

The Humboldt Paradox: Science, Communication and Mythology



Oliver Lubrich

“Wie gern möchte ich nur einmal Humboldten erzählen hören.”
 (“How much I would enjoy just once hearing Humboldt talk!”)

Johann Wolfgang von Goethe,
Die Wahlverwandtschaften
(*The Elective Affinities*, Goethe 1809)

“I read and re-read Humboldt.”
Darwin (1887)

Abstract The way in which we perceive an author or scientist is largely a result of their own communications. In the case of Alexander von Humboldt, his communications were so effective that they were counterproductive. The eminence of the researcher overshadowed his research, and the renown of the author reduced the resonance of his writings. It is rare to see such a great disparity between the fame of an author and the visibility of his written work. For many decades, Humboldt was celebrated more than he was read. There have been more statues than editions, more speeches than monographs. How did it come to this? How did Humboldt communicate his work in the public sphere? And how did he become a victim of his own communication and his own success?

Keywords Alexander von Humboldt · Communication of science · Public intellectual · Literary genres · Data visualisation · Epidemiology

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Introduction

Alexander von Humboldt's name is well known around the world, from Germany to Latin America, but only a few of his many books are widely read. *Ansichten der Natur* (*Views of Nature*) (1808, 1826, 1849) and *Kosmos* (*Cosmos*) (1845–1862) were bestsellers (Fiedler and Leitner 2000), but this was by no means the case for most of his other publications. The richly illustrated account of his American voyage, *Vues des Cordillères et monumens des peuples indigènes de l'Amérique* (*Views of the Cordilleras and Monuments of the Indigenous Peoples of America*) (1810–1813), one of his most attractive works and perhaps his most original, was so expensive due to its elaborate picture plates in folio format that only 600 copies were printed. No German edition was published until 200 years after the original (Lubrich and Ette 2004; Fiedler and Leitner 2000). The narrative of his expedition, *Relation historique du Voyage aux régions équinoxiales du Nouveau Continent* (*Personal Narrative of Travels to the Equinoctial Regions of the New Continent*) (1814–1831), is still not available as an unabridged German edition (Ette 1991; Beck 1997; Weigl 1992). Cuba has named a national park, a museum and a professorship after Humboldt, issued stamps with his picture and erected a statue of him in its capital city, but has only published one of his books—*Essai politique sur l'île de Cuba* (*Political Essay on the Island of Cuba*) (1826) (Ortiz 1930).

The impact that Humboldt made during his lifetime was due much more to the publication of numerous shorter articles, many of which were distributed through mainstream media with high circulation, than to his books. No less than 750 of his papers, articles and essays, together with their edits and translations, have been published in newspapers and magazines or in volumes produced by other authors and editors worldwide, making a total of at least 3600 versions. In *Cosmos*, Humboldt presented “the whole world in a book”, and he described it again in a completely different way in his essays, namely in a fragmented, mosaic-like manner as “the whole world in a thousand writings”. His shorter texts formed his other *Cosmos* (Lubrich and Nehrlich 2019b).

These shorter texts in particular were largely forgotten after Humboldt's death, and only five per cent of them have been reprinted posthumously. It was not until the 250th anniversary of Humboldt's birth, in 2019, that they were brought together and published in a collection of his *Complete Writings* (*Sämtliche Schriften*) (Lubrich and Nehrlich 2019a; Brönnimann 2019; Lubrich 2019a, 2020).¹

¹ Collaborators for Lubrich and Nehrlich (2019): Sarah Bärtschi, Michael Strobl, co-editors: Yvonne Wübben (volume I: texts 1789–1799), Rex Clark (volume II: texts 1800–1809), Jobst Welge (volume III: texts 1810–1819), Norbert Wernicke (volume IV: texts 1820–1829), Bernhard Metz (volume V: texts 1830–1839), Jutta Müller-Tamm (volume VI: texts 1840–1849), Joachim Eibach (volume VII: texts 1850–1859); sub-editors: Norbert Wernicke (volume VIII: apparatus), Corinna Fiedler (volume IX: translations), Johannes Görbert (volume X: research). www.humboldt.unibe.ch.

As a result, we now have the opportunity to reconstruct Humboldt's publication record and scientific journalism over a period of seven decades (1789–1859). The numerous contributions that he published across various media rather than in book form are particularly valuable in helping us understand how Humboldt communicated his research to different audiences. He made use of a variety of strategies, which he changed over time and according to his target groups, and his communications had far-reaching consequences.

Multilingualism and Internationality

Humboldt communicated in many languages right from the start. The first of his writings was published in French (Humboldt 1789, in Berlin), the second in German (Humboldt 1790a, in Leipzig) and the third in Latin (Humboldt 1790b, in Zurich) (see Humboldt, *Sämtliche Schriften*, volume I in Lubrich and Nehrlich 2019a). Since Latin had by then largely lost its status as the language of science and its use was restricted to descriptive natural history, it only featured to a minor extent in Humboldt's corpus. Although his books about his American expedition (1799–1804) were mostly written in French and published in Paris (Lubrich 2009),² his shorter writings, aimed at a wider readership, were mostly written in German.

Humboldt's work has been widely translated and has appeared in 15 languages altogether; the original texts in German, French and Latin have been translated into English, Spanish, Portuguese, Italian, Dutch, Danish, Norwegian, Swedish, Polish, Russian, Hungarian and Hebrew (Lubrich and Nehrlich 2019c). Of these, the English language has, perhaps surprisingly, been particularly significant, with 250 of his texts published as English translations during his lifetime and some even appearing in multiple versions, facilitated by a relatively free press in the United States and Great Britain.

It is not always possible to distinguish with certainty between Humboldt's targeted publications and his autonomous circulations. Some of his writings were also distributed, acquired, reprinted, extracted or translated without his knowledge, and some appeared in languages that he did not even speak himself, such as Hungarian and Polish.

It, therefore, took some time to reassemble and reissue his publications after his death. Their widespread distribution made their collection and exploration significantly more challenging. Prior to 2019, some 80% of the 3600 publications in the *Complete Writings* had not even been recorded or referenced bibliographically (Bisky 2019).

The internationality and multilingualism of Humboldt's publications were in part programmatic, with science being understood as an interaction that is not restricted

² Twice as many of his books appeared in French as in German.

to major centres of research but is potentially unbounded. Humboldt did not in any way limit himself to European academies but rather addressed an international audience.

The dissemination of his writings reflected the author's destinations and expeditions, as well as his personal networks, so that following his major voyages through the Americas and Central Asia certain focal points in Latin America, the USA and Russia became apparent. However, Humboldt's writings reached places that the author himself never visited, such as Africa, Brazil, India and China, as well as Australia and New Zealand (Lubrich 2018a). Between 1789 and 1859, his articles were published in more than 400 locations across five continents and featured in more than 1200 periodicals. Alexander von Humboldt was probably the most international publicist of his time (Lubrich and Nehrlich 2015) (Figs. 1 and 2).



Fig. 1 Article in Africa: "Nocturnal life of animals in the primeval forest", in: *The Natal Witness* 5: 229 (5 July 1850)

МОСКОВСКИЙ ТЕЛЕГРАФЪ,

ИЗДАВАЕМЫЙ

НИКОЛАЕМЪ ПОЛЕВЫМЪ.

Часть тридцатая.



МОСКВА.

ВЪ ТИПОГРАФИИ АВГУСТА СЕМЕНА,
при Императорской Медико-Хирургической Академіи.

1829.

ЖИЗНЕННАЯ СИЛА,

ИЛИ

ГЕНИЙ РОДОСКИЙ.

(Сочинение Б. Александра Гумбольдта (*)).

У жителей Сиракузъ, такъ же какъ у Афинянъ, былъ свой Песиль. Изображеніе боговъ и героевъ, произведенія искусства Италіи и Греціи, украшали различныя залы портика, всегда наполненныя толпою народа. Юные воины прихо-

(*) Это едва-ли не единственное чисто-литературное сочиненіе А. Гумбольдта. Оно въ первый разъ было напечатано въ Шиллеровомъ Журналѣ: Die
Декабрь 1829. 29

Fig. 2 Essay in Russian: “Жизненная сила, или гений Родоский”, in: Московский телеграфъ 30: 24 (1829), pp. 423–431

The Young Scientist

Humboldt’s publishing activity can be broadly divided into three stages. As a young scientist, his initial education was in a range of subjects, in particular botany, mining and physiology, and his work was published in the corresponding journals—for example in the *Magazin für die Botanik* (Botanical Magazine), the *Bergmännisches Journal* (Mining Journal) and the *Chemische Annalen* (Chemical Annals). Humboldt managed to gain access to the scientific community in general, as well as to the specific networks of individual scientific disciplines.

The first decade of his publishing activity (1789–1799) was dominated by research articles in which he presented his own observations, together with critical reviews in which he dealt with the work of authoritative scientists (Bärtschi and Wübben 2019). It is through these writings that we can trace the development of his career from its beginnings.

Since Humboldt’s contributions were often published in the form of letters to colleagues or editors, in which he shared his findings, they also served to highlight his place within the scientific community. He reported the results of his physiological experiments to his tutor in Göttingen, Johann Friedrich Blumenbach

(Humboldt 1795a) and his “lamp preserver” and “rescue cylinder” inventions to the Inspector of Mines, Friedrich Wilhelm Heinrich von Trebra (Humboldt 1796a).

Many of Humboldt’s publications aimed to make his monographs more widely known in professional circles and beyond. His publishing house, Cotta, later released targeted extracts and advance excerpts.

Humboldt understood the strategic importance of reviews and made every effort to ensure that his own work was discussed. In a letter to Paul Christian Wattenbach dated 18 February 1792, he explained:

“Zum Schriftstellerischen Handwerk gehört Läuten, darum halte ich etwas auf Rezensionen” (“The trade of the writer needs to be advertised, and that is why I hold the review business in high regard”). (Jahn and Lange 1973)

Humboldt’s first published text is in fact a review of a Latin dissertation by Carl von Linné’s successor, Carl Peter Thunberg, on the East Indian poison tree *Bohon-Upas*, *Arbor Toxicaria Macassariensis* (Humboldt 1789). Further reviews followed, namely of the Dutch study on crop production by Steven Jan van Geuns, his companion on his first research voyage (Humboldt 1790c), of the report by Thaddaeus Haenke and others on their botanical expedition to the Riesengebirge, located in the eastern corner of Germany (Humboldt 1791a), of the dissertation by Christian Philipp Ripke on the merits of the people of Hamburg with regard to natural history (Humboldt 1791b), and of transcripts of lectures by Carl von Linné (Humboldt 1791c).

Humboldt’s reviews often went beyond a mere evaluation of somebody else’s work, containing programmatic considerations and sententious statements about his own research interests. He used the expedition report prepared by Haenke et al. to divert from Linné’s system of classification towards a phytogeographical observation of species in their natural habitats. This method is “certainly preferable to the systematic approach”, he explained resolutely (“der Systematischen gewiß vorzuziehen”). By observing how Christian priests spread superstition within the indigenous population, he expanded the testing of contemporary legends (based on Thunberg’s description of the East Asian poison tree) into a general critique of colonialism and the complicity of the Church. In 1789, the year of the French Revolution, Humboldt gave his essay on botany a political twist: “Priests south of the equator behave in just the same way” (“Die Priester ändern sich auch unter dem Äquator nicht”).

Humboldt’s shortest review is of a work on willow grasses by the botanist vicar, George Swayne. Somewhat curiously it contains only two sentences, but a most incisive statement:

“Very well put! However, it is meant to help make country people familiar with different grass species but costs a pound and a shilling!!” (“Sehr sauber! soll aber dazu dienen, Landleute mit den Grasarten bekannt zu machen, und kostet 1 Pf. St. und 1 Schill.!!”). (Humboldt 1791d)

Humboldt used two exclamation marks to emphasise the contradiction (“aber”, “but”) between the high price of the publication and the frugal income of the target

readership: science should be accessible to the widest possible public. He later considered it equally important that his *Cosmos Lectures* should be free, declaring to the press, “one should not pay for the right to attend a public lecture” (“on ne paye pas, pour obtenir le droit d’assister à un cours public”) (Humboldt 1828). In addition to their scientific content, Humboldt’s contributions, therefore, had both practical and social dimensions.

The young researcher’s communications also included more intimate situational interventions. In brief “corrections”, Humboldt rectified mistakes he had made in his monograph entitled *Mineralogische Beobachtungen über einige Basalte am Rhein* (*Mineralogical Observations on Basalts along the Rhine*) (Humboldt 1791e, f), as well as erroneous attributions of authorship by third parties (Humboldt 1794, 1795e). In a “counterstatement”, he polemically asserted himself against the theologian Samuel Simon Witte, who understood pyramids to have formed naturally (Humboldt 1791g). The 21-year-old confidently concluded his criticism in a sarcastic tone that became characteristic, explaining that trusting the “testimonies of the classics” (“Zeugnisse der Classiker”) as well as the evidence of “more recent travel writers” (“neuerer Reisebeschreiber”), he would calmly wait for his opponent to “dispel his doubts”.

The Public Scientist

With the American research expedition (1799–1804), the range of Humboldt’s articles expanded not only geographically, linguistically and thematically but also generically. Before he left and during the journey, he sent numerous letters to friends, colleagues and editors—from Madrid, La Coruña, Tenerife, La Guaira, Caracas, Nueva Barcelona, Cartagena, Contreras, Lima und México—which were subsequently published in newspapers and journals (Bärtschi and Clark 2019).

The letters and reports from the field served as a flexible way of describing the progress of his expedition and sharing his observations, as well as increasing his public profile and satisfying popular interest in his work. Thus, his first letters from his American expedition (Humboldt 1799a, b, c, d) not only outlined its scientific programme, which was to explore nature as a dynamic system of interactions, but also aroused interest in the progress of this exotic adventure (Strobl 2018a). In order to disseminate his work, he acted to a certain extent as his own science journalist and PR agent.

How cleverly Humboldt communicated as a travelling scientist can be seen in his first comprehensive report on the American expedition, which he wrote in 1804 at his final stopover in the United States of America. Unusually, Humboldt disseminated this report under a different name (“von J.-C. Delamétherie”), and it was written in the third person (“Mr von Humboldt travelled...”) (Clark 2019). The result was a seemingly independent but authorised and monitored account that seemed to have been based on personal experiences but was presented objectively —“Mr von Humboldt [...] departed Europe in 1799, accompanied by his friend

Bonpland [...]”. (“M. Humboldt [...] partit de l’Europe en juin 1799, accompagné de son ami Bonpland [...]”). (Humboldt 1804) Humboldt communicated strategically and tactically, with great public awareness.

During his American expedition, he reported on a variety of topics—ethnography, archaeology, colonialism, zoology, botany and climate. In so doing, he pursued his research objectives by combining a number of different disciplines. For example in an article about electric eels, Humboldt went beyond zoology in the narrowest sense, reporting not only on their geographical habitat and the method of capture, but also on the indigenous people with whom he interacted in the field, their cultural practices and their linguistic terms (Humboldt 1807a). Humboldt’s ability to bring together sciences “which were not previously thought to be closely related” (“welchen man ehemdem keine engere Verwandtschaft zutraute”) and thereby to use these “combinations” to arrive at “unexpected results” (“unerwarteten Ergebnissen”) was recognised by his contemporaries as an original, post-disciplinary way of working, as pointed out in the entry about Humboldt in the Brockhaus Conversations-Lexikon of 1853 (Brockhaus 1853).

By looking at Humboldt’s corpus and comparing his earliest article with his last, we can measure the extent to which his fame increased. His first, “Sur le Bohon-Upas”, was published anonymously in 1789 “by a young gentleman of this town” (“par un jeune Gentilhomme de cette ville”) (Humboldt 1789), while his last, “Ruf um Hülfe” (“Cry for Help”), was reprinted at least 130 times around the world in 1859. The Vossische Zeitung explained in its opening credits: “A. von Humboldt honours us with the request to publish the following letter” (“A. v. Humboldt beehrt uns mit dem Gesuch, nachstehendes Schreiben zu veröffentlichen”) (Humboldt 1859). Here, just a few weeks before his death, Humboldt attempted to protect himself from the burdens of celebrity life such as autograph requests, appeals for his expert opinion and requests for advice on colonial projects, as well as from “offers to take care of me at home, to distract and amuse me” (“Anerbietungen, mich häuslich zu pflegen, zu zerstreuen und zu erheitern”) (Lubrich 2018b) (Fig. 2).

As Humboldt’s fame and reputation grew, he accumulated symbolic capital³ which he was able to invest, even for projects that lay outside the sciences. By using it for political purposes, Humboldt went from being a public researcher to a public intellectual.

³ One indicator of his growing reputation is the number of acceptance speeches and letters of thanks in his corpus. For example: “Alex. von Humboldt’s Dankesworte”, in: *Magazin für die Literatur des Auslandes* 103 (27 August 1844), p. 412; [Acceptance of the honorary citizenship of Berlin], in: *Berlinische Nachrichten von Staats- und gelehrten Sachen* 21 (25 January 1856), [no pagination]; [The 33rd Assembly of German Naturalists and Medical Doctors in Bonn], in: *Kölnische Zeitung* 261 (20 September 1857), Supplement, [no pagination]; “Antwort Humboldt’s”, in: *Tagblatt der 34. Versammlung deutscher Naturforscher und Ärzte in Carlsruhe im Jahre 1858* 8 (23 September 1858), p. [69].

Fig. 3 Humboldt’s last publication: “The Miseries of Greatness”, in: The Semi-Weekly Mississippian 4: 102 (6 May 1859)

THE MISERIES OF GREATNESS.—No condition of life seems to be exempt from its peculiar ills. The Berlin Journals of recent date contain the following appeal from Baron Humboldt, now in his 90th year of age :

“BERLIN, March 15th, 1859.

“Suffering beneath the pressure of a still increasing correspondence, amounting to between sixteen hundred and two thousand communications per annum, and embracing letters, printed pamphlets on matters with which I am wholly unacquainted, manuscripts concerning which my opinion is desired, projects for emigration and colonization, the transmission of models, machines, and objects of natural history, inquirers about aerostatics, requests of contributions to collections of autographs, offers to take charge of my domestic concerns, to amuse me, &c. I must again publicly urge all persons having my welfare at heart to exert their influence in my behalf, that individual in both continents may no longer trouble themselves with my person, and make of my house an intelligence office ; and that I be allowed, in the declining state of my physical and mental powers, to enjoy some rest and leisure to attend to my duties. May this cry for relief, which I utter with much reluctance, and after long delay, not meet an unfriendly interpretation !

ALEXANDER VON HUMBOLDT.”

The Public Intellectual

Hans Magnus Enzensberger has pointed out that Humboldt’s fame likely also put him beyond the reach of autocrats, particularly Napoleon during the time he spent in Paris. In other words, he may also have mobilised the media, and with it public opinion, for his own protection (Enzensberger 2012).

As his reputation grew, he was able to make increasingly direct political comments. A chronological analysis of his corpus shows that his explicitly political articles increased significantly in number across a broad range of media in the 1830s, 40s and 50s (Bärtschi and Kilchör 2020). Humboldt’s work appeared in key daily and weekly newspapers such as the then liberal *Neue Zürcher Zeitung* (from 1825), the *Wiener Zeitung* (from 1836), the *New York Times* (from 1853) and *The Economist* (on the 4th September 1852, in the form of a long excerpt).

Humboldt used the media for political purposes (Strobl 2018b), and in so doing, he pursued a consistent agenda (Lubrich 2019b). Looking at the corpus as a whole, Humboldt can be seen to have had ten general areas of concern. He was concerned with safe working conditions, decolonisation, transatlantic co-operation, free world trade, electoral campaigns, the abolition of slavery, the defence of indigenous

peoples, the emancipation of the Jews, the democratisation of the sciences and the promotion of young intellectuals. Alexander von Humboldt was an *écrivain engagé*—a writer with a cause.

During his time in the Prussian mining industry, Humboldt had already advocated for the safety and education of miners, and when in America, he criticised the exploitation of the indigenous peoples and the practice of slavery. He became known for his support of the liberal candidate John C. Fremont during the 1856 presidential campaign in the United States of America (Strobl 2018c). He optimistically pondered the relationship between freed colonies and former imperial powers and the possibility of free world trade: “Über die künftigen Verhältnisse von Europa und Amerika” (“On the future relationship between Europe and America”) (Humboldt 1826).

On his return to Berlin, Humboldt championed the emancipation and defence of the Jews. In an open letter to the Prussian government, he protested against renewed restrictions on the rights of the Jewish population, explaining: “One must, above all, have the courage to speak one’s opinion!” (“Man muß vor Allen den Muth einer Meinung haben!”) (Humboldt 1842). In a foreword written for Israel Joseph Benjamin, who had explored the Diaspora in Africa and Asia, Humboldt declared his solidarity with the “scattered and oppressed people”—even in Hebrew (Benjamin 1859).

As far as science itself was concerned, Humboldt was not only interested in the free, public sharing of knowledge (Humboldt 1828) but also in supporting young researchers and artists by writing recommendations (Humboldt 1852) and forewords.⁴ These became more and more common in his corpus as his fame increased. He also co-authored publications with many young colleagues, including at least one woman (Humboldt and Möllhausen 1857).

Humboldt protested publicly when the chapter on slavery was edited out of the English translation of his *Essai politique sur l’île de Cuba* (1826) (Humboldt 1856a, numerous international reprints). Indeed, this protest was seen not only in the United States of America but also in India—itself a colony where readers could well identify with the basic principles of Humboldt’s critique (Humboldt 1856b).

In one particular case, however, Humboldt was forced to bow to censorship, and even to practise self-censorship. His expedition to Russia and Siberia (1829) was

⁴ For example: Robert Hermann Schomburgk’s *Reisen in Guiana und am Orinoko während der Jahre 1835–1839. Nach seinen Berichten und Mittheilungen an die geographische Gesellschaft in London*, edited by Otto Alfred Schomburgk, Leipzig: Georg Wigand 1841, pp. XV–XXIV; [Wilhelm Kiesewetter], *Mittheilungen aus dem Tagebuche zu Kiesewetter’s ethnographischen Reisebildern. Gesammelt auf 16jähriger Wanderung [...]. Bevorwortet von Alexander von Humboldt und Carl Ritter*, Berlin: Adolph Stubenrauch & Comp. 1855, p. [V]; Balduin Möllhausen, *Tagebuch einer Reise vom Mississippi nach den Küsten der Südsee*, Leipzig: Hermann Mendelssohn 1858, pp. [I]–VIII; *Zur Erinnerung an die Reise des Prinzen Waldemar von Preußen nach Indien in den Jahren 1844–1846*, 2 volumes, Berlin: Deckersche Geheime Ober-Hofbuchdruckerei 1853, volume 1, pp. I–V.

undertaken on the premise that he would not publish anything regarding the social conditions within the authoritarian police state (Lubrich 2019c, d). When following publication of the German edition of his *Asie centrale* (1843), *Central-Asien* (1844), the *Journal des Débats* discussed “the condition of the Russian peasants”, referring to a comment allegedly made by Humboldt, he issued a statement in the *Berlinische Nachrichten von Staats- und gelehrten Sachen* on 16th December 1844 that he had “nowhere, neither in his own works, nor in journals, mentioned the conditions of Russian peasants” (“nirgendwo, weder in seinen eigenen Werken, noch in Journalen, der russischen Bauern-Verhältnisse erwähnt”) (Humboldt 1844). Limits had been set, even for Humboldt.

Poetics and the Public

Humboldt published only one fictional text—a “tale” about the “Life Force”, which was included in Friedrich Schiller’s *Die Horen* journal in 1795 (Humboldt 1795b). The work was given added significance by a completely different article he published in the same year—the scientific essay “Ueber die gereizte Muskelfaser” (“On irritated muscle fibres”), which appeared in the *Neues Journal der Physik* and presented the findings of bioelectric experiments conducted on both animals and himself (Humboldt 1795c, d). The research question and the subject matter were the same, but the procedures and the forms were very different. The natural scientist became a literary author, using all possible means to follow his lines of enquiry.

Many other genres can be found in Humboldt’s corpus between the two poles of poetic allegory and scientific papers, as illustrated by the broad range of terms used in the titles of his works: “abstract”, “addendum”, “additions”, “advertisement”, “analysis”, “announcement”, “chronology”, “collation”, “collection”, “comparison”, “contributions”, “correction”, “correspondence”, “counterstatement”, “description”, “discovery”, “draft”, “essay”, “expertise”, “explanation”, “explanatory notes”, “extract”, “fragments”, “history”, “ideas”, “inaugural address”, “introduction”, “investigations”, “invitation”, “lecture”, “letter”, “map”, “measurements”, “message”, “narrative”, “notes”, “notification”, “observations”, “opening speech”, “overview”, “painting”, “preface”, “presentation”, “remarks”, “reply”, “report”, “request”, “response”, “results”, “sketch”, “speech”, “treatise”, “trial”, “trip”, “views”, “words of thanks”, “work”, “written reply” and “writing”.

Humboldt’s repertoire was vast. From a poetological point of view, the various forms or genres each served to frame their subject differently. They emphasised different points of view and different ways of understanding the subject matter. At the same time, using a range of formats meant that Humboldt was able to appeal to different target groups. He published his observations for diverse audiences—from scientific experts to the wider public—and in publications ranging from the *Journal der Physik* (Physics Journal) to the *Deutsches Magazin für Garten- und Blumenkunde* (German Garden and Floristry Magazine).

A trickle-down effect can be observed. Within the framework of a multi-tiered publication strategy that included preprints, excerpts and edits, research results could appear in the proceedings of academies, in distinguished specialist journals and in high-profile newspapers (such as the *Morgenblatt für gebildete Stände*, “Morning paper for the educated classes”), as well as in mainstream magazines such as the *Taschenkalender für Natur- und Gartenfreunde* (“Pocket calendar for nature and garden lovers”), and eventually be included in school textbooks (Bärtschi 2017, 2018).

Visualisation

In both his books and his essays, Humboldt made use not only of various literary genres and linguistic styles, but also of illustrations. His works contain a total of more than 1500 images (Lubrich 2014), many of which are based on his own drawings (Erdmann and Lubrich 2019). The articles that appeared in newspapers or magazines were, due to the more basic design of these periodicals, more sparsely illustrated than the books, which feature elaborate engravings that Humboldt commissioned at his own expense.

The approximately 30 illustrations in Humboldt’s articles relate to anatomy, animals, plants, landscapes, travel scenes and geography. They include maps, mountain cross-sections, diagrams and technical designs, a representation of Humboldt’s “rescue apparatus” for miners, a symbolic sign system for pasigraphy, the dragon tree of Orotava, the Caribbean manatee, a scene from an encampment in the South American rainforest, a map of the great river systems and the “Karte von Amerika aus dem Jahre 1500 entworfen von Juan de la Cosa Begleiter des Columbus auf dessen zweiter Reise aufgefunden von Alexander von Humboldt” (“Map of America from 1500 drawn by Juan de la Cosa, companion of Columbus on his second voyage, found by Alexander von Humboldt”).

Humboldt’s illustrations had a variety of functions. They served to document unexplored species and to present scientific findings to the public. Humboldt was at his most innovative as a graphic artist where he was most innovative as a scientist, namely when he not only depicted individual species as accurately as possible in order to contribute to the traditional study of natural history, but went beyond mere taxonomy and visualise invisible phenomena and complex relationships on the basis of large quantities of data. The best known of his infographics, the “Naturgemälde” (“Nature Painting”, *tableau physique*) in *Geographie der Pflanzen*, illustrates the dependence of the Andean ecosystem on multiple influencing factors (Humboldt 1807b); the best known of his data visualisations, the “Carte des lignes Isothermes”, shows the global distribution of temperatures (Humboldt 1817, 1819).

In *Kosmos*, Humboldt dialectically related the sciences to the arts. One chapter conceptualised the arts as “a means of stimulating the study of nature” (“Anregungsmittel zum Naturstudium”) (Humboldt 1847). Even the most naive paintings or descriptions of landscapes, he argued, contain elements of our

understanding of nature and inspire further research. Humboldt's research, as well as his rhetoric, was essentially visual: graphical representation was for him an important tool in both the practice and the communication of science.

The Empty Palace

Humboldt pursued two objectives in his scientific communications—firstly, to present the results of his research for discussion with experts on an international and interdisciplinary level and secondly, to share these results with as wide a public as possible in order to democratise his findings and promote their practical application. In the tradition of the enlightenment, the overall objective in both cases was to contribute to social progress.

Although Alexander von Humboldt was undoubtedly a great communicator, he communicated with such success that his name became detached from his research achievements and an entity in its own right. He became a legend and a monument, a *lieu de mémoire* and an object of celebration. On the 14th September 2019, the 250th anniversary of his birth, a ceremony in his honour was held in Berlin at a newly reconstructed city palace that was named after him (Häntzschel 2019) even though it was still empty, still a construction site. Now that his writings have been gathered together, the writer and scientist behind the myth can be rediscovered. We should celebrate Humboldt less and read him more.

Postscript 2020/2021: Pandemics and Politics

An example of how urgent Humboldt's messages were in his time and how topical they can be today may be found in the field of epidemiology. In a number of articles, he dealt with yellow fever (Humboldt 1813), cowpox (Humboldt 1810, 1812) and remedies for tropical diseases (Humboldt 1797). Scientific communication then—as now—helped in the fight against disease and epidemics.

In one article for example Humboldt discussed the ignorant reaction to epidemics by authoritarian regimes:

when the Chinese authorities were asked whether they should take any precautions against cholera, they replied that fear alone was the reason why people were falling victim to it and that no preventive measures should therefore be adopted. (Humboldt 1831)

When a “cattle plague” broke out in Germany in 1796 during the Revolutionary Wars, Humboldt made current medical literature (“writings on the epidemic”) publicly available in the *Neues Magazin für Aerzte* (Humboldt 1796b, 1797). He discussed drastic measures such as “killing healthy livestock” and “a general lock-down” and criticised “overly-hasty regulations” which “are easier to propose than to implement on a large scale”. He also recommended empirical observation

and experimental trials, considered various ways of treating the condition with medicines and made proposals regarding hygiene such as “cleaning the empty stables” with chemical agents, which had been used “on English slave ships during epidemics”.

Humboldt recognised the fundamental connection between the disease and social conditions (“This is why the cattle disease spreads so inexorably in war, where oxen and cows are worked so hard!”), and he was aware of the economic and social consequences for the “prosperity of the people”. He discussed early means of vaccination (Humboldt 1812). As rhetorical as he was scientifically optimistic, Humboldt asked in February 1796: “What would be more benevolent for humanity than to discover a remedy for that evil?”

References

- Bärtschi S. (2017), *Layered Reading: Wie kann man das Gesamtwerk eines Autors lesen? Quantitative und qualitative Methoden am Beispiel der unselbständigen Schriften Alexander von Humboldts*, Doctoral Dissertation, University of Bern.
- Bärtschi S. (2018), “Wie lassen sich 1000 Texte messen?”, in: *UniPress* 174 (2018), p. 25.
- Bärtschi S. and Clark R., eds. (2019), Alexander von Humboldt, *Sämtliche Schriften*, volume II (1800–1809).
- Bärtschi S. and Kilchör F (2020), “Wie veranschaulicht man ein Corpus? Alexander von Humboldts Schriften als Paradigma bildlicher Evidenz”, in: *Rhetorik und Ästhetik der Evidenz*, edited by Olaf Kramer, Carmen Lipphardt and Michael Pelzer, Berlin/Boston: de Gruyter, pp. 171–198.
- Bärtschi A. and Wübben Y., eds. (2019), Alexander von Humboldt, *Sämtliche Schriften*, volume I (1789–1799).
- Beck H., ed. (1997), Alexander von Humboldt, *Die Forschungsreise in den Tropen Amerikas*, 3 volumes, Darmstadt: Wissenschaftliche Buchgesellschaft.
- Benjamin J. J. (1859), “Extract from a letter of His Excellency Baron Alexander v. Humboldt, Member of the King’s Privy Council, and Chamberlain to His Majesty, at Berlin”, in: J. J. Benjamin, *Eight Years in Asia and Africa. From 1846 to 1855*, Hannover, p. VI; Hebrew: *Sefer Masa’ei Yisra’el, Bo Yesupar Me’aheinu Benei Yisra’el Ha-Nefutsim Be’artsot Asiyah Ve-Afrikah*, Lyck/Elk 1859.
- Bisky J. (2019), “Kanu, Karte, Feder. Eine Sensation: Die Berner Ausgabe vereint zum ersten Mal alle Aufsätze, Artikel und Abhandlungen Alexander von Humboldts. Die meisten sind unbekannt oder vergessen”, in: *Süddeutsche Zeitung*, 17/18 August 2019.
- Brockhaus (1853), “Humboldt (Friedr. Heinr. Alexander, Freiherr von)”, in: *Allgemeine deutsche Real-Encyclopädie für die gebildeten Stände. Conversations-Lexikon*, 10th edition, 15 volumes, Leipzig: Brockhaus, volume VIII, pp. 126–133.
- Brönnimann S. (2019), “Man sollte Humboldt weniger feiern und dafür mehr lesen” – an interview with Oliver Lubrich, in: *GeoAgenda* 2:7–9.
- Clark R. (2019), “Alexander von Humboldts erster Reisebericht. Ein Spiel mit der Anonymität”, in: *Zeitschrift für Germanistik* 29:1, pp. 118–129.
- Darwin C. (1887), *The Life and Letters of Charles Darwin, Including an Autobiographical Chapter*, 3 volumes, London: John Murray 1887, volume 1, p. 190.
- Enzensberger H. M. (2012), “Wer wen? Alexander von Humboldt im Stammeskrieg zwischen Intelligenz und Macht”, in: *Enzensbergers Panoptikum. Zwanzig Zehn-Minuten-Essays*, Berlin: Suhrkamp, pp. 104–109.

- Erdmann D. and Lubrich O., eds. (2019), Alexander von Humboldt, *Das zeichnerische Werk*, Darmstadt: WBG.
- Ette O., ed. (1991), Alexander von Humboldt, *Reise in die Äquinoktial-Gegenden des Neuen Kontinents*, 2 volumes, Frankfurt: Insel 1991.
- Fiedler H. and Leitner U. (2000), *Alexander von Humboldts Schriften. Bibliographie der selbständig erschienenen Werke*, Berlin: Akademie 2000, pp. 35–63, pp. 379–431.
- Goethe J. W. v. (1809), *Die Wahlverwandschaften. Ein Roman*, 2 volumes, Tübingen: J. G. Cotta, volume 2, p. 150.
- Häntzschel J. (2019), “Humboldt-Forum muss wohl leer eröffnen”, in: *Süddeutsche Zeitung*, 5 June 2019.
- Humboldt A. v. (1789), “Lettre à L’Auteur de cette Feuille; sur le Bohon-Upas, par un jeune Gentilhomme de cette ville”, in: *Gazette littéraire de Berlin* 1270 (5 January 1789), pp. 4–8; 1271 (12 January 1789), pp. 11–13.
- Humboldt A. v. (1790a), “Abhandlung vom Wasser im Basalt”, in: *Chemische Annalen für die Freunde der Naturlehre, Arzneygelahrtheit, Haushaltungskunst und Manufacturen* 7:1:5, pp. 414–418.
- Humboldt A. v. (1790b), “Observatio critica de Elymi hystricis caractere”, in: *Magazin für die Botanik* 3:7 (1790), pp. 3–6; 3:9, p. 32.
- Humboldt A. v. (1790c), “Verhandeling over de inlandsche Plantgevvassen [...]; door Steven Jan van Geuns, Matth. Z. Haarlem 1789. 8.”, in: *Magazin für die Botanik* 4:10, pp. 149–151.
- Humboldt A. v. (1791a), “Beobachtungen auf Reisen nach dem Riesengebirge, von Johann Jirasek, Thaddaeus Haenke, Abbé Gruber und Franz Gerstner, mit Kupfern. Dresden, bey Walther. 4. (270 Seit.)”, in: *Annalen der Botanick* 1:1, pp. 78–83.
- Humboldt A. v. (1791b), “Chr. Phil. Ripke – Dissert. de meritis Hamburgensium in historiam naturalem. Hamburgi 1791. 4. (Seiten 31.)”, in: *Annalen der Botanick* 1:1, pp. 87–91.
- Humboldt A. v. (1791c), [Notice on Carl von Linné’s *Praelectiones in Ordines naturales plantarum*], in: *Annalen der Botanick* 1:1, pp. 172–174.
- Humboldt A. v. (1791d), “Gramina pascua or a Collection of Specimens of the commun pasture grasses by G. Swayne, Vicar of Pucklechurch, Gloucestershire. 6 plates (nemlich aufgeklebte Gräser) Richardson. fol.”, in: *Annalen der Botanick* 1:1, p. 91.
- Humboldt A. v. (1791e), [Rectification], in: *Intelligenzblatt der Allgemeinen Literatur-Zeitung* 155 (20 November 1790), column 1280.
- Humboldt A. v. (1791f), “Ueber den Syenit oder Pyrocilus der Alten; eine mineralogische Berichtigung”, in: *Neue Entdeckungen und Beobachtungen aus der Physik, Naturgeschichte und Oekonomie* 1, pp. 134–138.
- Humboldt A. v. (1791g), “Gegenerklärung”, in: *Intelligenzblatt der Allgemeinen Literatur-Zeitung* 20 (12 February 1791), column 160.
- Humboldt A. v. (1794), [Rectification], in: *Intelligenzblatt der Allgemeinen Literatur-Zeitung* 20 (26 February 1794), column 160.
- Humboldt A. v. (1795a), “Aus einem Briefe des Herrn Oberbergraths von Humboldt an Herrn Hofrath Blumenbach”, in: *Neues Journal der Physik* 2:4, pp. 471–473.
- Humboldt A. v. (1795b), “Die Lebenskraft oder der Rhodische Genius. Eine Erzählung”, in: *Die Horen* 1:5 (1795), pp. 90–96.
- Humboldt A. v. (1795c), “Ueber die gereitzte Muskelfaser. Aus einem Briefe an Herrn Hofrath Blumenbach vom Herrn Oberbergrath F. A. von Humboldt”, in: *Neues Journal der Physik* 2:2 (1795), pp. 115–129.
- Humboldt A. v. (1795d), “Aus einem Briefe des Herrn Oberbergraths von Humboldt an Herrn Hofrath Blumenbach”, in: *Neues Journal der Physik* 2:4, pp. 471–473.
- Humboldt A. v. (1795e), [Rectification], in: *Intelligenzblatt der Allgemeinen Literatur-Zeitung* 80 (22 July 1795), column 640.
- Humboldt A. v. (1796a), “Ueber die einfache Vorrichtung, durch welche sich Menschen stundenlang in irrespirablen Gasarten, ohne Nachtheil der Gesundheit, und mit brennenden Lichtern aufhalten können; oder vorläufige Anzeige einer Rettungsflasche und eines Lichterhalters. Aus einem Briefe des Hrn. Oberbergraths von Humboldt an den Herrn

- Berghauptmann von Trebra”, in: *Chemische Annalen für die Freunde der Naturlehre, Arzneigelahrtheit, Haushaltungskunst und Manufakturen* 13:2:8, pp. 99–110; 13:2:9 (1796), pp. 195–210.
- Humboldt A. v. (1796b), “Ueber die Rindviehseuche als Nervenfieber behandelt”, in: *Neues Magazin für Aerzte* 18:5 (1796), pp. 421–425.
- Humboldt A. v. (1797), “Auszug eines Briefes des Herrn von Humboldt”, in: *Neues Magazin für Aerzte* 19:1, p. 17.
- Humboldt A. v. (1799a), “Alexander von Humboldt an den Herausgeber aus Corunna am 5. Jun. 1799”, in: *Jahrbücher der Berg- und Hüttenkunde* 4:1 (1799), pp. 399–401.
- Humboldt A. v. (1799b), “Aus einem Schreiben des Ober-Bergraths A. von Humboldt”, in: *Allgemeine Geographische Ephemeriden* 4 (August 1799), pp. 146–161.
- Humboldt A. v. (1799c), “Lettre d’Alexandre Humboldt à J.-C. Delaméthérie”, in: *Journal de physique, de chimie, d’histoire naturelle et des arts* 49, pp. 433–436.
- Humboldt A. v. (1799d), [Two Letters to Friedrich Gödeking], in: *Intelligenzblatt der Allgemeinen Literatur-Zeitung* 163 (21 December 1799), columns 1323–1324.
- Humboldt A. v. (1804), “Notice d’un voyage aux tropiques, exécuté par MM. Humboldt et Bonpland en 1799, 1800, 1801, 1802, 1803 et 1804. Par J.-C. Delaméthérie”, in: *Journal de physique, de chimie, d’histoire naturelle et des arts* 59:2 (Thermidor an 12 [July/August 1804]), pp. 122–139, here: p. 123.
- Humboldt A. v. (1807a), “Jagd und Kampf der electricischen Aale mit Pferden”, in: *Annalen der Physik* 25:1, pp. 34–43.
- Humboldt A. v. (1807b), *Essai sur la géographie des plantes, accompagné d’un tableau physique des régions équinoxiales*, Paris: Fr. Schoell / Tübingen: J. G. Cotta.
- Humboldt A. v. (1810), “Cow Pock in Mexico”, in: *The Hull Advertiser and Exchange Gazette* 16:865 (15 December 1810), p. [4].
- Humboldt A. v. (1812), “Vaccination”, in: *The Lancaster Gazette* 11:559 (29 February 1812), p. [4].
- Humboldt A. v. (1813), “Bemerkungen über das gelbe Fieber, und dessen Zusammenhang mit der Temperatur”, in: *Annalen der Physik* 43:1:3, pp. 257–295.
- Humboldt A. v. (1817), “Carte des lignes Isothermes par M. A. de Humboldt. Gravé par Adam”, in: Alexander von Humboldt, “Sur les Lignes isothermes (Extrait)”, in: *Annales de chimie et de physique* 5, pp. 102–111.
- Humboldt A. v. (1819), “Ueber die isothermischen Linien”, in: *Neues Journal für Chemie und Physik* 25:3, pp. 254–268.
- Humboldt A. v. (1826), “Ueber die künftigen Verhältnisse von Europa und Amerika”, in: *Morgenblatt für gebildete Stände* 20:33 (8 February 1826), pp. 129–130; 20:34 (9 February 1826), pp. 134–135.
- Humboldt A. v. (1828), “A Monsieur le Rédacteur du Moniteur universel”, in: *Berlinische Nachrichten von Staats- und gelehrten Sachen* 48 (26 February 1828), [no pagination].
- Humboldt A. v. (1831), “Académie des Sciences (Paris)”, in: *The London and Paris Observer; or, Chronicle of Literature, Science, and the Fine Arts* 338 (6. November 1831), pp. 719–720, here: p. 720.
- Humboldt A. v. (1842), [On the Emancipation of the Jews], in: *Neue Speyerer Zeitung* 84 (26 April 1842), p. 370.
- Humboldt A. v. (1844), [Authorised Correction to an article in the *Journal des Débats* from 6 December 1844], in: *Berlinische Nachrichten von Staats- und gelehrten Sachen* 295, 16 December 1844, p. 3.
- Humboldt A. v. (1847), “Anregungsmittel zum Naturstudium”, in: *Kosmos. Entwurf einer physischen Weltbeschreibung*, 5 volumes (1845–1862), volume 2, Stuttgart/Tübingen: Cotta, pp. 3–134.
- Humboldt A. v. (1852), “Eduard Hildebrandt”, in: *Berlinische Nachrichten von Staats- und gelehrten Sachen* 123 (28 May 1852), p. 4.

- Humboldt A. v. (1856a), "Insel Cuba", in: *Berlinische Nachrichten von Staats- und gelehrten Sachen* 172 (25 July 1856).
- Humboldt A. v. (1856b), "Humboldt and the Americans", in: *The Bombay Times* 20:75 (17 September 1856), p. 597.
- Humboldt A. v. (1859), *Königlich privilegierte Berlinische Zeitung von Staats- und gelehrten Sachen* 67, 20 March 1859, p. 2.
- Humboldt A. v. and Möllhausen C. (1852), "Expedition zur wissenschaftlichen Erforschung des Rio Colorado, in den der Rio Gila einmündet", in: *Berlinische Nachrichten von Staats- und gelehrten Sachen* 299 (22 December 1857), [no pagination].
- Jahn I. and Lange F. G. (1973), *Die Jugendbriefe Alexander von Humboldts*, Berlin (GDR): Akademie, p. 170.
- Lubrich O. (2009), "Alexander von Humboldt (1769–1859). Zum 150. Todestag des Naturforschers und Reiseschriftstellers. Dossier", in: *Zeitschrift für Germanistik* 19:2, pp. 396–402.
- Lubrich O., ed. (2014), Alexander von Humboldt, *Das graphische Gesamtwerk*, Darmstadt: Lambert Schneider.
- Lubrich O. (2018a), "Humboldt in Afrika. Ein Artikel aus dem Jahr 1850", in: *Acta Germanica* 46, pp. 23–28.
- Lubrich O. (2018b), "Von der ersten bis zur letzten Veröffentlichung. Alexander von Humboldts 'Sämtliche Schriften' in der 'Berliner Ausgabe'", in: *Zeitschrift für Germanistik* 28:1, pp. 119–130.
- Lubrich O. (2019a), "Die Entdeckung des Entdeckers. Alexander von Humboldt (1769–1859) zum 250. Geburtstag. Bestandsaufnahme und Aussichten", in: *Zeitschrift für Germanistik* 29/2, pp. 375–385.
- Lubrich O. (2019b), "Kritik und Kompromiß: Humboldt als Politiker", 'Kosmos Talk', Humboldt-Universität zu Berlin, 20 June 2019.
- Lubrich O., ed. (2019c), Alexander von Humboldt, *Die Russland-Expedition. Von der Newa bis zum Altai*, with an afterword by Karl Schlögel, Munich: C. H. Beck.
- Lubrich O. (2019d), "Forscher in Fürstennähe: Humboldt in Sibirien", in: Alexander von Humboldt, *Die Russland-Expedition. Von der Newa bis zum Altai*, Munich: C. H. Beck, pp. 185–203.
- Lubrich O. (2020), "Wie verändert die Edition seiner Schriften unser Bild von Alexander von Humboldt?", in: *Abhandlungen der Humboldt-Gesellschaft* 43, pp. 137–158.
- Lubrich O. and Ette O., eds. (2004), Alexander von Humboldt, *Ansichten der Kordilleren und Monumente der eingeborenen Völker Amerikas*, translated by Claudia Kalscheuer, Frankfurt: Die Andere Bibliothek.
- Lubrich O. and Nehrlich T. (2015), "Alexander von Humboldt als internationaler Publizist. Zur Edition seiner sämtlichen Schriften", in: *Iberoamerikanisches Jahrbuch für Germanistik* 9, pp. 71–88.
- Lubrich O. and Nehrlich T., eds. (2019a), Alexander von Humboldt, *Sämtliche Schriften*, 10 volumes, Munich: dtv.
- Lubrich O. and Nehrlich T., eds. (2019b), Alexander von Humboldt, *Der Andere Kosmos. 70 Texte, 70 Orte, 70 Jahre. 1789–1859*, Munich: dtv.
- Lubrich O. and Nehrlich T. (2019c), "Der übersetzte Übersetzer", in: Alexander von Humboldt, *Sämtliche Schriften*, Munich: dtv, volume IX, pp. 11–22.
- Ortiz, F. (1930), Alexander von Humboldt, *Ensayo político sobre la Isla de Cuba, con un mapa de Cuba. Introducción por Fernando Ortiz y correcciones, notas y apéndices por Francisco Arango y Parreño, J. S. Thrasher y otros*, La Habana: Colección de libros cubanos.
- Strobl M. (2018a), "Alexander von Humboldts Pico del Teide-Aufstieg als mediale Selbstinszenierung um 1800", in: *Orbis Litterarum* 73:1, pp. 52–79.
- Strobl M. (2018b), "Humboldts Denken war politischer Zündstoff", in: *UniPress* 174 (May 2018), pp. 16–18.

- Strobl M. (2018c), “Alexander von Humboldt als *Public Intellectual*: Seine Beiträge in der *Neuen Zürcher Zeitung* (1825–1859)”, in: *Zeitschrift für Germanistik* 38:2, pp. 152–159.
- Weigl E. (1992), “Alexander von Humboldt und die ‘Sprache der Zahlen’. Anmerkungen zu neuen Werkausgaben”, in: *Merkur* 521, pp. 711–716.

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