

**Andrea Wulf**

*The Invention of Nature: Alexander von Humboldt's New World.* New York: Knopf, 2015, 496 pages, ill., ISBN: 978-0385350662

Alexander von Humboldt dedicated 70 years of his long life (1769–1859) to science and its dissemination and became the most popular scientist of the 19th century. His name is recorded everywhere: plants and animals are named after him, of course, but also places (on the Moon, too: the Mare Humboldtianum), towns, and natural phenomena (like a geyser in Ecuador and the Humboldt Current in the Pacific Ocean). His life was defined by his extraordinary expedition through the Americas (1799–1804) and his explorations brought back to Europe not only new substantial findings in botanic, zoology, meteorology, and geology, but above all a completely new way to look at nature and at the place of humanity in nature. He introduced the notions of isotherms, climate zones, and plant distribution, but even more important was his study on the extensive and substantial interconnections among natural phenomena, the environment, and the presence of living organisms. He was “the first scientist to talk about harmful human-induced climate change” (p. 5) and promoted the establishing of a “comparative climatology” to understand climate change on a global scale (p. 178).

The main thesis of this new biography is that Humboldt contributed to transform the traditional notion of nature as something separated from humanity and its culture into a holistic and ecological view – an absolute novelty that has moulded contemporary Western civilisation. Today most of the ecologists and environmentalists rely on Humboldt's views *unknowingly* (p. 7): this is one of the reasons why Wulf presents a detailed portrait of Humboldt's life and scientific achievements together with an extensive reading of his legacy in the enterprises of Simón Bolívar, Charles Darwin, Ernst Haeckel, Henry David Thoreau, George Perkins Marsh, and John Muir. The strategy is to show Humboldt's contribution to the rise of ecology not simply by assessing his work and writings, but also through the sketches of the leading figures – Thoreau, Marsh, and Muir – who introduced the new way to look at nature into the American culture in the second half of the 19th century. The chapters dedicated to them emphasise the presence of Humboldt's books in their libraries, the many references to him in their writings, and the role of his ideas in forging their views on nature and its preservation. Those chapters are also an occasion to discuss once again the political impact of Humboldt's notion of nature. Even if in different ways, Marsh and Muir were proposing a political agenda to counter the worst effects of industrialisation – like deforestation, pollution, and endangering species.

The chapters dedicated to Darwin and Haeckel have the same purpose, but with reference to the evolutionary theory that has drastically reshaped our culture since 1859. On evolution, Wulf is quite certain: Humboldt expressed “evolutionary ideas” (p. 132) that were “precursors to Darwin’s evolutionary theory” (p. 243) in *Ansichten der Natur* (1808) as well as in *Kosmos* (1845). Both Darwin and Haeckel developed their major contributions on evolution from the Humboldtian perspective of the unity of knowledge that reflects the unity of nature. The case of Darwin is described as paradigmatic: the voyage on the *Beagle* was intended by the young naturalist as a Humboldtian enterprise and his observations and findings were calibrated according to the views of the German naturalist. Haeckel was the scientist who invented the term “ecology” – thus baptizing “Humboldt’s discipline” and all the notions he had assembled (p. 307) – but also his love for nature and its beauty, which at first he infused in his drawings and paintings on Radiolarian (1862), is interpreted as inspired by Humboldt.

The importance of the visualisation of science in Humboldt’s research is another theme this biography emphasises. It manifests the connection with the Romantic circle of intellectuals in Jena in the last decade of the 18th century, when Humboldt often went to Jena to meet Goethe. Wulf underlines that Humboldt’s innovative way to study nature following a holistic, non-disciplinary approach was forged by the frequentation of Goethe and the reading of Schelling. They were the main intellectual sources of the notion of scientific knowledge as something that is not arid but vivid for imagination, aiming to comprehend nature in her unity. It is also important to remind that Humboldt and Goethe became close acquaintances before the former left Europe and their friendship lasted forever. Goethe was always eager to read Humboldt’s works and Humboldt dedicated to Goethe – the author of the *Die Metamorphose der Pflanzen* (1790) – his *Essai sur la géographie des plantes* (1807).

Humboldt was not only a great scientist but also a relentless advocate of research – thus having enormous impact on scientists and institutions. There are many descriptions of his outstanding presence in both salons and academies, his role as mentor and supporter of young researchers, and his febrile activity as promoter of scientific enterprises – like the Congress of the German scientists, held in Berlin in September 1828. The enormous quantity of letters he wrote during his long life (around 50,000) is amazing evidence of his leading role in the scientific world. And, of course, there were his publications: translated in dozens of languages, they conjugated scientific rigour and compelling narrative, raw data and vivid imagery, in a poetical prose that instilled curiosity and passion for science.

Humboldt had always been a scientist with strong political views. During his voyage in South America he observed not only nature but also towns, farms, agriculture – in general how people organised their lives according to nature and culture. Thus he developed strong concerns about slavery and insisted that only democracy in an agrarian economics could both promote social progress and preserve nature – while autocracy and colonialism were the main sources of human misery and destruction of nature.

Wulf emphasises the importance of Humboldt's political ideas and provides an account of their formation during the American voyage and the encounter with Thomas Jefferson in June 1804. She exemplifies how some experiences during the voyage induced Humboldt “to relate colonialism to the devastation of the environment” (p. 105) and specifies how those experiences were transformed in reflected notions during the meetings with Jefferson. By voicing these ideas in the books on Cuba and the other Spanish colonies in America (*Essai politique sur le royaume de la Nouvelle-Espagne*, 1811; *Essai politique sur l'île de Cuba*, 1826), he awaked Simón Bolívar's political passion and was widely acknowledged as a champion against absolutism and imperialism. Wulf suggests this probably was the reason why the East India Company repeatedly refused him a passport to visit the British colonies in Asia and explore the Himalayas – a refusal that deeply wounded Humboldt, eager as he was to compare the Himalayas with the Andes.

Wulf's biography of Humboldt deserves to be praised: it is not easy to distillate and describe with accuracy what is relevant in a prolific scientist like Humboldt. If a defect must be found, it is maybe in some residue of simplism in the presentation of Humboldt's published works. But the numerous references to and quotations from his writings (especially letters and diaries) give substance to the exposition and offer an entertaining reading experience. The editing, however, deserves a negative mark: it has left a bad mistake in some passages (p. 221, 231, 356) and in the index: Erasmus Darwin's *Zoonomia* is always mentioned as *Zoomania*.

*Marco Segala*  
University of L'Aquila  
*marco.segala@univaq.it*