their Cape dinners and, having seen what they regarded as the blessings of missionary work in Tahiti and New

Zealand, had no hesitation about where they stood. Across the mess table during the voyage to St Helena, they decided to take up the sword for the Gospel and sent extracts from their Pacific diaries to the *South African Christian Recorder*, an obscure and short-lived journal which published the text in September 1836.<sup>76</sup> This was the first manuscript Darwin intentionally submitted for publication and a fitting milestone for someone who, in his Cambridge days, considered becoming a country parson and in his old age was accused of subverting religion and morality.

I gratefully acknowledge the South African National Library and Cambridge University Library for the illustrations used in this paper. Correspondence on the proclamation of the Sea Point granite-slate contacts as a national monument was made available by the South African Heritage Resources Agency. Finally, I wish to thank my colleagues, Mike Cherry, Gordon Pirie and Wilhelm Verwoerd, for their comments on the manuscript. They are not responsible for its shortcomings.

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16. Desmond A. and Moore J. (1992), *op. cit.*, 131. Darwin's diary eventually comprised 751 written pages among which the section of ten pages covering the Cape Colony represents a rather minuscule part. In the course of the voyage as a whole, Darwin made 1383 pages of notes on geology and 369 pages on zoology. He also bottled 1529 species in spirits and labelled 3907 skeleton, fossil, botanical and rock specimens.
17. For example, see Moorehead A. (1969). *Darwin and the Beagle*. Hamish Hamilton, London. Moorehead (p. 240) dismisses the Cape visit in just eight words: '... [T]hey put in only briefly at Cape Town'. The following two studies ignore it completely: Darwin Sir Charles (1960). 'Darwin as a traveler', *Geographical Journal* 126, 129–139, and Huxley J. and Kettlewell J.B.D. *Charles Darwin and his World*. Thames and Hudson, London.
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31. *Ibid.*, p. 324.
32. Keynes R.D. (Ed.) (1988), *op. cit.*, p. 425.
33. *Ibid.*, p. 426.
34. Darwin C.R. (1844). *Geological Observations on Volcanic Islands visited during the Voyage of the Beagle, together with some Brief Notes on the Geology of Australia and the Cape of Good Hope*. Ward Lock, London.
35. Darwin C.R. (1839). *Journal of Researches into the Geology and Natural History of the Various Countries visited by HMS Beagle*. Henry Colburn, London.
36. Darwin C.R. (1859). *On the Origin of Species*. John Murray, London.
37. *On the Origin of Species* was, of course, a condensed version of a longer manuscript on which Darwin was working between 1856 and 1858. Published in 1987 as *Charles Darwin's Natural Selection* (Stauffer R.L., Cambridge University Press, Cambridge), the manuscript contained nine references to the Cape Colony, including one substantial paragraph (p. 552) on possible fynbos migration.
38. Barlow N. (1958). *The Autobiography of Charles Darwin*. Collins, London.
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43. Burkhardt F. and Smith S. (Eds) (1985), *op. cit.*, vol. 1, p. 496.
44. Desmond A. and Moore J. (1992), *op. cit.*, p. 205.
45. Keynes R.D. (Ed.) (1985), *op. cit.*, p. 444.
46. *Ibid.*, p. 425.
47. Latrobe C.I. (1969). *Journal of a Visit to South Africa in 1815 and 1816 with Some Accounts of the Missionary Settlements of the United Brethren near the Cape of Good Hope*, p. 38. Facsimile edition, 1818 original. Struik, Cape Town.
48. Keynes R.D. (Ed.) (1985), *op. cit.*, p. 277.
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51. Evans et al. (Eds.) (1969), *op. cit.*, pp. 210–213.
52. Armstrong P. (1999), *op. cit.*, p. 50.
53. Hallam A. (1983). *Great Geological Controversies*. Oxford University Press, Oxford.
54. Darwin C.R. (1844), *op. cit.*, p. 264. Because of its juxtaposed slate, hornfels, migmatite and granite, the Sea Point site eventually became important in its own right and its exposed structures were the focus of some excellent 20th century geological studies. Nevertheless, it was the name of Darwin which persuaded the Cape Town City Council to protect the site and lobby for its proclamation as a national monument in 1952.
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67. Evans et al. (Eds) (1969), *op. cit.*, p. 242.
68. Burkhardt F. and Smith S. (Eds) (1985), *op. cit.*, vol. 4, pp. 65, 319. Both Darwin and Herschel recorded the get-together of 15 June 1836 in their diaries but neither mentioned a discussion on matters of science. Fourteen years later, in a letter to Lyell on 8 March 1850, Darwin recalled: 'I heard Sir John Herschel at the Cape say how he wished someone could treat language as you had treated Geology and study the existing causes for change and apply deductions to the study of old languages'. With the road to Newlands skirting the bulb garden and dinner at 6 pm, 15 June was probably the day during which such a topic was broached. Darwin, however, saw Herschel also at one or two other occasions.
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70. Darwin C.R. (1859), *op. cit.*, p. 1.
71. Barlow N. (1958), *op. cit.*, p. 107.
72. Burkhardt F. and Smith S. (Eds) (1985), *op. cit.*, vol. 1, p. 495.
73. Desmond A. and Moore J. (1992), *op. cit.*, pp. 214–216.
74. Browne J. (1995), *op. cit.*, pp. 328–331.
75. Evans et al. (Eds) (1969), *op. cit.*, p. 72.
76. FitzRoy R. and Darwin C.R. (1836). A letter containing remarks on the moral state of Tahiti, New Zealand, etc. *South African Christian Recorder* 2(4), 311–343.