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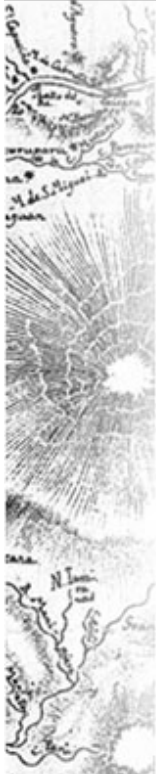
Alexander von Humboldt and the ‘Chaos of the Poets’

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Alexander von Humboldt’s Images of Landscape and the ‘Chaos of the Poets’

Rex Clark

Abstract

Alexander von Humboldt’s descriptions of volcanic mountains in his travel journals (*Reise auf dem Río Magdalena, durch die Anden und Mexico*) show both his reliance on and impatience with literary conventions and travel narratives. Using Goethe’s *Italienische Reise* and Bürger’s *Münchhausen* as points of comparison for literary treatments of the volcano ascent, Humboldt’s process of writing is examined to find modern forms of image and metaphor.

Zusammenfassung

Alexander von Humboldts Beschreibungen von Vulkanen in seinen Reiseberichten (*Reise auf dem Río Magdalena, durch die Anden und Mexico*) zeigen sowohl das Zutrauen zu als auch die Ungeduld mit literarischen Konventionen und Reiseerzählungen. Indem Goethes „*Italienische Reise*“ und Bürgers „*Münchhausen*“ als Vergleichsstoffe für literarische Darstellungen der Vulkanbesteigung herangezogen werden, untersucht der Aufsatz Humboldts Schreibprozeß, um moderne Formen von Abbildung und Metapher zu finden.

Resumen

Las descripciones de Alexander von Humboldt de las cadenas montañosas de formación volcánica en sus informes de viaje evidencian tanto confianza como impaciencia respecto de los informes de viajes de otros cronistas tomados como modelos literarios. En la comparación con „El viaje italiano“, de Goethe, y con „Münchhausen“, de Bürger, como ejemplos literarios de ascensiones a volcanes, se analiza el proceso de escritura de Humboldt para buscar formas modernas de ilustración y metáfora.

* * *

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Alexander von Humboldt’s Images of Landscape and the ‘Chaos of the Poets’

Rex Clark

1. Introduction

During his journeys in the Americas from 1799 to 1804 Alexander von Humboldt carried with him the narrative conventions of European travel literature. The travel journals in particular, recordings of immediate impressions, often show Humboldt applying narrative structures to the scenes he encountered. Humboldt’s journal entries on volcanoes are clearly influenced by literary modes of description. But a reading of Humboldt’s journals also shows where the limits of narrative conventions are confronted. The volcano descriptions provide a case study on Humboldt’s struggles to invent a travel narrative to match the demands of a new world. The natural world, the volcanic landscape, was new to the extent that it was relatively unknown to Europeans. If not to be rendered identical to European descriptions by imposed narrative conventions, Humboldt would need to experiment with other types of narrative.

For the eighteenth-century traveler to Italy, the ascent of Vesuvius near Naples or Mt. Etna in Sicily was a conventionalized event. The travel episode included preliminary preparations and expectations, then the account of the immediate impressions emphasizing the dangers of the climb, the powers of nature, and the chaos of the volcanic caldron. Often the story of the excursion is concluded with a retrospective evaluation. Goethe’s account in *Italienische Reise* exemplifies how adventure and factual observations are mixed with aesthetic perspectives and literary allusions. This set piece of travel narrative even became a focus of satire and humorous fantasy as shown by an episode in Gottfried August Bürger’s *Münchhausen* adventures. What are the common elements of these examples of travel accounts and their literary conventions?

2. Goethe and the ascent of Vesuvius

Both Goethe and Humboldt bring to their view of natural phenomena such as volcanoes a detailed knowledge of the earth sciences. Goethe maintained a life long interest in the sciences and any standard biography of Goethe discusses his interests, observations, experiments, and publications on geology, anatomy, biology, and optics.¹ Although much less a subject of scholarly interest, Goethe was also very concerned with applied technologies, in part because of his duties as an administrator for the court in Weimar. For example, he was involved with several failed attempts to put a local silver mine on a profitable basis.²

From 1786 to 1788 Goethe escaped his administrative obligations to travel in Italy. His account of these travels was not published until 1816 17 when his journals and letters from this time were revised into the *Italienische Reise*.³ During his stay there, he made what was an almost obligatory journey to view the volcano of Vesuvius. In the following we see that Goethe goes as a tourist to the edge of the volcano and he treats the event as entertainment. It is a game of daring danger and testing the power of nature in a playful challenge.

Wie aber durchaus eine gegenwärtige Gefahr etwas Reizendes hat und den Widerspruchsgeist im Menschen auffordert, ihr zu trotzen, so bedachte ich, daß es möglich sein müsse, in der Zwischenzeit von zwei Eruptionen den Kegelberg hinauf an den Schlund zu gelangen und auch in diesem Zeitraum den Rückweg zu gewinnen. ... Noch klapperten die kleinen Steine um uns herum, noch rieselte die Asche, als der rüstige Jüngling mich schon über das glühende Gerölle hinaufriß. (14: 362)

There is obviously no knowledge gathering process requiring study or preparation to this visit to the volcano. There is no pretense of discussing the writings of prior visitors to make a comparison of observations. This

contact with nature is thus filtered by preconceptions quite different from those with acquisitional travel goals. Once Goethe arrives at the top and looks down into the crater, it seems that there is little that would match the danger of the approach and the expectation of a spectacle:

Hier standen wir an dem ungeheuren Rachen, dessen Rauch eine leise Luft von uns ablenkte, aber zugleich das Innere des Schlundes verhüllte, der ringsum aus tausend Ritzen dampfte. Durch einen Zwischenraum des Qualmes erblickte man hie und da geborstene Felsenwände. Der Anblick war weder unterrichtend noch erfreulich, aber eben deswegen, weil man nichts sah, verweilte man, um etwas herauszusehen. (14: 362)

The language of description, using words such as „Rachen“ and „Schlund“ which evoke images of a fiery dragon's mouth, builds up an anticipation which reality seems to disappoint. Only an animal of superstition and myth could explain the power and mystery of the volcano. But it seems, the description of the volcano crater is unremarkable and Goethe notes in the last sentence that there is little to see which is instructional.

Since he is not inspired to make any comments or comparisons on the view into the volcano, Goethe continues with his narrative of danger:

Das ruhige Zählen war versäumt, wir standen auf einem scharfen Rande vor dem ungeheuern Abgrund. Auf einmal erscholl der Donner, die furchtbare Ladung flog an uns vorbei, wir duckten uns unwillkürlich, als wenn uns das vor den niederstürzenden Massen gerettet hätte; die kleineren Steine klapperten schon, und wir, ohne zu bedenken, daß wir abermals eine Pause vor uns hatten, froh, die Gefahr überstanden zu haben, kamen mit der noch rieselnden Asche am Fuße des Kegels an, Hüte und Schultern genugsam eingeäschert. (14: 362 3)

The images shift from the mythical dragon to instruments of modern warfare to heighten the suspense. The flying debris from the volcano is compared to the thunder („Donner“) and shot („furchtbare Ladung“) of a firing cannon. In short, this visit by Goethe to the volcano is a personal story of a small adventure with no attempt to make connections with any larger themes of literary or scientific interest. The story ends with little reflection or evaluation of the events.

On another visit to the volcano, Goethe gives a somewhat more systematic structure to the experience. This is an example of the narrative techniques used in the transformation of a landscape feature into a philosophic observation. The visit is prepared by the observation that first hand experience is more highly valued than received knowledge:

Die Kunde einer soeben ausbrechenden Lava, die, für Neapel unsichtbar, nach Ottajano hinunterfließt, reizte mich, zum dritten Male den Vesuv zu besuchen. ...
Man habe auch tausendmal von einem Gegenstande gehört, das Eigentümliche desselben spricht nur zu uns aus dem unmittelbaren Anschauen. (14: 385)

In the following passage, we see that again the attempt to make close observations are unsuccessful, yet several images are noted which will resonate in the later reflections. First the light of the sun contrasts with the dark glow of the lava and a few lines later the hot smoky realm is directly linked to the fires of hell:

Durch die hellste Sonne erschien die Glut verdüstert, nur ein mäßiger Rauch stieg in die reine Luft. Ich hatte Verlangen, mich dem Punkte zu nähern, wo sie aus dem Berge bricht...
Wir versuchten noch ein paar Dutzend Schritte, aber der Boden ward immer glühender; sonneverfinsternd und erstickend wirbelte ein unüberwindlicher Qualm. Der vorausgegangene Führer kehrte bald um, ergriff mich, und wir entwandten uns diesem Höllenbrudel. (14: 385 6)

After the preparatory remarks made during the actual experience of viewing the volcanic activity, Goethe looks back on the episode and makes a statement relating nature to the perception of sensations:

Der herrlichste Sonnenuntergang, ein himmlischer Abend erquickten mich auf meiner Rückkehr; doch konnte ich empfinden, wie sinneverwirrend ein ungeheurer Gegensatz sich erweise. Das Schreckliche zum Schönen, das Schöne zum Schrecklichen, beides hebt einander auf und bringt eine gleichgültige Empfindung hervor. Gewiß wäre der Neapolitaner ein anderer Mensch, wenn er sich nicht zwischen Gott und Satan eingeklemmt fühlte. (14: 386 7)

Although the stated goal is to gain knowledge directly „aus dem unmittelbaren Anschauen“ the images embedded in the previous volcano description fit almost too conveniently with these concluding comments. In this passage the sun and the lava images have now become metaphors relating features of nature to traditional contrasts of heaven and hell, of the beautiful and the horrific. The contemplation of the volcano gives rise to a superficial reference to Christian cosmology that views the two parts of nature as opposites. This leads to a comment on the sensation called forth by opposites, which in turn leads to an evaluation of the local culture or the nature of the local human character which must result from this sensation.

The perception of the volcano in the *Italienische Reise* is for the most part a narrative of personal impressions of particular visits to a well known tourist attraction. There is no attempt to find language to describe how the volcano functions. Perhaps Goethe’s lack of interest in this aspect was dictated by his stubborn adherence to the theories of the Neptunists, who believed the earth was formed from water deposits, over the Plutonists, who believed the earth produced the surface features by movement of the crust and by eruptions and deposits of a molten center. Thus the treatment of the trip to the volcano is limited to a narrative of personal experience with an occasional use of fairly traditional literary metaphor and comparison.

3. Bürger’s *Münchhausen*

Gottfried August Bürger’s *Wunderbare Reisen zu Wasser und Lande, Feldzüge und lustige Abenteuer des Freiherrn von Münchhausen* is a collection of short tall tales, travel adventures, and humorous exaggerated stories of all kinds. The first editions of the Münchhausen tales were produced in several English editions by Rudolf Eric Raspe beginning in 1785. This material was translated, revised, and expanded by Bürger, with the second edition of 1788 used as the standard text.⁴ The origins of many of the tales are taken from many cultures and different eras, some dating from antiquity. The episode of the volcano is a humorous mixture of fantasy and classical mythology.

The narrator Münchhausen begins his description of the trip to Mt. Etna in Sicily with a satirical comparison to an actual travel book. He uses this comparison to belittle the attention to boring details and the purely financial motives of travel writers:

Auf meinem Wege dahin stieß mir nichts Merkwürdiges auf. Ich sage *mir*; denn mancher andere hätte wohl manches äußerst merkwürdig gefunden, und zum Ersatz der Reisekosten umständlich dem Publikum erzählt, was mir alltägliche Kleinigkeit war, womit ich keines ehrlichen Mannes Geduld ermüden mag. (99)

This gives us an example of the attitude of the narrator who is quick to boast of his own superior wit and intelligence. The condescending attitude towards travel literature is a way for Bürger to ridicule the contemporary trend toward detailed factual travel reporting, but it is also at the same time in keeping with the goal of a fast paced narrative to entertain the reader and it is in character with Münchhausen’s travel goal of seeking adventure. The following comment combines the motives of danger and adventure we have seen in the description of volcanoes and a nod to the goal of research and fact gathering:

Eines Morgens reisete ich früh aus einer am Fuß des Berges gelegenen Hütte ab, fest entschlossen, auch wenn es auf Kosten meines Lebens geschehen sollte, die innere Einrichtung dieser berühmten Feuerpfanne zu untersuchen, und auszuforschen. (100)

After arriving at the top of the crater, the narrator comes to the moment where he is faced with the difficulty of describing the inside of the volcano, a moment that seemed to challenge even Goethe. Münchhausen dodges the expectation of a description by again cleverly making fun of the existence of so many accounts from other travelers:

Nach einem mühseligen Weg von drei Stunden befand ich mich auf der Spitze des Berges. Er tobte damals gerade, und hatte schon drei Wochen getobt. Wie er unter den Umständen aussieht, das ist schon so oft geschildert worden, daß, wenn Schilderungen es darstellen können, ich auf alle Fälle zu spät komme; und wenn sie, wie ich aus Erfahrung sagen darf, es nicht können, so wird es am besten getan sein, wenn nicht auch ich über dem Versuche einer Unmöglichkeit die Zeit verliere, und Sie die gute Laune. (100)

Münchhausen saves himself from finding the language to describe the crater by taking a more direct route to investigating the volcano. He simply jumps into the lava where he sinks to the bottom and finally arrives at the site of Vulcan’s workshop:

Das erste was ich gewahr wurde, war ein abscheuliches Poltern, Lärmen, Schreien und Fluchen, das rings um mich zu sein schien.—Ich schlug die Augen auf, und siehe da!—ich war in der Gesellschaft Vulkans und seiner Zyklopen. Diese Herren—die ich in meinem weisen Sinne längst ins Reich der Lügen verwiesen hatte—hatten sich seit drei Wochen über Ordnung und Subordination gezankt, und davon war der Unfug in der Oberwelt gekommen. (100-1)

Bürger depicts the workings of a volcano by invoking mythological characters, and then giving them a comical treatment tinged with political commentary. In a subtle analogy criticizing the contemporary aristocratic ruling class, the subterranean figures in positions of power, who hold sway over events on the earth above, are so busy with juvenile bickering about rank that chaos results among humans. Where Goethe’s treatment of the volcano relied on simple eye witness descriptions mixed with a few philosophical musings, this account puts the volcano into the realm of myth and supernatural gods whose actions have unintentional effects on the helpless and unknowing humans on earth.

The explanation for volcanic eruptions is not however without a sense for logical causality. As it turns out, the structure of the volcano can be easily explained as just a byproduct of technical processes in Vulcan’s smithy and some difficulties with his apprentices:

Vulkan gab mir eine sehr genaue Beschreibung von dem Berg Ätna. Er sagte mir, daß derselbe nichts als ein Aufhäufung der Asche wäre, die aus seiner Esse ausgeworfen würde, daß er häufig genötigt wäre, seine Leute zu strafen, daß er ihnen dann im Zorn rotglühende Kohlen auf den Leib würfe, die sie oft mit großer Geschicklichkeit parierten, und in die Welt hinaufschmissen, um sie ihm aus den Händen zu bringen. „Unsere Uneinigkeiten“, fuhr er fort, „dauern bisweilen mehrere Monate, und die Erscheinungen die sie auf der Welt veranlassen, sind das was ihr Sterbliche, wie ich finde, *Ausbrüche* nennet.“ (101)

Bürger’s fictional treatment of the volcano is curious mixture of the fantastic combined with the logical reasoning of the modern natural observer. This passage is a good example of how Bürger often uses the logic of ordinary objects and processes as the basis for bringing a convincing level of realism into Münchhausen’s exploits. In the middle of a wildly absurd situation we receive an explanation in the plausible style of a lecturing professor on the causes of natural phenomena—volcanic eruptions are just a result of the work in the smithy.

Bürger uses the freedom of fictional situations when needed to criticize writing conventions or to carry out veiled social satire. In part, the Münchhausen story is a parody of the traveler writers of the day who visit the same famous landmarks and repeat with tedious detail their experiences. Bürger’s response to this is a revival of the fantastic lies of older travel literature and a recursion to mythic figures in comic form. He follows the form of a travel narrative, for example, by investigating and reporting on the exact structure and workings of the volcano. He retains the narrative forms of travel reports and fills them with fanciful adventures and mock explanations with language and metaphor drawn largely from traditions of popular literature. While the complex language of fiction is difficult to compare with the writings of Goethe and Humboldt, who may make philosophical musings but do not wander from the track of factual reporting into pure fantasy, it can be seen

that in his mixture and parody of styles Bürger often uses images taken from a modern world of human-scale inventions and mechanical technology which compete with the powers of nature.

Yet the descriptions of nature are from a mythical figure and the causes of natural forces in the final instance are personified into the actions of the gods. The relationship of humans to nature is cast in terms of age old stories and myth, although Bürger’s comical treatment of these tales clearly shows they are not serious explanations of nature. By contrast Goethe still uses images which evoke the power of dragons and to conclude his commentary he makes some remarks on heaven and hell which give cosmological meanings to certain features of nature. Humboldt, however, moves much further to realign the relationship of humans to nature.

4. Humboldt and the volcanoes of South America

Humboldt’s climbing expeditions were legendary and his interest was especially drawn to active volcanoes. Since the time spent in the volcanic regions occurred after the end of his incomplete published travel narrative,⁵ the volcano descriptions are drawn from the edited version of Humboldt’s manuscript journals which include his travels in the Andes: *Reise auf dem Río Magdalena, durch die Anden und Mexico*.⁶ In his journal entries, written in German until he reaches the city of Quito in early 1802 and thereafter mostly in French, Humboldt often speculates and searches for words to explain earthquakes and volcanic eruptions. Of course, Humboldt felt that the study of volcanoes could yield answers to the fundamental debates of the Neptunists and the Plutonists on the forces which created terrestrial features.⁷ But Humboldt also makes use of the danger and adventure element in some of his description of volcanoes. He did not need to offer philosophical musings or mythological comedy for the sake of effect, for he risked his life on several occasions to get as close as possible to active volcanic craters. For example, during the first visit to the crater of Rucupichincha near Quito, Humboldt along with a native guide, Philippe Aldas, walked out on an eight-inch thick snow shelf connecting two rocks bridging over the hot crater. He realizes the danger only when he looks back and sees the glow of the burning crater through the thin ice sheet:

Nous serions donc tombés à 200 toises de profondeur et dans la partie du cratère qui est la plus enflammée et sans qu’à Quito, si non par les traces dans la neige, on eut su ce que nous étions devenus. ... Nous commençâmes à examiner le danger duquel nous nous étions tirés. Nous jetâmes une pierre sur la neige plus proche du trou par lequel nous avions vu la flamme de soufre. Cette pierre agrandit le trou et nous nous rassurâmes que nous avions marché sur une crevasse entre les deux rochers ... et qu’une couche de neige gelée, mais à peine de 8 pouces de grosseur, nous avait soutenus. (1: 203)

After reaching the crater, just as with our previous travelers, Humboldt stands at the edge and seems to reach for words to describe what he also feels is a disagreeable scene below. He turns to other writers to find adequate comparisons, makes analogies with the underworld and invokes well known poets and works:

Aucune langue n’a des mots pour exprimer ce que nous vîmes. [...] M[onsieu]r de la Condamine a très bien comparé cet endroit au Chaos des poètes. On croit voir un monde détruit et sans espérance de pouvoir jamais servir de demeure à des être organisés. Je n’ai rien vu dans le monde qui m’aye laissé une impression plus profonde, mais en même temps plus désagréable. (1: 203 4)

Je me sens étouffé (ansio[so]) en écrivant ces lignes. Je me crois encore suspendu sur ce gouffre affreux. La couleur sombre et lugubre, la grandeur des masses et surtout le peu de clareté avec laquelle on découvre les objets, ce voile mystérieux des vapeurs qui dérobe une partie en découvrant une autre—tout cela monte l’imagination et l’exalte comme un Chant du Paradis perdu de Pope.⁸ (1: 204)

Humboldt seems to be following a script of volcano descriptions as he looks down into the depths and he tries to evoke literary allusions which will match the stimulation of the imagination to be expected at such a moment. The ‘chaos of the poets’ referencing Condamine, the leader of the earlier French expedition to

measure the equatorial meridian, is similar to the use of the phrase by Descartes. It is the cosmology of the mythical, pre-rationalistic world transmitted to us by the poets of antiquity. In the *Discours de la méthode* even if one concedes an imaginary world of chaos as described by the poets, the divine laws will form a rational world.⁹ Humboldt also seems willing to concede that the poets can best describe the chaos, but just as quickly he wants to look for a way to delineate the structures of primary causation, of course, in a completely secular manner. Seemingly following narrative conventions, he feels obligated to attempt a literary description, yet he moves on to other metaphors and perspectives to try to capture aspects of the volcano’s structure and workings. The language of myth and poetry is no longer adequate to the narrative task.

Turning from this descriptive mode, Humboldt now begins a rational examination of what he sees in order to explain both the viewing conditions and the phenomenon of volcanic activity. The viewing experience is compared to a modern invention – the magic lantern:

Les vapeurs sont dans un mouvement continu dans l’intérieur du cratère, agitées par la chaleur du feu volcanique. A peine a t on fixé les yeux pour bien examiner une partie, que déjà cette partie s’obscurcit, et que l’on choisit une autre, également frustré dans ses espérances on croit voir une lanterne magique dans laquelle les images ne sont pas placés dans le foyer des verres. Tout ce que l’on voit intéresse, inspire de l’horreur, mais on ne peut développer ce que l’on a vu. Il est certain que dans une position aussi critique, incommodé des vapeurs sulfuriques et l’imagination aussi montée, on juge très mal de la grandeur des objets. (1: 204)

Yet the view of nature is obscured and flawed, and Humboldt waits in vain for a clear perspective. The magic lantern of nature, it seems, has not been properly loaded with images. This appearance of nature, where he is inconvenienced by the vapors and his own imagination, like the descriptions of poets, does not provide him with a means of explaining the volcanic structures.

In the following passage, Humboldt carries out a long comparison of European and American volcanoes. In comparing them, he begins to analyze them in terms of a mechanical system. Humboldt conceptualized volcanoes as structures where the shape and strength of the solid sections of mountains function as containers with openings and connecting passages where pressures, fluids, and gases interact in ways he explicitly compares to mechanical systems. First the inside properties of the volcanoes are compared:

[Die] Vulcane in Süd-Amerika [sind] ganz anderer Art als in Europa, mehr Objekte der Physik (Luft- und Wasser-Phänomene) als der Mineralogie. Von großen Lavengüssen wie am Vesuv und Ätna habe ich nie gehört, selbst [der] Cotopaxi und Tungurahua scheinen Lava nur in geringer Quantität hervorzubringen. (1: 147)

Next the effect of the greater height of the American volcanoes is considered. Like any good mechanical engineer, the weight of the matter and the height to which it is to be moved through the volcanic system is calculated in terms of the amount of power necessary:

Wegen [der] Höhe kommt [die] geschmolzene Steinmasse, welche sie gewiß in ihrem Busen wie Vesuv und Ätna verbergen, selten bis an den Schlund, nur elastische Flüssigkeiten (Wasser und Dämpfe) steigen bis dahin, wegen ihrer Leichtigkeit. Es gehört eine grenzenlose Vermehrung der Kraft dazu, wenn [der] Antisana aus [seinem] Gipfel Lava speien sollte und in Menge. (1: 147 8)

Finally, given these variables of the height, weight, and power of the exploding volcanic material, Humboldt now considers the necessary size of the openings which are made during an eruption:

Vielleicht [sind] deshalb auch große Krater, eigentliche Krater so selten, die so nur bei Auswürfen von Steinmassen entstehen. Dämpfe elast[ischer] Flüssigkeiten bedürfen nur kleinerer Mündungen und so die bocas des Puracé. Diese Ideen erklären wenigstens etwas. (1: 148)

Humboldt’s last sentence shows that his goal is not to describe in words the natural features of a volcano, but to „explain“ with „ideas“ the function of the landscape he sees before him. The point of his explanation is to show how the volcanic mountains are part of a dynamic pressure system which he links to earthquake activity. The objects in front of him mutate and the vocabulary begins to reflect the principles of the fluid system. We have „Steinmassen“ rather than isolated rocks, and we have fluids which are „elastic“ changing to steam. Now that these objects are better understood when seen as part of a system governed by physical laws, volcanic activities become part of a predictable, understandable model. Earthquakes are caused by an interruption of the flow of steam vapor to mouths of volcanoes. In other words, the safety valves of the earth’s machine become stopped up and this is the cause of earthquakes:

Les éruptions des volcans et surtout ceux de Cotopaxi ne sont pas accompagnées de tremblements de terre, ou si l’on en a senti, ils ne sont que légers. Les grands tremblements de terre, qui ruinèrent Latacunga en 1698, 1736, 1757, étaient sans éruptions du volcan. Il paraît que quand la communication avec la bouche des volcans est interrompue et que les vapeurs n’y sortent pas qu’alors la mine joue par en bas. Las erupciones desahogan, dit ici le peuple et avec raison. Le tr[emblement] de t[erre] est l’effet d’une éruption empêchée. Il en est de même de Tungurahua. Il est le moins à craindre quand il jette des flammes. (1: 200)

Now that Humboldt has conceptualized the volcanic landscape in terms of scientific laws, his descriptive language finds an appropriate metaphor, a human-scale invention based on similar principles:

Voll Neugierde, aber nicht ohne Furcht, näherten wir, Bonpland und ich und die Indianer (denn die Gefährten kamen spät nach) uns dem Schlunde, der boca grande, eine kaum 6 Fuß lange und 3 Fuß breite Öffnung, aus der rothgelbe Schwefeldämpfe mit einem Gezisch und einem Geräusch ausfahren, welches kaum mit irgendetwas zu vergleichen ist. Vierzig Schmiedeessen in vollem Gebläse geben minder Geräusch. Am ähnlichsten ist das Gezisch den Dämpfen, welche aus der Feuermaschine (Steam-engine) ausfahren, wenn man das Ventil am Cilinder plötzlich öffnet. (1: 145)

In the preceding passage Humboldt has approached the crater of the volcano and is searching for the right images and metaphors to express what he experiences. To do so he reaches into the vocabulary of new technologies to find an analogy for the sounds of the volcano. Like Bürger, Humboldt first looks to images from the forge of the ironsmith to convey the heat and noise of the scene before him. But finally Humboldt finds a new source of descriptive language to portray the volcano landscape. It is the steam engine, so new to the German language that he uses English terms and spelling. It is this new invention of the dawning industrial age that provides the best image to illustrate the workings of the volcano.

In light of the earlier examples from Goethe and Bürger, the mythical language used to describe the workings of nature and to relate the natural world to human thinking has given way to metaphors of human-scale constructions as a model for nature. Humboldt has confronted the traditions of myth, classicism, and the ‘chaos of the poets’ with inventive images of landscape based on scientific principles. Yet the use of science metaphor is not the dominant measure of Humboldt’s innovative position. Humboldt’s journey towards modernity is marked by a worldview that continually questioned, disrupted, and reinvented narrative to describe the complex realities of the Americas.

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Endnotes

- ¹ Richard Friedenthal, *Goethe, sein Leben und seine Zeit*, 2 vols. München: Piper, 1963, devotes a chapter to Goethe’s study of nature (354-70). Several essays and an extensive bibliography are included in the volume by Frederick Amrine, Francis J. Zucker, and Harvey Wheeler, *Goethe and the Sciences: a Reappraisal*. Dordrecht: Reidel, 1987.

- ² Goethe’s experience with technology and the appearance of related themes in his fictional works is examined by Willy Michel, „Goethes Erfahrung frühindustrieller Fremde. Initiation und Fiktion im Kontext der zeitgenössischen Reiseliteratur,“ *Jahrbuch Deutsch als Fremdsprache* 9 (1983): 17- 43.
- ³ Johann Wolfgang von Goethe. *Italienische Reise*. 1816-17. In vol. 14 *Poetische Werke. Berliner Ausgabe*. 22 vols. Berlin: Aufbau, 1961-78.
- ⁴ Gottfried August Bürger. *Wunderbare Reisen zu Wasser und Lande, Feldzüge und lustige Abenteuer des Freiherrn von Münchhausen*. Nach der Ausgabe von 1788. Ed. Irene Ruttman. Stuttgart: Reclam, 1969.
- ⁵ Despite the title, only the first two years of the expedition became part of the travel narrative published during Humboldt’s lifetime as *Relation historique du Voyage aux Régions équinoxiales du Nouveau Continent, fait en 1799, 1800, 1801, 1802, 1803, et 1804 par Al. de Humboldt et A. Bonpland* (1814-1831).
- ⁶ Alexander von Humboldt. *Reise auf dem Río Magdalena, durch die Anden und Mexico*. Ed. Margot Faak. 2 vols. Berlin: Akademie, 1986-90.
- ⁷ Herbert Wilhelmy, „Humboldts südamerikanische Reise und ihre Bedeutung für die Geographie,“ *Die Dioskuren: Probleme in Leben und Werk der Brüder Humboldt*, ed., Hanno Beck. Mannheim: Humboldt-Gesellschaft, 1986, explains the details of this scientific debate and concludes that „Humboldt ging als Neptunist nach Südamerika und kehrte als Plutonist zurück“ (193).
- ⁸ Margot Faak, *Reise auf dem Río Magdalena*, notes that Humboldt has mistakenly written Pope instead of John Milton as the author of *Paradise Lost* (2: 341).
- ⁹ René Descartes. *Discours de la méthode*, 1637. „Même, pour ombrager un peu toutes ces choses, et pouvoir dire plus librement ce que j’en jugeais, sans être obligé de suivre ni de réfuter les opinions qui sont reçues entre les doctes, je me résolus de laisser tout ce monde ici à leurs disputes, et de parler seulement de ce qui arriverait dans un nouveau, si Dieu créait maintenant quelque part, dans les espaces imaginaires, assez de matière pour le composer, et qu’il agitât diversement et sans ordre les diverses parties de cette matière, en sorte qu’il en composât un chaos aussi confus que les poètes en puisse feindre, et que par après il ne fit autre chose que prêter son concours ordinaire à la nature, et la laisser agir suivant les lois qu’il a établies“ (Cinquieme Partie).