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Text of paper:

**From Alexander von Humboldt to Charles Darwin:
Evolution in Observation and Interpretation**

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Work on a digital library of the works of Alexander von Humboldt, a joint project of the University of Kansas and the Technical University of Offenburg, naturally raised the question whether such a library should not have links to the authors and works Humboldt’s books influenced. For Humboldt, who was one of the most influential writers of his time, this is no small task. His influence is apparent everywhere and in every discipline. During the first phase of the work on the digital library (1999 to the present) the focus had been on the scanning and digitizing of documents, specifically all translations into English of Humboldt’s works on the Americas. This work, covering fourteen volumes, is now complete and accessible on the Internet (www.avhumboldt.net). Although Humboldt’s influence appeared as a prominent topic frequently, we could give it only limited attention. Our Web Site allows our users, nevertheless, to investigate texts and images that reflect Humboldt’s impact on the anti-slavery movement in the United States, on the landscape art of Frederick Edwin Church, the persons in the circle of Thomas Jefferson in Washington, and the life and career of Charles Darwin.

Our collection of passages in Darwin’s writings with specific references to Humboldt has turned out to be extensive beyond expectations. This record shows that Humboldt was a force throughout Darwin’s life and scientific career. The purpose of this brief essay is only to consider direct influences on Darwin’s beginnings as a scientific explorer. The focus is, as a result, on Darwin before his discovery of Thomas Malthus’s *Principles of Population*, a work that Darwin read in 1838. That work influenced him profoundly. It helped him formulate the concept of natural selection and reflect in earnest about a theory of evolution. After the 1830s Humboldt’s direct influence receded, though it was never totally absent.

Darwin traveled for five years on the Beagle, circling the world, but spending most of this time on the coasts of South America. Humboldt’s American travels also took five years and involved exploration mainly on land. The comparison of their published journals reveals a complementary situation. Humboldt’s strength was in the areas of botany, anthropology, and

cartography. Darwin had current knowledge in zoology and geology. Those areas that Darwin could not cover were ones he could learn about in Humboldt’s *Personal Narrative of Travels*. This work inspired Darwin to undertake his famous voyage in the first place. In his autobiography Darwin recalled this important event in his life.

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 Teneriffe, 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 Teneriffe, 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*. (Autobiography 107)

Darwin wrote to his sister on 28 April 1831:

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 Teneriffe and the great Dragon tree; sandy, dazzling, plains, and gloomy silent forest are alternately uppermost in my mind. (Correspondence I, 120–121)

It turned out that there no ship was available for an exploration of Teneriffe, but soon Darwin’s efforts to arrange a trip there (11 July 1831, Great Dragon tree) received a boost when an extraordinary, alternate opportunity arose to become a companion for a British navy captain, Captain Fitzroy, on a surveying mission around the world. 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, and Darwin wasted no time to learn from Captain Fitzroy (23 September 1831) whether he could bring this valuable treasure along. (Correspondence I, 157)

Darwin suffered greatly from seasickness, but when he felt up to it, he consoled himself by reading Humboldt. Ironically, Humboldt never landed on Teneriffe, the original goal of his trip. The fear of cholera imposed a quarantine on the *Beagle* so that the ship was unable to land. In Brazil Darwin had a chance to test the justification for Humboldt’s enthusiastic reaction to the tropical forests of South America. Darwin saw the new landscapes only through the prism of Humboldt’s narrative.

[February] 28th [1832] 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 butterfly, 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. (Beagle Diary I, 137–138)

From Brazil, Darwin wrote about his impressions to his father (February—1 March 1832). To appreciate what he was experiencing Darwin in the tropics Darwin advised him to “*study* Humboldt. — Skip th<e> scientific parts . . .” (Correspondence I, 201–205).

References to Humboldt are frequent in the diary and the correspondence, and it is no surprise to find that Humboldt’s prose penetrated not only Darwin’s way of seeing landscapes but also his style of writing in every respect. Describing the beauty of the landscape was of great importance to Darwin, just as it was for Humboldt. Humboldt’s ability to do so convincingly served as a model. The excessive admiration for Humboldt’s prose descriptions did not please Darwin’s sister’s, however. Caroline Darwin (28 October [1833]) 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— (Correspondence I, 345).

If Darwin feared that the scientific data, of which Humboldt’s narrative was full, might discourage his father, such digressions, often made by Humboldt in recording precise observations, were for Darwin the essential points of interest. He learned from Humboldt to take note of all new facts or conditions in the environment, be they in the realms of zoology, botany, geology, or in the broader social, political, and cultural worlds. Humboldt was for him the greatest scientific explorer (letter to Hooker, August 6, 1881), and that meant that he made a precise record of all important data. In this sense he was a pioneer. He transcended disciplines. Darwin followed the narrative structure and high standards that Humboldt established.

In 1839 Darwin published his *Journal of Researches* (also *Diary of the Voyage of H.M.S. Beagle*). Humboldt was among the first to receive a complementary copy from the author, and his reaction to this work, which reflects in numerous passages Humboldt’s importance, gives a good sense of what Humboldt contributed to Darwin’s development.

Humboldt’s response came in the form of a letter (Sans Souci, near Potsdam, 18 September 1839. Correspondence II, 245–249). It had the character of an exhaustive review article. On the one hand, Darwin’s Beagle diary and the accompanying letter contained unmistakable flattery for Humboldt. Humboldt took note:

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. (H. referred to a work by the grandfather, Erasmus Darwin and his work on evolution-----“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.)

Darwin’s publication flattered Humboldt, and Humboldt responded with flattery of his own. Nevertheless, his letter of over 2,000 words was not just a game of flattery; it 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 what he had seen. He wrote:

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* 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. Without being aware of the questions of evolutionary theory that began 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, he realized, was the scientist of the future. He wrote:

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

Humboldt did not see Darwin’s accomplishments as competition. He reflected that a work by Reinhold Forster, published in 1776, was groundbreaking science in his 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 to 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. (Browne 416–417)

If we consider two works side by side, Humboldt’s *Personal Narrative* and Darwin’s Beagle diary, we see that they 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 a bridge to the record of the scientific knowledge linked to those landscapes. The objects of Humboldt’s and Darwin’s observations were in different geographical locations, but this did not mean competition. They understood that their findings complemented each other. That explains why Darwin could continue to rely on Humboldt’s data throughout his life. They did not compete; their works reflected, instead, a joint venture between two generations to understand nature and to contribute to advance in the sciences.

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