

From Humboldt to Darwin: Influence and Evolution

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The consideration of Humboldt's influence on Darwin's beginnings as a scientific explorer leads to a period before 1838, the time before Darwin's discovery of Thomas Malthus's *Principles of Population*. Malthus helped Darwin eventually to formulate the concept of natural selection and to reflect in earnest about a theory of evolution. Although never totally absent, after this time, Humboldt's direct influence receded. The period 1838–1839 is a turning point in Darwin's scientific career in more than one respect. This was the time when he published his *Journal of Researches* (also *Diary of the Voyage of H.M.S. Beagle*), generally known as the diary of the Beagle. Darwin immediately sent one copy of the diary to Humboldt, and Humboldt's reaction to it and Darwin's assessment of Humboldt's importance to him at that time provides insight into Humboldt's contribution to Darwin's development.

Darwin traveled for five years on the Beagle. Although he circled the world, he spent most of this time on the coasts of South America. Humboldt's American travels also took five years, but they involved exploration primarily on land. Comparison of their published journals reveals a complementary situation. Humboldt's strength lay in the areas of botany, anthropology, and cartography. Darwin had current knowledge in zoology and geology. In those areas in which Darwin lacked expertise were ones he could learn from in Humboldt's *Personal Narrative of Travels*, the inspiration for him to undertake his famous voyage. In his autobiography Darwin recalled this important event:

During my last year at Cambridge I read with care and profound interest Humboldt's *Personal Narrative*. . . . I copied out from Humboldt long passages about Tenerife, and read them aloud on one of the above-mentioned excursions, to (I think) Henslow, Ramsay and Dawes; for on a previous occasion I had talked about the glories of Tenerife, and some of the party declared they would endeavour to go there; but I think that they were only half in earnest. I was, however, quite in earnest, and got an introduction to a merchant in London to enquire about ships; but the scheme was of course knocked on the head by the voyage of the *Beagle*.¹

Darwin wrote to his sister:

My Dear Caroline, . . . about the Tropics: in the morning I go and gaze at Palm trees in the hot-house and come home and read Humboldt: my enthusiasm is so great that I cannot hardly sit still on my chair. Henslow & other Dons give us great credit for our plan: Henslow promised to cram me in geology. I never will be easy till I see the peak of Tenerife and the great Dragon tree; sandy, dazzling, plains, and gloomy silent forest are alternately uppermost in my mind.²

It appeared at first that no ship was available for an exploration of Tenerife, but soon Darwin's efforts to arrange a trip there received a boost when an extraordinary, alternative opportunity arose to become a companion to a British navy captain, Robert FitzRoy, on a surveying mission around the world.³ This was the option of the famous Beagle journey, and Darwin did not hesitate. His Cambridge mentor and friend, John Stevens Henslow, purchased the seven-volume set of Humboldt's *Personal Narrative* as

a gift,⁴ and Darwin wasted no time asking Capt. FitzRoy whether he could bring this valuable treasure along.⁵

During the first leg of his journey, Darwin suffered greatly from seasickness. When he felt up to it, he consoled himself by reading Humboldt. Ironically, Darwin never landed on Tenerife, the original goal of his trip. The fear of cholera imposed a quarantine on the *Beagle* so the ship was unable to land. In Brazil, Darwin had a chance to test the justify Humboldt's enthusiastic reaction to the tropical forests of South America. He saw the new landscapes through the prism of Humboldt's narrative.

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 on tropical scenery, with all this falls far short of the truth. The delight one experiences in such times bewilders the mind; if the eye attempts to follow the flight of a gaudy butter-fly, it is arrested by some strange tree or fruit; if watching an insect one forgets it in the stranger flower it is crawling over; if turning to admire the splendour of the scenery, the individual character of the foreground fixes the attention. The mind is a chaos of delight, 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 illumin[at]es everything I behold.⁶

From Brazil, Darwin wrote to his father about his impressions. To appreciate what he was experiencing, Charles advised his father to “*study* Humboldt.— Skip th[e] scientific parts . . .”⁷

Although Darwin feared that the copious scientific information, Humboldt's record of observations, might discourage his father, for Darwin the essential points of interest were the scientific parts that he asked his father to skip. He learned from Humboldt to take note of all new facts or conditions in the environment, whether in the realms of zoology, botany, geology, or in the broader social, political, and cultural contexts. Humboldt was for Darwin the greatest scientific explorer, and inspired him to record record all important data with precision. In this sense, he was a pioneer. He transcended disciplines.⁸ Darwin followed the narrative structure and high standards that Humboldt established.

Although Darwin appreciated the significance of Humboldt's obsession with accurate scientific data, he was also impressed by Humboldt's expression of emotion. In Humboldt's prose Darwin sensed the excitement in the discoveries of unforeseen aspects of nature. Despite his sister's reservations, Darwin learned from Humboldt that poetic sensibilities and the natural sciences were compatible.

References to Humboldt are frequent in the diary and the correspondence, and so it is no surprise to find that Humboldt's prose penetrated not only Darwin's way of viewing landscapes but also his writing style. Describing the beauty of the landscape was of great importance to Darwin, just as it was for Humboldt. The excessive admiration for Humboldt's prose descriptions did not please Darwin's sister, however. Caroline Darwin cautioned:

My dear Charles, . . . I have been reading with the greatest interest your journal & I found it very entertaining & interesting, your writing at the time gives such reality to your descriptions & brings every little incident before one with a force that no after account could do. I am very doubtful whether it is not *pert* in me to criticize, using merely my own judgment, for no one else of the family have yet read this last part—but I *will* say just what I think—I mean as to your style. I thought in the first part (of this last journal) that you had, probably from reading so much of Humboldt, got his phraseology & occasion[al]ly made use of the kind of flowery French expressions which he uses, instead of your own simple straight forward & far more agreeable style. I have no doubt you have without perceiving it got to embody your ideas in his poetical language & from his being a foreigner it does not sound unnatural in him— Remember, this criticism only applies to parts of your journal, the greatest part I liked exceedingly & could find no fault, & all of it I had the greatest pleasure reading—⁹

Humboldt was among the first to receive a complementary copy of the Beagle diary from the author. Humboldt responded in a letter, which had the character of an exhaustive review article. Darwin's Beagle diary and the accompanying letter contained unmistakable flattery for Humboldt who noted:

You told me in your kind letter that, when you were young, the manner in which I studied and depicted nature in the torrid zones contributed toward exciting in you the ardor and desire to travel in distant lands. Considering the importance of your work, Sir, this may be the greatest success that my humble work could bring. Works are of value only if they give rise to better ones. Moreover, Sir, with the illustrious name you bear, what inspiration you can draw from the reminder of scientific and literary achievements that make up a family's finest patrimony.¹⁰

Darwin's publication flattered Humboldt, who responded with flattery of his own. Nevertheless, his letter of over 2,000 words was clearly a serious consideration of the full range of Darwin's contribution. Humboldt understood that Darwin had been able to explore and observe areas that he, Humboldt, had not seen and could then report precisely:

You combine all the qualities I have indicated [strength of talent, solid and wide knowledge, and a felicitous literary disposition to describe what one feels and wishes to convey to the reader]. You have an excellent future ahead of you. Your work is remarkable for the number of new and ingenious observations on the geographical distribution of organisms, the physiognomy of plants, the geological structure of the earth's crust, the ancient oscillations, the influence of that unusual littoral climate which unites Cycads, hummingbirds, and parrots with forms found in Lapland, on the perpetually green and damp vegetation of *paramos*³ at sea level, on primeval bones, the possibility of feeding the great pachyderms in the absence of luxuriant vegetation, the ancient cohabitation of animals which are now separated by enormous distances, on the origin of coral islands and the marvelous uniformity of their progressive construction, on the phenomena of glaciers descending to the sea, on the frozen earth covered with plants, on the reason for the absence of forests, on the action of earthquakes and their effects on the surrounding air . . .

Darwin's Beagle diary was, in Humboldt's close reading, not only a narrative of a voyage to interest the lay reader; it was, above all, an instrument to advance science. Unlike Darwin's father, who had to be asked to ignore the scientific data, Humboldt obviously delighted in such details. Unaware of the questions of evolutionary theory that had begun to concern Darwin at this time, Humboldt recognized that the Beagle diary signaled a new era in science. At the age of seventy Humboldt realized that his contributions were being eclipsed; Darwin was the scientist of the future. Humboldt

wrote: “You see, Sir, that I like going over the principal points on which you have enlarged and corrected my views.”

Humboldt accepted Darwin’s accomplishments without any fear of any detrimental impact on his own. He reflected on a 1776 work by Reinhold Forster, which was groundbreaking science in its day, but was being discarded as poor in contemporary eyes. With this example, Humboldt conceded that Darwin’s work represented progress beyond his own. He admitted, in effect, that his science might not be good science for later generations.

Darwin’s biographer, Janet Browne, has pointed out how important Humboldt’s letter was for Darwin.

Darwin’s spirits soared. Reading and rereading the letter soothed away many of his hidden doubts, not so much about his scientific results, although it was good to have Humboldt’s detailed remarks and suggestions, nor really in relation to his writing style or the general approach to nature, which he could hardly change now. He understood the European tendency to exaggerate . . . he was passing a milestone—[he had] a sensation of having joined the inner circle of science, his views respected if not always accepted, his work valued as a contribution to the larger sphere he already moved in. He felt appreciated, and it was deeply pleasing.¹¹

Humboldt’s *Personal Narrative* and Darwin’s Beagle diary have much in common, in style, in structure, and in their attention to the strict demands of all relevant disciplines. Describing the beauty of the landscape was an essential element in the narratives that resulted from the voyages of exploration, but their ultimate interest was scientific insight. Darwin learned from Humboldt how to express the excitement of observing new landscapes and to create bridges to the record of scientific knowledge. Humboldt and Darwin understood that their findings complemented each other and therefore Darwin could continue to rely on Humboldt’s data throughout his life. The two explorers did not compete; their works reflected, instead, a joint venture between two generations to understand nature and to contribute to advancement in the sciences.

Notes

¹ *The Autobiography of Charles Darwin* (ed. Nora Barlow), London 1958, p. 107. A useful tool for identifying references to Humboldt in Darwin’s works, especially from the diary and individual writings, but not including the correspondence, was Internet edition of *The Works of Charles Darwin*, published by IntelLex Corporation, 2001. (The texts were verified on the basis of the Barrett/Freeman edition). See also the compilation of relevant texts at www.avhumboldt.net and other important literature on this topic: Frank W. Eggerton, „Humboldt and Darwin,“ *Journal of the History of Biology* 3 (1970): 325–60 and Paul H. Barrett and Alain F. Corcos, “A Letter from Alexander Humboldt to Charles Darwin,“ *Journal of the History of Medicine and Allied Sciences* 27:2 (1972): 159–72.

² 28 April 1831. *The Correspondence of Charles Darwin*, New York: Cambridge University Press, 1985, vol. I, 1821-1836, pp. 121–2.

³ 11 July 1831. *Correspondence*, vol. I, pp. 125–6.

⁴ 21 Sept 1831. Sandra Herbert, *The Red Notebook of Charles Darwin*, Ithaca, New York: Cornell University Press, 1980, p. 37.

⁵ 23 September 1831. *Correspondence*, vol. I, p. 167.

⁶ [February] 28th [1832]. *The Works of Charles Darwin*, edited by Paul H. Barrett & R.B. Freeman, (London: William Pickering, 1986), *Diary of the Voyage of H.M.S. Beagle*, vol. I, pp. 37–8.

⁷ February–1 March 1832, *Correspondence*, vol. I, pp. 201–5.

⁸ See letter to Hooker, August 6, 1881. F. Darwin, ed., *The Life and Letters of Charles Darwin*. New York, D. Appleton & Co., 1905, vol. II, pp. 422–4.

⁹ 28 October [1833]. *Correspondence*, vol. I, 1821–1836, p. 345.

¹⁰ Humboldt was referring to a work by the grandfather, Erasmus Darwin and his work on evolution. He continued: “My antediluvian piece 'on the excitation of nervous fiber' frequently attests how much I owe to the poetic author of *Zoonomia*, who proved that profound affinity with nature and an imagination that was not dreamy but powerful and productive, enlarge in superior men the realm of understanding.” Sans Souci, near Potsdam, 18 September 1839. *Correspondence*, vol. II, pp. 425–9.

¹¹ Janet Browne, *Charles Darwin: Voyaging* (Princeton: Princeton University Press, 1996), p. 417.