Spatial Turns

Space, Place, and Mobility in German Literary and Visual Culture

Edited by
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Amsterdam - New York, NY 2010

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Mapping Vision: Goethe, Cartography, and the Novel

In the first half of the nineteenth century, geological maps, periodicals, and atlases came to occupy a key position within the market for printed material. In the work of figures like Alexander von Humboldt, Leopold von Buch, Carl Ritter, Adolf Stieler, and Heinrich Berghaus, the principle project of geo-graphy – the relationship of writing to space – had assumed renewed cultural urgency. This essay explores how the printed form of the map worked in concert with the novel to reorient readers' envisioning of space and of themselves. Goethe's late novels and a number of cartographical projects from this period reveal how maps and novels participated in a larger bibliographic universe to create a new sense of space and self according to the principles of stratification, discretization, and relationality. Whereas early modern cartography's grid had stood for a scientific paradigm in which the observer's static vision was controlled by the lines on the page, divorcing it from any corporeal intimacy with the space projected, the grid for Goethe had become the preeminent sign of potentiality, of an imaginative, embodied, and relational vision of space.

"History will have to assume, whether explicitly or not, a geographical element".
– Carl Ritter

Cartographic Visions

In the early summer of 1821, there appeared on the German book market a publication entitled, *Teutschland geognostisch=geologisch dargestellt, mit Charten und Durchschnittszeichnungen, welche einen geognostischen Atlas bilden. Eine Zeitschrift* [*Germany geognostically=geologically represented, with Maps and Landscape Views, which comprise a geognostic Atlas. A Periodical*], which was edited by Christian Keferstein and dedicated to Goethe. Accompanied by a series of maps illuminated (or colored) by Keferstein and based on a color scheme designed by Goethe, the periodical was part of a larger tide of geological maps, periodicals, and atlases that were fast occupying an important position within the market for printed material in the first half of the nineteenth century. Indeed, Keferstein's publisher, the *Landes-Industrie-Comptoir* in Weimar, which had been founded by Friedrich Justin Bertuch in 1791 and had later given birth to the *Geographisches Institut* in 1804, had become one of the major European centers of scientific, and above all cartographic, publication at the turn of the nineteenth century. Along with Justus Perthes' shop in Gotha, such publishing houses were the means through which German mapmaking was fast assuming a leading position in

the intersecting fields of cartography and geology. Embodied in such figures as Alexander von Humboldt, Leopold von Buch, Carl Ritter, Adolf Stieler, and Heinrich Berghaus, the principle project of geo-graphy – the relationship of writing and space – had by the turn of the nineteenth century assumed renewed cultural urgency.

In this essay, I want to return to this historical moment when a range of individuals were thinking through challenging new ways of envisioning and representing space. But in doing so I want to move beyond the confines of the disciplinary perspectives of cartography or geology and offer instead a broader perspective of how this new spatial awareness – and the means to represent it – came about. Keferstein's project, and Goethe's involvement in it, have traditionally been understood within two basic foundationalist narratives: either as the creation on the part of Keferstein of the "first" geological map of the not-yet existing "Germany", or, on the part of Goethe, as the establishment of a color scheme that would form the basis of a future international standard for illuminating geological maps.[1] It has thus served, on the one hand, as a key index of cartography's capacity for (quite literally) making nations and, on the other, as an affirmation of the always conflicted cultural significance of Goethe's work on color. But what is equally significant about this encounter is the way it illustrates the intimate intersection of two representational forms in print that both played a key role in shaping nineteenth-century readers' relationship to space: the cartographic and the novelistic.

Keferstein's undertaking began when he wrote to his publisher, Ludwig Friedrich von Froriep (Bertuch's successor), in January of 1821 to ask Goethe for help in constructing a table of colors for the illumination of geological strata in his planned atlas. We find notes in Goethe's daily journals that he was thinking about Keferstein's request by mid-March ("Kefersteins geologische Karte und ihre Färbung durchgedacht" ["reflected on Keferstein's geological map and its coloration", 17.3.1821]), and between then and September of the same year, when he wrote a review of the atlas to be published later in his journal, *Zur Naturwissenschaft überhaupt* [*On Natural Science Generally*], Goethe was occupied on and off with observing and thinking about Keferstein's chromatic cartographical project.[2] And yet it was precisely during

[1] Walter Steiner: Christian Keferstein und das Erscheinen der ersten geologischen Übersichtskarte von Mitteleuropa im Jahre 1821. Zugleich ein Beitrag zur Goetheforschung und zur Geschichte des Kartendrucks und des Verlagswesens. In: *Geologen der Goethezeit*. Ed. by Hans Prescher. Essen: Verlag Glückauf 1981. Pp. 99–143.

[2] J.W. Goethe: *Werke*. III. Abtheilung. Vol. 8. Weimar: Böhlau 1999. P. 29; J.W. Goethe: Bildung des Erd-körpers. In: *Zur Naturwissenschaft überhaupt*. Vol. 1.4. Stuttgart: Cotta'schen Buchhandlung 1822. Pp. 331–334.

this period between January and the late summer of 1821 when Goethe was also preparing the first part (1. Theil) of his last novel, *Wilhelm Meisters Wanderjahre* [*Wilhelm Meister's Travels*], for publication and conceptualizing portions that were to comprise the second part. And it was also during this period when Goethe then *gave up* on publishing the second part, which was gradually transformed over the course of the 1820s into a second *version* (2. Fassung), a shift that occurred during the same decade that saw Goethe's active involvement in the growing geological debates of his age and the observation of the maps that would serve as the visual proxies for such arguments. The brief encounter between Goethe and Keferstein thus brings to light a larger cultural intersection between these two key nineteenth-century print genres, the map and the novel, that would have a decisive impact not only on Goethe's late work but on nineteenth-century readers more generally.

There has been a great deal of recent work on the intersections of cartography and the novel, participating in what has been felicitously termed the "topographical" turn in literary study today.[3] Maps have been studied as interpretive aids of the spatial structures of the plots of novels[4]; as illustrations to novels[5]; as source material for novelists' writing practices[6] as crucial metaphors or themes within novels[7]; and as part of larger textual matrices for the study of the making of national or imperial imaginaries.[8] My own work in this field, however, is motivated less by seeing maps as analytical tools, as somehow prior to interpretation, a move that lends these otherwise historically

[3] Sigrid Weigel: Zum "topographical turn". Kartographie, Topographie, und Raumkonzepte in den Kulturwissenschaften. In: *KulturPoetik* 2.2 (2002). Pp. 151–165. *Topographien der Literatur. Deutsche Literatur im transnationalen Kontext*. Ed. by Hartmut Böhme. Stuttgart: Metzler 2005.

[4] Franco Moretti: *Atlas of the European Novel 1800–1900*. London: Verso 1998.

[5] Simon Joyce: Maps and Metaphors: Topographical Representation and the Sense of Place in Late-Victorian Fiction. In: *The Victorian Illustrated Book*. Ed. by Richard Maxwell. Charlottesville: University of Virginia Press 2002. Pp. 129–162.

[6] Eric Bulson: *Novels, Maps, Modernity: The Spatial Imagination 1850–2000*. New York: Routledge 2007.

[7] Matthias Buschmeier: Ordnungen der ungesicherten Welt. Archiv und Karte in der Metaphorologie des Wissens bei Sterne und Goethe. In: *Topographien der Literatur*. Pp. 126–150. See also: J. Hillis Miller: *Topographies*. Stanford: Stanford University Press 1995.

[8] Martin Brückner: *The Geographic Revolution in Early America. Maps, Literacy and National Identity*. Chapel Hill: University of North Carolina Press 2006. Chenxi Tang: Romantische Orientierungstechnik. Kartographie und Dichtung um 1800. In: *Topographien der Literatur*. Pp. 151–176. Ricardo Padron: *The Spacious Word. Cartography, Literature, and Empire in Early Modern Spain*. Chicago: University of Chicago Press 2004. Bernhard Klein: *Maps and the Writing of Space in Early Modern England and Ireland*. New York: Palgrave 2001.

contingent representations a normative force (as in the work of Franco Moretti). Nor is it motivated by looking at how maps assume an "illustrative" function within novels, as subordinate to the word and separate from the scientific field that generated maps. Rather, I am interested in exploring from a book-historical perspective the way maps and novels participated within a larger bibliographic universe of creating imaginary spaces for readers, the way they jostled with one another to shape readers' relationship to, and thus perception of, space. Such a practice is informed by what Bernhard Klein has suggested as the conceptual move from the study of "maps" to that of "mapping",[9] or in the words of Martin Lewis and Kärin Wigen, towards the study of "a set of spatial structures through which people order their knowledge of the world".[10] In place of understanding how such bibliographic networks participated in the demarcation of national or imperial boundaries, however, I want to understand instead how the looking that was staged in both novels and maps shaped individuals' envisioning of space more generally. My aim, in other words, is to bring together work in the various fields of the history of the book, history of science, and a history of literature in order to approach what Henri Lefebvre first called the study of the "production of space".[11] How did the proliferation of novels, atlases, and maps at the turn of the nineteenth century work in concert to contribute to a greater reorientation of the perception of space itself, to what we might call a new cartographic vision? And how did the emergence of such perceptual regimes promote and make available new kinds of subjectivity after 1800? How did sight and self, in other words, overlap?

The role of Goethe's late work in transforming theories of both perception and subjectivity has served as one of the more vital sites for the growing field of visuality studies today.[12] Beginning with the composition of the novellas for *Wilhelm Meisters Wanderjahre*, out of which emerged *Die Wahlverwandschaften* [*Elective Affinities*] along with the publication of the *Farbenlehre* [*Theory of Color*], Goethe's late work has been understood as a crucial driving force in the emerging subjectivity of vision that would become a hallmark of modern visuality. Despite such repeated attention to Goethe and the question of perception, however, little work has been done on the role of cartography in Goethe's own *oeuvre* or in shaping readers' perceptual field during this

[9] Bernhard Klein: *Maps and the Writing of Space*. P. 9.
[10] Martin Lewis and Kärin Wigen: *The Myth of Continents. A Critique of Metageography*. Berkeley: University of California Press 1997. P. ix.
[11] Henri Lefebvre: *The Production of Space*. Trans. by Donald Nichols-Smith. Oxford: Blackwell 1991.
[12] See most recently, *The Enlightened Eye: Goethe and Visual Culture*. Ed. by Evelyn K. Moore and Patricia Anne Simpson. Amsterdam: Rodopi 2007.

period. And yet as historians of cartography have told us, the early nineteenth century marked a period of dramatic cartographic change that was akin to the innovations brought about by the mapping of the new world in the early modern period. Such changes were driven in large part by the work of German cartographers and natural historians during this period and they were integrally related to the emerging field of geology.[13] The new world that was the object of this new nineteenth-century cartographic vision was significantly conceived as an underworld. The principles of mapping had shifted away from the early-modern prioritization of a static, global vision to an increasingly serialized, stratified, and relational one. This new object of knowledge crucially generated new ways of knowing.

In what follows, I will explore the nexus of the map and the novel in their capacity to generate a new sense of space and self through the work of Goethe's late novels, his geological writings (and illustrations), and the variety of cartographical projects that he either possessed or knew about from the early nineteenth century. Not only did Goethe own an ample collection of maps during his lifetime (over three-hundred maps and three miscellaneous atlases bringing the total close to 400 cartographical leaves), maps also emerge with fascinating frequency in his prose fiction. The entire plot of the *Wahlverwandschaften* of course revolves around the arrival of the captain to map and reorganize the family estate, but maps also emerge at key moments in Goethe's *Unterhaltungen deutscher Ausgewanderten* [*Conversations of German Refugees*] and then later in *Wilhelm Meisters Wanderjahre*, where, for example, we find maps on the walls of the uncle's estate; Julie studies geography in *Wer ist der Verräther?* [*Who is the Traitor?*]; Hilarie and the Major first enunciate their love for one another in front of a genealogical map; and the uncle's proudest innovation is to eat "nach der Karte" ["according to a menu"]. Maps thus enter into Goethe's fiction in quite literal and diverse ways. But in the sheer variety of navigational concern in Goethe's late fiction, we can also discern an overriding concern with the geological at the base of these fictional mappings. As the cartographic was increasingly being shaped through its relationship to the geological in the nineteenth century, Goethe's own geological writings and their illustrative practices emerge as essential terrain to understand his engagement with the geologization of vision and subjectivity that was taking place during this period. There is, I will argue, a fundamental geo-logic to his late novelistic writing.

[13] G.R. Crone: *Maps and Their Makers*. Hamden: Archon 1978. P. 126. *The History of Cartography*. Ed. by J.B. Harley and David Woodward. Chicago: University of Chicago Press 1984. Ralph Ehrenberg: *The Earth Revealed. Aspects of Geologic Mapping*. Washington: Library of Congress 1989. Ute Schneider: *Die Macht der Karten. Eine Geschichte der Kartographie von Mittelalter bis heute*. Darmstadt: Primus 2004.

Whether at a narratological, mediological or figural level, Goethe's novels thus represent a tour de force of the new modes of spatial thought being generated in the intersecting fields of German cartography and geology at the turn of the nineteenth century and the way such visual mappings promoted new maps of subjectivity and self. As we will see, such emerging notions of subjectivity were not always integratable or compatible with one another, but the important point is that in each case their availability was often deeply indebted to Goethe's own scientific poetics. It is precisely through this circular energy between the two printed spaces of the map and the novel in Goethe's work where we can begin to chart the innovative ways that space and self were being reconceived around 1800: from the stratification of temporal consciousness, to the disaggregation of the perception of different scales of space and self, and finally, to the relationality of spatial perception that helped shatter the exclusivity of notions of space and species and ushered in a new relativity of the idea of "location".

The Spatialization of Time (The Stratigraphical Map)

Goethe's *Wilhelm Meisters Wanderjahre* (1808-29) is well known for its explicit engagement with the geological debates of the early nineteenth century, and critics have principally attended to the chapters in which Wilhelm and Montan discuss the nature of the earth and the possibility of its interpretation. But already at the outset of the novel we encounter a consideration of the geological through the opening figure of the cliff. "Im Schatten eines mächtigen Felsen saß Wilhelm an grauser, bedeutender Stelle, wo sich der steile Gebirgsweg um eine Ecke herum schnell nach der Tiefe wendete" ["In the shadow of an imposing cliff Wilhelm sat on a chilling, consequential spot where the steep mountain path quickly turned around a corner towards the valley below"].[14] As Martin Rudwick has shown, the cliff view had become *the* central figure of an emerging stratigraphical perspective that would come to define the geological sciences during the early nineteenth century.[15] The figure of the cliff hovered between an aesthetic object made familiar to readers through the numerous picturesque tours that dominated the market for illustrated books and a scientific object that revealed the new temporalization of the earth's surface. Wilhelm's position in the cliff's shade thus figured a crucial site of interchange between scientific and aesthetic vision, one that turned on the key question of seeing time.

[14] J.W. Goethe: *Wilhelm Meisters Wanderjahre. Sämtliche Werke*. Vol. 10. Ed. by Gerhard Neumann. Frankfurt/Main: Deutscher Klassiker Verlag 1989. P. 263.
[15] Martin Rudwick: The Emergence of a Visual Language for Geological Science, 1760–1890. In: *The New Science of Geology*. Aldershot: Ashgate 2004. Pp. 149–195.

The rising concern with the stratigraphical nature of the earth is variously attributed to William Smith's massive *A Delineation of the Strata of England and Wales* (London 1815) or Georges Cuvier and Alexandre Brongniart's *Essai sur la géographie mineralogique des environs de Paris* [*Essay on the mineralogical geography of the environs of Paris*, Paris 1811], which provided a color-coded geological map of the Paris basin. Keferstein's own illuminated geological atlas, which shifted between cliff views of various regions and topographical representations of the distribution of rock masses, was thus deeply indebted to this new concern with a temporally layered ground (fig. 1).

On the one hand, stratigraphy was part of the larger verticalization of culture around 1800 famously invoked by Foucault in *The Order of Things*.[16] Such representations popularized the notion of a "deep earth", whether spatially or temporally, and established the pictorial scene against which the deep self of Romanticism could define itself. On the other hand, the stratigraphical raised a problem of visualization, of how to envision such inaccessible depths. While the cliff view – the shorn vertical earth – provided an ideal space where such depths could be mimetically rendered, it was the topographical

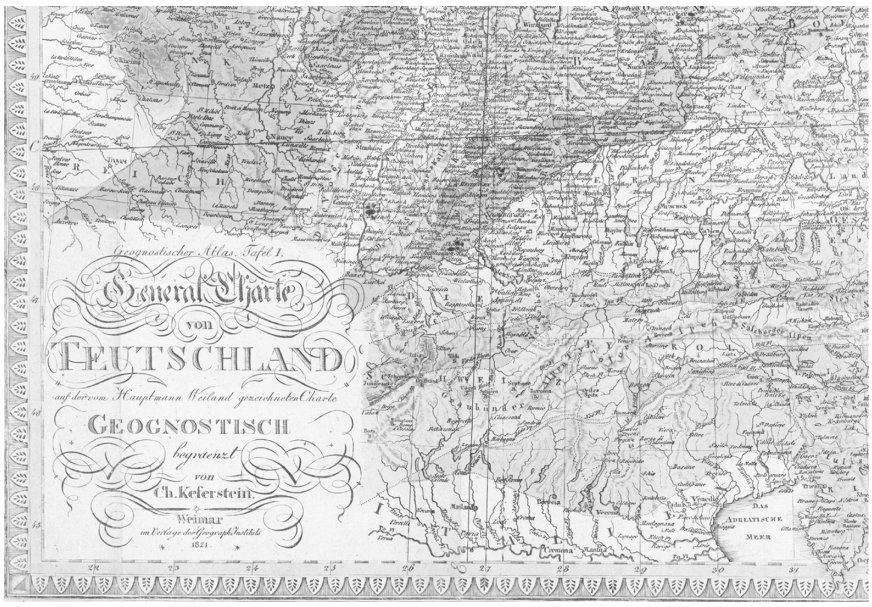


Fig. 1. Detail, Christian Keferstein, *General Charte von Teutschland* (Weimar: Geographisches Institut, 1821). Courtesy of the Klassik Stiftung Weimar, HAAB/ZA 2302.

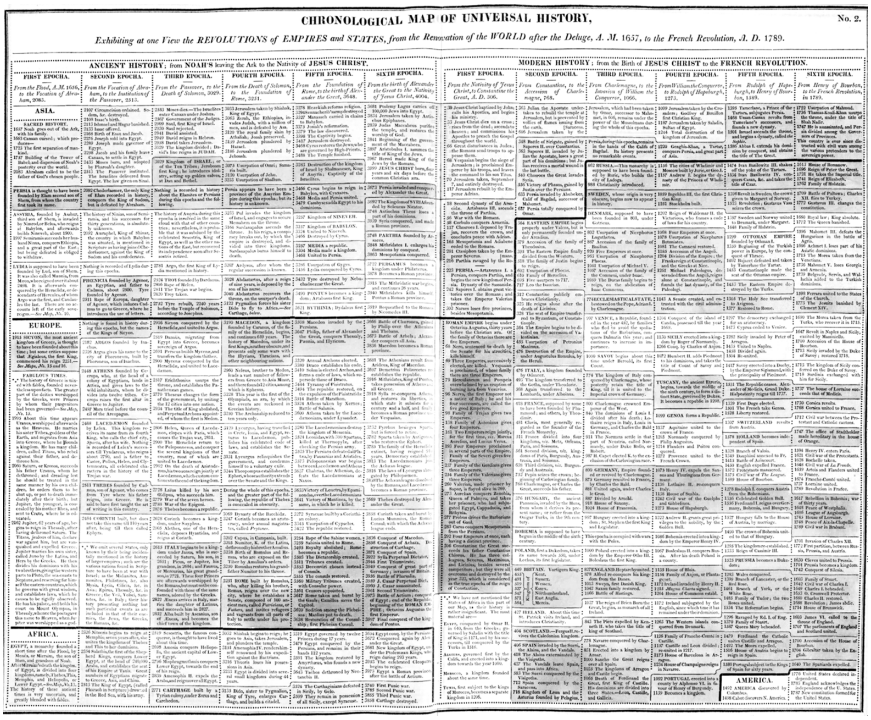
[16] Michel Foucault: *The Order of Things*. New York: Random House 1970. P. 251.

representations of Cuvier, Smith, and Keferstein which embodied an emerging early-nineteenth-century paradigm of learning how to make abstract natural phenomena visible. Similar to the problem of visualizing abstractions such as sound, electricity, or heat that increasingly occupied romantic natural philosophers, the geological *stratum* posed the problem of how to translate that which escaped our immediate senses into visual form.[17] A telling feature of Goethe's opening chapter that addresses this issue of stratigraphical perspective is the fact that characters are always suddenly *disappearing* from view around the corners of cliffs. The problem of visualizing what is not there that was at the heart of the emerging interest in stratigraphy would become a central concern of Goethe's novella, "St. Joseph the Second", which follows this opening scene and in which we encounter a series of engagements with a no longer completely visualizable Christian iconic tradition.[18]

If stratigraphical thought was a key product of the new nineteenth-century concern with abstract modes of representation, it also represented an important challenge to cartographical representation more specifically because it asked the fundamental question of how the map of space could become the map of time. The stratigraphical map was in this sense a distant kin to the rising popularity of both the "historical atlas", such as C.V. Lavoisne's *Complete Genealogical, Historical, Chronological, and Geographical Atlas* (Philadelphia 1821) with its "chronological map of universal history" divided into columns (fig. 2), and the "statistical map" that encircled its territorial representations with a historical narrative of the region, as in the *Geographisch-statistische und historische Charte von Neuyork* [*Geographic-Statistic and Historical Map of New York*, Weimar 1824], a copy of which Goethe owned and that contained detailed information on the new canal project that would then become an important plot device of the *Wanderjahre*. In each of these cartographical genres where the columnar assumed increasing degrees of prominence, one could observe a new urgency surrounding the mapping of time in the spatial format of the map.

The stratigraphical map was thus one of the most visually acute examples of an oft-cited "temporalization of nature" around 1800.[19] But it also simultaneously embodied a key spatialization of time as it illustrated the fixed temporal layers of the earth's surface, highlighting both their spatial relationality

[17] Bernhard Siegert: *Passagen des Digitalen*. Berlin: Brinkmann und Bose 2003.
[18] See Chapter Six, "Adapting", in Andrew Piper: *Dreaming in Books. The Making of the Bibliographic Imagination in the Romantic Age*. Chicago: University of Chicago Press forthcoming 2009.
[19] *Goethe und die Verzeitlichung der Natur*. Ed. by Peter Matussek. München: Beck 1998.



CHRONOLOGICAL MAP OF UNIVERSAL HISTORY, No. 2.

Exhibiting at one View the REVOLUTIONS of EMPIRES and STATES, from the Renovation of the WORLD after the Deluge, A. M. 1657, to the French Revolution, A. D. 1789.

ANCIENT HISTORY, from NOAH'S leaving the Ark to the Nativity of JESUS CHRIST.

MODERN HISTORY, from the Birth of JESUS CHRIST to the FRENCH REVOLUTION.

Fig. 2. C.V. Lavoisne's *Complete Genealogical, Historical, Chronological, and Geographical Atlas* (Philadelphia, 1821). Courtesy of the Rare Books and Special Collections Division, McGill University Library.

and temporal discontinuity. While the stratigraphization of space suggested greater spatial continuity, allowing viewers to see the vast swaths of rock masses that covered the earth's surface, the stratigraphization of time introduced greater notions of temporal discontinuity. Such rock masses, which had formerly seemed contiguous, were now distinctly differentiated from one another as time assumed a spatial dimension.

We can see this new spatialized temporal awareness at work in Goethe's *Wanderjahre* in the way the figure of descent is not pictured as a fall, but an outward moving spiral as the characters gradually wind their way down the mountainous path. The verticality of time assumes a lateral, spatial dimension at the novel's opening, something that we can see prefigured in Goethe's earlier sonnet, "Mächtiges Überraschen" ["Powerful Surprise"], which marked an important poetic caesura to his late period and in which the image of the falling rock is transformed into an image of the horizontal container of water.

Such figural concerns with the space of time are further translated in the *Wanderjahre* when Wilhelm cannot accompany his new guests *down* the mountain because his papers are stored *above* at a higher altitude. The new vertically (and bibliographically) oriented self is depicted as a stratified self located in discrete altitudinal spaces, a narrative move that will be repeated throughout this novel that is always intent on demarcating the (archival) location of its own narrative material. Indeed, the stratigraphic helps to frame or motivate this new sense of the archival self.

The spatialization of time in the *Wanderjahre* assumed its most powerful (and literal) expression through the transformation of the map used by Wilhelm to locate the characters from the novella, "Der Mann von funfzig Jahren" ["The Man of Fifty"], that takes place between the first and second versions of the novel. As I have explored elsewhere,[20] the arrow that is drawn on this map is transformed from a pointer within the novel in the first version to a pointer between *editions* of the novel in the second. The map no longer figures as a medium that orients oneself solely in space, but also in time. In doing so, it sediments the first edition within a particular historical epoch of Goethe's own life, disaggregating it in time and space from the later edition.

And here I want to suggest that Keferstein's serial, stratigraphic maps assume a crucial position within Goethe's life and work. Goethe takes up Keferstein's project of stratigraphic illumination precisely during the period when the first volume of the first version of the *Wanderjahre* was being readied for publication and he was at work outlining and writing portions for the second volume. When the *Wanderjahre* was initially published (Goethe received his first bound copy on May 22, 1821) it bore the complete title, *Wilhelm Meisters Wanderjahre, oder die Entsagenden. Ein Roman. Erster Theil* [*Wilhelm Meister's Travels, or the Renunciants. A Novel. First Part*]. But by the summer of that year, Goethe had given up on continuing the novel. Critics have usually attributed this to the negative reaction the novel elicited among the reading public and to Pustkuchen's parody that appeared by the same name in the same year. I want to suggest, however, that Goethe's increasing involvement in the overlapping fields of cartography and geology made available a new way of thinking about the genre and the medium of the novel, thus allowing the second "part" to become the second "version" over the course of the 1820s. In place of the continuation of the original, the original is gradually fixed in both time and place, as this "sequel" bifurcates into two different forms of sequality. The first and second edition no longer relate to one another on the same temporal and spatial planes – as volumes that physically

[20] Andrew Piper: Rethinking the Print Object. Goethe and the Book of Everything. In: *PMLA* 121 (2006). Pp. 124–138.

sit next to each other and that narratively follow one another – but occupy two entirely different temporal and bibliographic strata of Goethe's life.[21]

What we can see happening is the way such geological thought begins to structure Goethe's relationship to writing, print, and publication during this period. Not only will Goethe write a review of Keferstein's atlas in *Über Kunst und Alterthum* [*On Art and Antiquity*] that September, which will mark a decisive turning point in his thinking about the *Wanderjahre*. He will then subsequently publish his treatise on the archivization of the author, *Archiv des Dichters und Schriftstellers* [*Archive of the Poet and Author*, 1823], in this same bibliographic space as an attempt to record the sediments of his own creativity, indeed to figure creation *as* sedimentation. Such theoretical essays in *Kunst und Alterthum* become an important prelude to his renewed engagement with the second version of the *Wanderjahre*. As Goethe wrote to Keferstein about his map in the summer of 1821:

> Seit 50 Jahren durchwanderte ich gar manchen Theil, den Sie bezeichnen, manche Stelle kenne ich genau, an alles was ich wußte werd ich erinnert und finde mit meinen Erfahrungen nirgends Widerspruch, vielmehr wird das Einzelne nun durch Zwischenglieder vollständig; das Ganze läßt sich in schönem Zusammenhang übersehen; man weiß wo man sich befindet, es sey nun auf der Reise selbst oder bey der Erinnerung.
>
> [For 50 years I've hiked through some of the regions that you have represented, I know some locations exactly, I am reminded of everything that I knew and find no contradictions with my own experiences, indeed the individual becomes complete through these connections; the entirety can be viewed in exquisite coherence; one knows where one is, whether on foot or in memory.][22]

The geological map had become the ideal representational form for locating oneself in both space and time ("auf der Reise selbst oder bey der Erinnerung"), indeed as the ideal form for locating the space of time. If early-nineteenth-century geologists were, in Martin Rudwick's words,[23] busy bursting the limits of time and dehumanizing the history of the earth, Goethe was in his late work busy geologizing human experience.

[21] It is just such stratigraphical concerns that help explain why the first version was *not* included in the *Ausgabe letzter Hand*, contrary to the vehement criticism of readers like Friedrich Schütz, who lamented that only "Manches [some things]" and not "Alles [everything]" were included in Goethe's final collected edition. Friedrich Schütz: *Kritik der neuesten Cotta'schen Ausgabe von Goethe's Werken, nebst einem Plane zu einer vollständigen und kritisch geordneten Ausgabe derselben*. Hamburg: Nestler 1828. P. 44.

[22] J.W. Goethe: *Werke*. IV. Abtheilung. Vol. 35. Weimar: Böhlau 1999. P. 14.

[23] Martin Rudwick: *Bursting the Limits of Time. The Reconstruction of Geohistory in the Age of Revolution*. Chicago: University of Chicago Press 2005.

"Hast du meine Frau nicht gesehen?" ["Have you not seen my wife?"].[24] These are the first words of direct speech in Goethe's *Wahlverwandschaften* and are, more properly speaking, a form of what Genette would term indirect speech.[25] The answer that is literally solicited, "yes" or "no", is secondary to the implied answer to the question, "Can you tell me where my wife is", and is compounded by the negation used to solicit a positive response (where asking, "have you *not* seen my wife" is actually a way of asking, "have you seen my wife").[26] There is an initial tension established here between speech and visuality, between what is said (or not said) and what is seen (or not seen). This opening suspension of the correlation between saying and seeing is then narratively explored in the remainder of the chapter in two subsequent ways: first, through the serial narration of Eduard's walk to his wife,[27] and second, through the effacement of the heterodiegetic narrator after Eduard has reached his wife and the novel shifts to a purely dramatic mode of dialogue (where the only work that the narrator performs in the remainder of the chapter is to supply a series of declarative verbs of "said's", "replied's", and "asked's"). In each case, whether it is the *Nacheinander* of the walk or the *Nebeneinander* of the *Gespräch*, the serial forms of narration that comprise the remainder of the opening chapter of the *Wahlverwandschaften* build upon that initial act of direct speech to construct what we might call a crisis of the *overview*.[28]

The captain's arrival and his various cartographic projects – which make up the central plot device of the first half of the novel – can be read in this sense as an attempt to reverse the introduction of the perspectival, returning

[24] J.W. Goethe: *Die Wahlverwandschaften*. *Sämtliche Werke*. Vol. 8. Ed. by Waltraud Wiethölter. Frankfurt/Main: Deutscher Klassiker Verlag 1994. P. 271.

[25] Gérard Genette: *Fiction and Diction*. Trans. by Catherine Porter. Ithaca: Cornell University Press 1993. Pp. 43–47.

[26] One can see the same rhetorical strategy of indirect speech at the opening of Goethe's *Werther*, which is punctuated as a declaration but is grammatically equivalent to a rhetorical question: "Wie froh bin ich, daß ich weg bin!" ["How happy am I that I am away!"].

[27] "Dieser stieg *nun* die Terrassen hinunter, musterte *im Vorbeigehen* Gewächshäuser und Treibebeete, *bis* er ans Wasser, *dann* über einen Steig an den Ort kam, *wo* sich der Pfad nach den neuen Anlagen in zwei Arme teilte" ["*Now* he descended the terraces, surveyed *in passing* his greenhouses and his flower beds, *until* he reached the water, and *then* over a rise arrived at the place *where* the path divided into two routes to the new building"] (my emphasis).

[28] It is crucial that when Eduard does sit down next to his wife, only he is said to achieve a perspective of "übersehen", which is to say, even the overview is embued here with a sense of the perspectival.

the reader to the idyll of the heterodiegetic narrator's paraphrastic speech with which the novel opens: "Eduard hatte in seiner Baumschule die schönste Stunde eines Aprilnachmittags zugebracht, um frisch erhaltene Pfropfreiser auf junge Stämme zu bringen" ["Eduard passed the most beautiful hour of an April afternoon in his nursery by introducing newly acquired grafts to young stems"] (271). The cartographic, or at least a particular type of cartography that depended on mathematical triangulation and that was at the heart of major eighteenth-century cartographic initiatives such as the Cassini family's mapping of France between 1756 and 1793, was figured in the *Wahlverwandschaften* as the condition of possibility of the classic narrative structure of the realist novel.

But in many ways the captain's project does not represent a solution, but a problem. Resolution in the *Wahlverwandscaften* is never a function of return, but of a new synthesis. As readers have repeatedly identified, it is Ottilie's diary or *Tagebuch* that constitutes the narratological core of this novel and, indeed, the novel more generally for Goethe. In the explicit secondariness of the contributions to her personal, daily journal, the importance of Ottilie's diary lies in its capacity not to reject, but to *synthesize* the disembodied paraphrastic overview of the classical narrator with the perspectival view of serial narration and dialogue. The *Tagebuch*, or daily book, emerges as the bibliographic foundation of a narrative poetics dependent on an embodied, serial paraphrasis.

Goethe's *Wahlverwandschaften* thus positioned itself as an extended narrative engagement with the shifting intersections of the serialization and the summarization of perception – the dioptic and the synoptic – that were undergoing profound shifts at the turn of the nineteenth century. The serialized synopsis enacted in Ottilie's book within the book would arguably find its most visible bibliographic articulation in the rising popularity of the "hand atlas" in the early nineteenth century.[29] Keferstein's conception of his project as both a periodical and an atlas was merely the most explicit indication of the emerging intersection of cartography and seriality that could be seen in landmark publications such as Adolf Stieler's *Hand-Atlas über alle Theile der Erde* [*Hand-Atlas of all Parts of the Earth*, Gotha 1817–23], Heinrich Berghaus's luxuriosly illustrated *Physikalischer Atlas* [*Physical Atlas*, Gotha 1837–45], as well as more derivative undertakings such as the *Neuer Atlas der ganzen Erde* [*New Atlas of the Whole Earth*, Leipzig 1819] or the *Allgemeiner Hand-Atlas der ganzen Erde* [*Universal Hand-Atlas of the Whole Earth*, Weimar 1824]. The proliferation and popularity of the atlas in German book markets was one sign of the growing partitioning and cumulative nature of spatial

[29] Jürgen Espenhorst: *Andree, Stieler, Meyer & Co. Handatlanten des deutschen Sprachraumes, 1800–1945. Bibliographisches Handbuch*. Schwerte: Pangea 1994.

knowledge in the early nineteenth century. As Carl Ritter wrote in the opening volume of his major geographical study, *Die Erdkunde im Verhältnisse zur Natur und Geschichte des Menschen* [*Geography in Relation to the Nature and History of Man*], "Noch hindert das fragmentarische, geographische Wissen die zusammenhängende Erzählung, und auch auf die bisher übliche, vom Allgemeinen ausgehende Darstellung, hat gegenwärtige Arbeit Verzicht gethan" ["Fragmentary, geographic knowledge continues to hinder a coherent narrative, and the current work also foregoes the usual representation that begins with the universal"].[30]

Writing space in the nineteenth century was thus marked by the simultaneous decomposition of the totalizing vision that had characterized early modern cartographical practice and by various attempts to reconstruct the contextuality and relationality of space at the same time. The atlas became a key bibliographic solution to this romantic desire for the synthesis of the fragmentary and the systematic in a single book. As Christian Jacob has written, "As a device that can reconcile the desire for an overview and for detail, the atlas is ruled by a cumulative and analytic logic that leads from global vision to partial images".[31] When readers of Stieler's *Hand-Atlas* moved from the opening representation of the planetary system to successive maps of individual nation-states, they were experiencing the contextualization of their own locality, indeed of locality itself. But such contextualization was always a combination of synechdoche – of the particular as part of a larger planetary whole – and serialization – of a successive flow of knowledge with no hierarchical structure. The book as map – as the accumulation of various scalar views in serial form – thus provided a clear visual rejoinder to Wilhelm's question, "Was bin ich denn gegen das All? Wie kann ich ihm gegenüber, wie kann ich in seiner Mitte stehen?" ["What am I in relation to the cosmos? How can I stand face to face with it, how can I stand at its center?"] (382). The atlas was the bibliographic embodiment of Schlegel's epoch-making notion of a system of fragments. What Schlegel had said about the novel – "der Roman ist ein romantisches Buch" ["the novel is a romantic book"][32] – could be applied in equal measure to the atlas.

Goethe's own attention to this problem of the serial and therefore discrete nature of perception circulated freely between his novels and his geological

[30] Carl Ritter: *Die Erdkunde im Verhältnisse zur Natur und Geschichte des Menschen*. 1. Theil. 1. Buch. Berlin: Reimer 1822. P. vi.

[31] Christian Jacob: *The Sovereign Map. Theoretical Approaches in Cartography throughout History*. Trans. by Tom Conley. Chicago: University of Chicago Press 2006. P. 67.

[32] Friedrich Schlegel: Brief über den Roman. In: *Kritische Friedrich-Schlegel Ausgabe*. Ed. by Ernst Behler. Vol. 2. München: Schöningh 1958. P. 335.

writings and illustrations. In his attention to the rock formation of granite in particular, we can see how the geological is coded in Goethe's work as a key site to explore new forms of perception. Beginning with his early essays and sketches on granite in the 1780s to later compositions and printed illustrations from the 1820s, granite is the substance to which Goethe repeatedly returned to work through this interrelationship of perception and division, what I am calling synopsis and diopsis. Goethe's initial interest in granite was a product of his second and third *Harzreisen* in the fall of 1783 and 1784 respectively, and in the unpublished notes that resulted from these expeditions we can see Goethe attempting to identify a formal logic to the structural (ir)regularity of the divisions inherent in granite masses. In place of the "Trümmer" ["detritus"], "Unordnung" ["disorder"], and "Zerstörung" ["destruction"] that others had seen in granite's formation, Goethe saw patterns akin to a natural law in the Scheidungen ["divisions"] between various granite pieces, which he described as "paralleleipipedisch" or "rhomboid".[33] By the time of the 1820s, however, one can begin to see how Goethe's thinking about granite formations and the central position of the division or cut within them had become temporalized, much like his own experience of observing certain formations for a *second* time.[34] When Goethe returned to the Fichtelgebirge in April of 1820, he once again visited the Luisenburg, a popular labyrinth of granite slabs that he had seen in the summer of 1785. The essay that resulted from this visit, which appeared in *Zur Naturwissenschaft überhaupt* in 1820 and was reprinted in the *Nachlass* to the *Ausgabe letzter Hand*, now attempted to reconstruct the *process* of the divisions that composed this geological formation, a process which was then captured in the text's accompanying illustration (fig. 3).

In this illustration, which was one of the few to be reproduced in the *Taschenausgabe* of the *Ausgabe letzter Hand*, we see two forms of scientific illustration at work that correspond to two different portions of the text. At the top we see a realistic landscape view of the Luisenburg, where each rock mass is marked by both a single and a double letter, with the single letter corresponding to a rock's original location and the double letter corresponding to its post-erosion position. The text thus narratively reconstructs the formation of the granite structure by corresponding to an alphabetized image. Just as the text makes recourse to a visual form of analysis, the visual is, in this portion

[33] J.W. Goethe: "Granit I". In: *Sämtliche Werke*. Vol. 25. Ed. by Wolfgang von Engelhardt and Manfred Wenzel. Frankfurt/Main: Deutscher Klassiker Verlag 1989. Pp. 320–321.

[34] Uwe Pörksen: Raumzeit. Goethes Zeitbegriff aufgrund seiner sprachlichen Darstellung geologischer Ideen und ihrer Visualisierung. In: *Goethe und die Verzeitlichung der Natur*. Pp. 101–127.

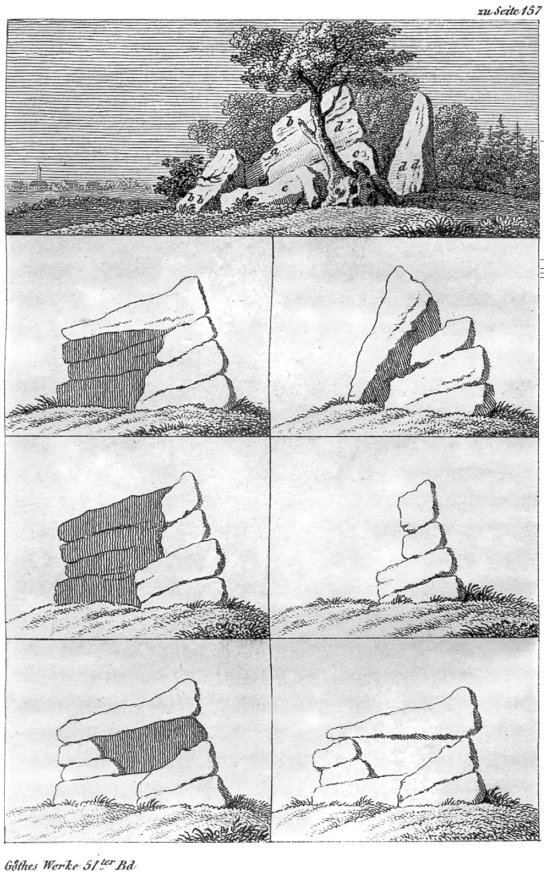


Fig. 3. J.W. Goethe, "Die Luisenburg bei Alexanders-Bad", *Werke. Vollständige Ausgabe letzter Hand* (Stuttgart: Cotta, 1833) 167. Courtesy of a Private Collection.

of the illustration, endowed with a textual component, a textuality that reconstructs the discrete positions of the rocks at different points in time. It is an articulation of both a spatio-temporal continuity, linking the original and the "fallen" structures together through the notation system of the letters, as well as a discontinuity, as what one sees are discrete, frozen positions, with a necessary lacuna or *Leerstelle* in the middle. According to Goethe's most recent thinking on mineralogical matter, the divisions that characterized granite masses were not simply evidence of a static spatial formal feature, but were now understood to provide evidence of the effect of time.

The serialized perspective contained in the upper image and enacted through the image's textuality (the single and double letters) is then amplified through the columnar structure of the lower images of the illustration. As

Goethe's essay tells us, the left column that we see denotes the original formation, this time of an imaginary, yet closely related rock mass ("Eine, nur wenig in ihrer Hauptform von der vorigen abweichende, aufrechtstehende Granitpartie bringen wir dem Beschauer in den kleineren Feldern gleichfalls vor Augen" ["In the smaller fields we are presenting viewers with a granite structure that deviates only slightly in its main form from the previous upright one"]).[35] The right column, on the other hand, represents the positions of the rocks as a result of the erosion (*verwittern*) that occurs in the shaded pieces on the left. In place of the letters that captured the process of erosion and the law of granite's temporal formation (*Gestaltung*) in the first image, here we have a series of two separate, yet adjacent representational spaces to capture the discrete phases of such processual formations.

The extraordinarily complex visual poetics Goethe develops in his illustrative practice here not only relies on the necessity of an absent *origin*, whether the original shape of the Luisenburg that is narrated but not seen in the top image or the real formation in the bottom image for which the idealized forms of the lower columns stand in. In both cases the geological illustration also gestures towards a series of medial absences, absences in-between. In place of a timeless spatial form, we are presented with a notion of space that can only be grasped in discrete moments. Serialization implies a necessary incompleteness of knowledge, as diopsis becomes the basis, not the antonym, of synopsis. In its explicit seriality, one could see the codicological nature of Goethe's understanding of nature being performed in this image.[36] The bibliographic illustration is here made bookish.

This new serialized perspective of space will then make its way back into Goethe's fiction in Book One, Chapter Four of the *Wanderjahre*, where the characters discover a "Riesenschloss" ["giant castle"], which is comprised of a labyrinth of granite slabs and which is modeled on the Luisenburg. It is here where Felix will discover the small *Kästchen* that has served as one of the most important figures in critical engagements with the novel[37] and that is described in the novel as "no bigger than an octavo volume" (302). In the same way that the natural space of the Luisenburg was mapped in Goethe's

[35] J.W. Goethe: Die Luisenburg bei Alexanders-Bad. In: *Sämtliche Werke*. Vol. 25. Ed. by Wolfgang von Engelhardt and Manfred Wenzel. Frankfurt/Main: Deutscher Klassiker Verlag 1989. P. 333.

[36] Aeka Ishihara: *Goethes Buch der Natur. Ein Beispiel der Rezeption naturwissenschaftlicher Erkenntnisse und Methoden in der Literatur seiner Zeit*. Würzburg: Königshausen und Neumann 2005.

[37] See Wilhelm Emrich: Das Problem der Symbolinterpretation im Hinblick auf Goethes Wanderjahre. In: *Deutsche Vierteljahrsschrift für Literatur und Geistesgeschiche* 26 (1952). Pp. 331–335.

serial codex, *Zur Naturwissenschaft*, according to a kind of bibliographic logic, when it makes its way into the novel we find that a book also resides at its core, recalling of course Novalis' own equation of the book and the underworld in *Heinrich von Ofterdingen*. But the key line of this passage is the way the discovery and ownership of the casket/book is framed as a morally ambiguous act and thus has decisive implications in the subject-formation of Wilhelm's son, Felix. After emerging from the labyrinth with the help of his father, it is said of Felix that "die Säulen kamen ihm schwärzer, die Höhlen tiefer vor. Ein Geheimnis war ihm aufgeladen, ein Besitz, rechtmäßig oder unrechtmäßig? sicher oder unsicher [sic]?" ["the columns now appeared to him blacker, the caves deeper. A secret had been loaded upon him, a possession, rightfully or wrongfully? safe or unsafe?"] (302).

The self that emerges from this geological space that is also a bookish space is figured as a combination of the stratified and discrete self. It is a self that contains temporal layers of experience, but also vacancies of (self-) recognition, embodied in the "secret" at the heart of the subject. Much like the vacancies that were captured in the columnar illustration of the Luisenburg, the Luisenburg now provides the narrative backdrop for the "discrete" self's emergence. The serialization of space for which the Luisenburg came to stand – as both granite formation and scientific illustration (whose tabular columns are echoed in those granite "columns") – produces a notion of the individual who lacks a coherent sense of experiential continuity, who contains his own *Leerstellen* or omissions. It is a crucial point that in response to questions about the origins of his discovery of the small casket/book Felix is said to resort to the narrative mode of the "Märchen" or fairy-tale (303). Through the genre of the fairy-tale, the narrative invokes an explicit disconnect between the continuities of narration and the discontinuities of self-experience. The self is a "discrete" self in the double sense of being shaped by the discontinuity of experiential moments and containing an incapacity to adequately articulate the nature of this new sense of momentary experience.

Upon leaving the *Riesenschloss* – the rock that is also a lock – Felix and Wilhelm will suddenly be trapped by an iron cage (*Eisengitter*) as they approach the uncle's estate. In invoking the image of the *Gitter* or grid, Goethe was not only once again echoing the columnar structure of the Luisenburg that the characters have just left behind. The *Gitter* also explicitly drew a connection to Goethe's theory of the formation of granite masses, which he described as a "Gitterwerk" in his essay, "Gestaltung grosser anorganischer Massen", published in *Zur Naturwissenschaft* in 1824.[38] From the natural grating of the

[38] J.W. Goethe: Gestaltung grosser anorganischer Massen. In: *Sämtliche Werke*. Vol. 25. Ed. by Wolfgang von Engelhardt and Manfred Wenzel. Frankfurt/Main: Deutscher Klassiker Verlag 1989. P. 622.

cliff to the man-made grating of the prison, father and son then enter into the graphic equivalent of such grated/gated spaces in the uncle's home where, we are told, the walls are adorned with maps. They move into a representational space which is defined by the use of the grid through the graphic structure of longitude and latitude. It is once again the cartographic – and its fundamental latticed visual field – that is framed as the condition of possibility of this new serial and discrete nature of space and self.[39]

Relationalization of Space (The Statistical Map)

At the opening of the Lago Maggiore chapter of the *Wanderjahre* (Book Two, Chapter Seven), Wilhelm will encounter a painter who is on a pilgrimage to the home of Mignon, one of the most beloved characters from the novel's prequel. The aim of his voyage is to make a series of paintings of her childhood origins. Once again the cliff view assumes central importance, only this time not as a real object in the novel, but as a representation ("Kräftig charakterisiert war die grimmige Enge dieser Felsmassen" ["the fierce narrowness of these cliffs was powerfully characterized (by the painter)"] (498)). Instead of a space of scientific knowledge or picturesque contemplation, the cliff is now the site of media translation, as the image that the traveling companion paints is not primarily a mimetic representation of a particular place, but a series of visual citations of Mignon's song.

The chapter concludes with the breakdown of the artistic community that had come together at its opening, a breakdown that occurs when the painter attempts to recite, rather than paint, Mignon's song. In the social crisis surrounding the practice of citation, the chapter has traditionally been understood as a rejection of classical forms of imitation in favor of a more properly "romantic" model of verbal and medial metamorphosis. But I want to suggest that the failure articulated at the close of this chapter is not simply an articulation of new representational codes that assume a revolutionary character in the history of literature and the arts. Rather, the failure here is also intimately tied to changing notions of space and the representation of space as well. The problem that the place of the Lago Maggiore is dramatizing is a more general deindividualization of space that was taking place at the turn of the nineteenth century. Not being able to sing Mignon's song is not simply the sign of an

[39] As Foucault writes in *The Order of Things*: "In a few years, at the end of the eighteenth century and at the beginning of the nineteenth, European culture completely changed the fundamental spatialization of the living being: for the Classical experience, the living being was a square, or a series of squares, in the universal taxinomia of being [. . .] From Cuvier onward, the living being wraps itself in its own existence, breaks off its taxonomic links of adjacency [. . .] and constitutes itself as a new space". Michel Foucault: *Order of Things*. P. 276.

aesthetic taboo surrounding direct speech, but the sign that this place can no longer be the medium of her song, her story, and ultimately her identity. The end of the Lago Maggiore chapter marks the end of what we might call the storied space, of space as an embodiment of a singular narrative. It captures a decoupling of the relationship between space and person and between space and memory that will be a crucial outcome of the growing cartographization of space in the nineteenth century.

The Luisenburg essay is once more significant here because it dramatizes precisely this process of unwriting such storied spaces. Goethe explicitly tells us this place acquired its name from the sad travails of a princess, and in replacing her story, which he does not recount, with the illustrated account of granite, we can see Goethe situating this place within a new geographic paradigm of visual and tabular representation. Space is crucially departicularized in such textual and illustrative moments, opening up a conceptual framework for the greater relationality of space that became a key feature of the visual logic inherent in nineteenth-century cartography.

One of the crucial ways that cartography was moving away from this notion of the particularity, or what Simmel would have called the exclusivity of space to a notion of the relationality of space was through the use of color.[40] Where color had formerly been largely reserved for the denotation of political entities – marking the boundaries between states or principalities – by the early nineteenth century it was increasingly used to capture the stratigraphical layers of the earth's geological substances. Color had become a key expression of the naturalization of space, marking the shift from *Staatskunde* to *Landeskunde* [from knowledge of the political state to knowledge of country in the double sense] in geographical thought that had transpired at the turn of the nineteenth century.[41] Indeed, one can vividly witness this process of transformation at work in the case of Keferstein's reuse of a map by Carl Weiland that had appeared only one year earlier. Where Weiland had applied color to capture the political boundaries of the German states, Keferstein now used illumination (on the same exact map) to represent the mineralogical boundaries that transcended such arbitrary political distinctions. Such cartographic recycling was one of the clearest articulations of the growing naturalization of German territory taking place around 1800.

[40] Georg Simmel: Soziologie des Raumes. In: *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 27 (1903). Pp. 27–71. <http://socio.ch/sim/verschiedenes/1903/raum.htm>. Accessed 2 October 2009.

[41] Hans-Dietrich Schultz: Raumkonstrukte der klassischen deutschsprachigen Geographie des 19. und 20. Jahrhunderts. In: *Geschichte und Gesellschaft* 28,3 (2002). Pp. 343–377. Here: P. 345.

The new use of color in geological mapping was significant for another reason, however, one that had important ramifications for envisioning space. In replacing an older tradition of using iconographic symbols to represent the distribution of minerals, a tradition that had survived well into the eighteenth century in such influential handbooks as Ernst Bruckmann's *Magnalia dei in locis subterraneis oder Unter-Irdische Schatz-Kammer aller Königreiche und Länder* [*Underworld Treasury of all Kingdoms and Lands*, Braunschweig 1727–34] or mineralogical maps such as Johann F.W. Charpentier's *Petrographische Karte des Churfürstenthums Sachsen* [*Petrographic Map of the Electorate of Saxony*, 1778], color replaced an isolated, point-by-point understanding of the distribution of rock masses with an expression of their continuous, interconnected nature.[42] In its capacity to pass through more familiar political boundaries, the illuminated representation of the earth's mineralogical layers was one of several ways that cartographic representations were transgressing the imagined fixity of national, or indeed, continental boundaries in the early nineteenth century.

Perhaps one of the most formidable bodies of geographic work that informed this rising sense of the deindividualization and thus interconnectedness of space in the nineteenth century was that of Alexander von Humboldt. In 1807, after returning from his multi-year journey in the Americas, Humboldt published the opening treatise in what would become a two-decade, thirty-volume process of disseminating his findings, collected under the title, *Voyage de Humboldt et Bonpland*. The opening work, *Essai sur la Géographie des plantes, accompagné d'un Tableau physique des régions équinoxiales, et servant d'introduction à l'Ouvrage. Avec une Planche* [*Essay on the Geography of Plants, accompanied by a Natural Map of the Equatorial Regions, and serving as an Introduction to the Work. With a Table*], which appeared simultaneously in German and French, was dedicated in its German version to Goethe.[43] The "Tableau physique" (or "Naturgemälde" as it was called in German) that accompanied the *Essai* was the first of hundreds of illustrations that were integrated into this landmark publication, including a variety of topographical maps of Mexico and the Orinoco river basin, images of botanical specimens, landscapes, local costumes, and material objects. Humboldt's project was indicative of the integral relationship in the nineteenth century between the cartographic and the ethnographic – the writing of foreign space – a fact that became most visibly manifested and institutionalized in Berghaus' *Physikalischer Atlas* with its sections dedicated to "Anthropologie"

[42] Martin Rudwick: The Emergence of a Visual Language for Geological Science.
[43] Alexander von Humbold: *Essai sur la Géographie des plantes, accompagné d'un Tableau physique des régions équinoxiales, et servant d'introduction à l'Ouvrage. Avec une Planche*. Paris: Schoell; Tübingen: Cotta 1807.

and “Ethnographie” along with the more traditional cartographical categories of “Geologie”, “Hydrologie”, and “Meteorologie”.

The “Tableau physique” and the subsequent illustrations to Humboldt’s project were not simply providing European readers with new knowledge about the new world, however. They were also demonstrating new ways of representing this knowledge. As we can see in Humboldt’s “Tableau” (fig. 4), the landscape view has once more been transformed from an aesthetic to a scientific object, but this time not as the site of stratigraphical knowledge but instead as what came to be known as “geographical” knowledge, as a representation of the altitudinal location of different plant species.

The columns that surrounded the central representation, which itself always hovered between two modes of mimetic and abstract representation (the realist landscape and the textualized distribution of plant species), were crucially a part of that larger representational space, providing a key template for the rise of the statistical map in the nineteenth century. The location and identity of each plant species located in the central image was relationally defined through the columns surrounding that image by the various factors of barometric pressure, temperature, humidity, and electrical tension. Within the “Tableau physique”, the notion of the species was now not only implicated

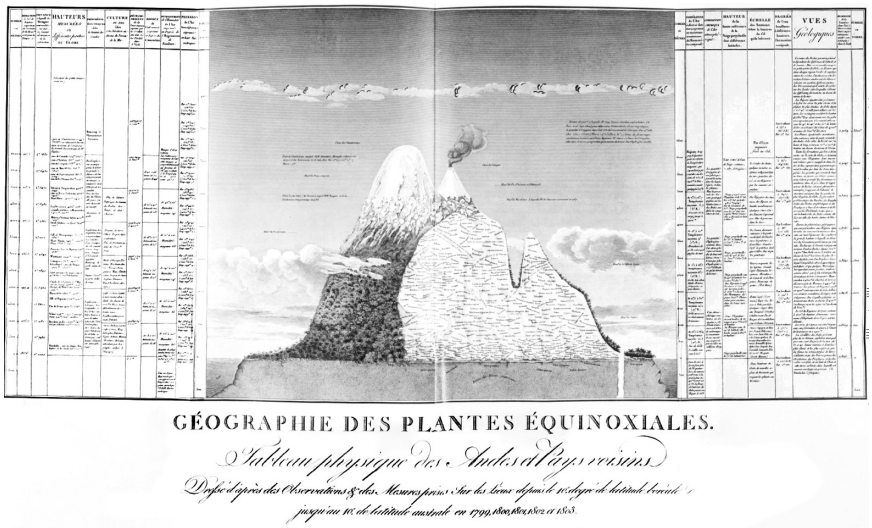


Fig. 4. Alexander von Humboldt, “Tableau physique”, *Essai sur la Géographie des plantes, accompagné d’un Tableau physique des régions équinoxiales, et servant d’introduction à l’Ouvrage. Avec une Planche* (Paris: Schoell; Tübingen: Cotta, 1807). Courtesy of the Rare Books and Special Collections Division, McGill University Library.

within a larger grid of measurement more generally (whether of altitude or atmospheric pressure), but was also a function of the measured relationships between species, capturing a proportional or relational sense of being.[44]

Humboldt's new scientific graphics thus marked an essential shift from the tabularization to the geographization of knowledge in the nineteenth century, where the individual item was no longer one piece in a larger table of related categories, but was henceforth defined through its position in the world by a variety of external factors that participated in its definition.[45] The purely abstract table that had been the hallmark of eighteenth-century knowledge gave way to a bifurcated representational space in Humboldt's work that relied on both mimetic and abstract principles, on the one hand locating scientific knowledge in the world, and, on the other, placing it within a dynamic relational structure in which the form of the column played a central role. But where the columnar thinking of Goethe's illustrative practice in the Luisenburg image had articulated a temporal and thus serial logic in the understanding of space, Humboldt's columns expressed something far more spatially relational, where multiple factors contributed to a single location's identity. Humboldt's bold attempt of remapping the new world thus marked a significant contribution to the greater reorientation of spatial thought that was transpiring in the early nineteenth century and that one could categorize as the delocalization of "location" itself. As in Humboldt's later work on isotherms – which charted temperature zones across the globe and that would form the basis of a map in Berghaus' *Atlas* – location, one's place in the world, was being refigured after 1800 as part of a range of greater global forces that were themselves dynamically understood.[46]

[44] See Anne Marie Claire Godlewska: From Enlightenment Vision to Modern Science? Humboldt's Visual Thinking. In: *Geography and Enlightenment*. Ed. by David N. Livingstone and Charles W.J. Withers. Chicago: University of Chicago Press 1999. Pp. 236–280.

[45] Godlewska describes Humboldt's project as "the mapping of interactions and change in which the map functions as an analytical device which embodies a theoretical and scientific argument about the nature of the world". Ibid. P. 240. It is important to point out how Humboldt's project falls between Barbara Stafford's accounts of eighteenth-century illustration and its emphasis on the substantive and Daston and Galison's recent work on nineteenth-century mechanically informed objectivity. See Barbara Maria Stafford: *Voyage into Substance. Art, Science, Nature and the Illustrated Travel Account, 1760–1840*. Cambridge: MIT 1984 and Lorraine Daston and Peter Galison: *Objectivity*. New York: Zone 2007.

[46] Alexander Humboldt: Des lignes isothermes et de la distribution de la chaleur sur le globe. In: *Mémoires de physique et de chimie de la Société d'Arcueil*. 3 (1817). Pp. 462–602.

Such dynamic relational thinking in Humboldt's work was of course indebted to his early contact with Goethe and that one could find articulated in essays by Goethe such as "Der Versuch als Vermittler von Objekt und Subjekt" ["The Experiment as Mediator between Object and Subject"],[47] the principles of which would have been very familiar to Humboldt from his days in Jena.[48] But we can also see the way these ideas return in Goethe's late work after engaging with Humboldt's projection of Goethe's own ideas. And once again it will be another map that appears at the Lago Maggiore through which this new conceptualization of representing space will be figured. In a letter from the Abbé to Wilhelm, which functions as a postscript to the chapter, the Abbé, who has just been describing a new marine channel in the new world, concludes with the words: "Ich lege zum Schluß ein Täfelchen bei, woraus Sie den beweglichen Mittelpunkt unsrer Kommunikation erkennen werden. Sie finden darin vor Augen gestellt wohin Sie zu jeder Jahrszeit Ihre Briefe zu senden haben" ["In conclusion I include a small table from which you will recognize the mobile middlepoint of our communication. You will find placed before your eyes the direction in which you are to send your letters for all seasons"] (515). The new representational "table" (whose portability is articulated in its diminutive size) now provides a map of available communication channels, and it is precisely such mobile, interactive lines of connection that will then function at the opening of the third book as a substitute for the more traditional map that allows Wilhelm to find his way (587). What we see happening in this chapter is the way the space of the Lago Maggiore, and one could argue, space more generally, is framed by a redefinition of the cartographic through the inclusion of maps at both its opening and close. Where the chapter opened with a map that made possible a new departicularized notion of space, it now closes with a map that captures the interactive relationality of space and self, the mobile middle-point of one's own positionality.

[47] Goethe writes: "Da alles in der Natur, besonders aber die allgemeinern Kräfte und Elemente in einer ewigen Wirkung und Gegenwirkung sind, so kann man von einem jeden Phänomene sagen, daß es mit unzähligen andern in Verbindung stehe" ["Since everything in nature, especially universal forces and elements, exist in a perpetual state of action and counteraction, one can say of each individual phenomenon that it is connected to an infinite number of others"]. J.W. Goethe: Der Versuch als Vermittler von Objekt und Subjekt. In: *Sämtliche Werke*. Vol. 25. Ed. by Wolfgang von Engelhardt and Manfred Wenzel. Frankfurt/Main: Deutscher Klassiker Verlag 1989. P. 33.

[48] Karl Schneider-Carius: Goethe und Alexander von Humboldt. In: *Goethe. Neue Folge des Jahrbuchs der Goethe-Gesellschaft*. Vol. 21. Weimar: Böhlaus 1959. Pp. 163–182.

Gitterwerk: Cartography, Grid, Graphic

Goethe's late novels thus demarcated a key aesthetic space where the perceptual modernization made possible through innovations in cartography and geology at the turn of the nineteenth century were translated into narrative form as new maps of the world became synonymous with new narrative maps of the self. Indeed, the very challenges to narration that such spatial imaginaries represented served as the grounds for the narrative innovations that so characterized Goethe's late novelistic work. His fictions were integral participants in the elaboration of a new spatial consciousness in early-nineteenth-century readers, dramatizing the tripartite structure of the spatialization of time, the serialization of space, and the relationality of location that would become the bedrock of nineteenth-century vision and subjectivity. Goethe's late novels were thus engaging with one of the central concerns to emerge in the intersecting fields of geography and geology, of how to translate three-dimensional experience within a two-dimensional plane in order to capture the fourth dimension of time. Where cartography's grid had stood in the early modern period for a scientific paradigm in which the observer's vision was rigorously controlled by the lines on the page and crucially divorced from any corporeal intimacy with the space projected, the grid or lattice for Goethe had become the preeminent sign of potentiality, of an imaginative, embodied, relational and, above all, dynamic vision of space.[49] As a manifestation of the *Gitterwerk* or gridwork that Goethe had seen in the geological formation of granite – the origin of all natural forms – the cartographic came to stand in Goethe's late work for an ideal figure of the graphic itself, for a notion of writing that united both the textual and the visual.

[49] As Goethe writes in his essay on anorganic masses: "Diese Trennung sei anzusehen als ideell, als potentiâ, der Möglichkeit nach" ["Such division is to be seen as an ideal, as potentiâ, as a possibility"]. J.W. Goethe: Gestaltung grosser anorganischer Massen. P. 623.