Geography and Tactile Maps for the Blind

[SLIDE 1]

I am going to describe some of the underpinnings for early nineteenth-century graphic practices by, oddly enough, looking at materials for the blind. To be specific, I will argue that a set of tactile maps that Samuel Gridley Howe produced for the Perkins Institute in the 1830s reveals an essential conflict not only in Howe’s thinking about the education of the blind but also in the epistemology behind graphic technology in this period. The three things in play here, then, are the rise of geographic textbooks for children in the late eighteenth and early nineteenth century; Howe’s goals for the blind at Perkins; and the epistemology of vision in the US in this period involved in both these efforts.

After the Revolution, geographic education in the US began in earnest, partially as a way of solidifying national identity. Building on Locke’s suggestion that geography could provide a foundation for childhood education, writers with a variety of religious and political motivations published geographical texts for adults and children that, as a few scholars have shown recently, linked visual learning, literacy, geography, and national identity. Of these early geographers, Jedidiah Morse probably published most prolifically. His texts, including his *Geography Made Easy* (1784), were republished continuously over the next fifty years and included maps such as this [SLIDE 2], which you will note uses the familiar convention of color to delineate political boundaries. [SLIDE 3] But, because Morse stressed the importance of verbal catechisms in learning and memorization, he also included some fascinating word maps. [SLIDE 4] These word maps could be easily printed alongside text; but, especially as printing techniques rapidly improved, writers, publishers, and particularly teachers preferred maps that could condense the largest amount of data onto the page. [SLIDE 5]
By the 1820s, especially in the work of Emma Willard and William Woodbridge, geographical textbooks privileged the visual over the verbal much more than Morse’s geographies had. Well-respected as educators in the 1820s and 1830s, both Woodbridge and Willard promoted the theories of the Swiss educator, Johann Heinrich Pestalozzi. Pestalozzi’s pedagogy was very much child-centered, seeking to develop in children their independence and their moral faculties. It was also experiential. Pestalozzi designed the object lesson, which oriented learning around a physical experience, because he believed that child development began with sensation and slowly worked up to volition. The visual and experiential elements of Pestalozzi’s methods appealed to Willard, Woodbridge, and other reformers who were dissatisfied with the rout memorization and authoritarian methods of Morse. In their thinking, visual forms conveyed information not only more efficiently but also more fully than mere written description. [SLIDE 6] Thus, while some of Woodbridge’s maps do not look categorically different than Morse’s, others do go further than Morse’s maps in allowing children to learn independently. [SLIDE 7] Here, Woodbridge depicts the animals of the world, [SLIDE 8] (in this detail we can see a Greenlander and a Norwegian killing bears; [SLIDE 9] in turn, he accompanies this map with questions for the reader to answer by looking at the map: [SLIDE 10] such as where are certain animals found. Of course, these thematic maps portrayed a starkly racialized world; but, what I want to emphasize here is that they did so by prioritizing the visual as the foundational sense for understanding that world. And, for Woodbridge’s part, privileging the visual made even more sense since he was teaching in Hartford, CT at the American Asylum for the Education and Instruction of Deaf and Dumb Persons. [SLIDE 11]

The visual element in nineteenth-century pedagogy was about more than just efficient and comprehensive education. Indeed, many believed that visual training could produce a better citizenry, one more capable of distinguishing true from false, patriot from traitor. For instance,
consider the cartographer Samuel Lewis. [SLIDE 12] He drew maps for Jedidiah Morse, Matthew Carey, and others; but he also produced trompe l’oeil illusions that he displayed alongside the work of Charles Wilson Peale and Peale’s sons in Philadelphia. Indeed, as others have shown, Lewis saw his cartographical work and his trompe l’oeil drawings as intimately connected because they required similar skills and both produced, albeit in opposite ways, the visual illusion of physical space.

[SLIDE 13] Both rely on the flattening of space that creates this illusion of space, but the one by proximity and the other by distance. By displaying his maps and his trompe l’oeil illusions alongside other art in Philadelphia, Lewis entered into a discourse that built on John Locke and Thomas Reid to suggest that finely trained senses produced rationality and that a keen visual sense in particular was necessary for identifying truth in the face of deception. In this respect, the political subtext of these trompe l’oeil drawings complemented the goals of early geographical texts. Both sought to mold national character and lay the foundation for a literate citizenry primarily through visual training. [SLIDE 14]

And, with this very brief history of visuality and geography in our minds, I’d like to turn us now to Samuel Gridley Howe. Howe was the first director of The New-England Institution for the Education of the Blind, which opened in 1833 and was renamed the Perkins School for the Blind in 1839. At Perkins, Howe is best known for working with Laura Bridgman, the first documented deaf and blind person to learn to read and write. But even before Bridgman arrived in 1837, Howe was gaining attention for his success with embossed lettering. In the 1830s, he invented an improved embossed type-face (known as Boston Line Type), which allowed him to print the first complete New Testament as well as Milton, Bunyan, and some Shakespeare. Between 1837 and 1839, he also printed a scientific compendium and two atlases, one of the US and one of the Principal Islands of the World. Impressed with these accomplishments, Horace Mann motioned the trustees of the institution to send a copy of the atlas and the New Testament to every US governor, the Library of
Congress, every university in MA, and all the other institutions for the blind. [SLIDE 15] On a lesser scale, Howe and the trustees included samples of the embossed printing, such as small maps of New England, mathematical diagrams, and musical notation in the reports sent to every supporter of the institution.

[SLIDE 16] To get a feel of even this first, promotional version of the embossed map, let’s compare it to Lewis’ maps. In Lewis’ map of New Hampshire, we see the familiar visual conventions that allow us to understand political boundaries, shape, proportion, and some limited topographical information very quickly. In contrast, the embossed map, we can imagine, requires a temporal experience more literally akin to the phrase “reading a map.” Students were taught to read first the latitudinal information on the map and then work inwards. Crucially, though, Howe does not convincingly replicate the visual features of Lewis’ map. In this respect, Howe struggles to include as much geographical information as the visual maps conveyed; this struggle makes sense considering how much collective effort in this period went into exploring new ways of condensing data into graphic forms.

To be fair, this preliminary comparison is between a promotional embossed map and a working atlas: so, embossed apples to printed oranges. [SLIDE 17] Let’s look at Howe’s Atlas of the United States, again looking at New Hampshire. [SLIDE 18] This map obviously provides more detail in a larger format. In it, Howe is also trying to figure out tactile ways of compensating for the lack of immediacy so valued in visual maps. We have raised shapes for mountains, a striped pattern for the ocean, dotted lines for political borders, and a whole series of abbreviations. [SLIDE 19]. Following the map, a whole page of Boston Line Type provides some political, social, and topographic details and explains the abbreviations, which are mostly town names. (And to give you a sense of height, since, of course, these are three-dimensional objects, [SLIDE 20] here is a perpendicular look at the page). In his next atlas, [SLIDE 21] an Atlas of the Principal Islands of the
As a whole, these maps and atlases were part of Howe’s broader goal of helping the blind become as functional and independent citizens as any sighted person. [SLIDE 25] As he wrote in the New-England Magazine, Howe understood the role of his institution as helping to “rescue” the blind from a “humiliating dependence.” Through Perkins, Howe believed, the blind “may be enabled to earn their own livelihood by the labor of their own hands” (NEM 178). [SLIDE 26] Therefore, the Report to the Trustees for 1837 stressed that Howe’s new atlas improved European precursors, which “could not be understood by a blind person, without the assistance of a seeing person;” with Howe’s atlas, they wrote, “now, a class can take their geographies, study a lesson, and then recite precisely as seeing children” (Fifth Annual Report 16-17). In striving to educate his blind pupils into independence, Howe advocated a (perhaps limited) universalism of human abilities that derived from Locke’s “blank slate” and attacked a Calvinist belief in innate depravity. Indeed, Howe felt so strongly about this universalism that he fought against any embossed type that used a different alphabet and sign language for the deaf because he thought they reinforced difference and isolation. (One of the astonishing facts of Howe in this regard is that he is simultaneously a hero in the history of the education of the blind and a villain in the education of the deaf since he fought against efforts by the deaf to define a deaf identity). [SLIDE 27]

If Howe’s only goal was to create a pedagogical tool for blind children to learn independently, we might be justified in criticizing him for a lack of innovation. After all, these tactile maps are not in any way obviously built out of and for the experience of the blind. But in tension with Howe’s universalism is another vestige from Locke: what we might think of as the lingering consequences of the Molyneux problem. As many of you probably know, William Molyneux wrote to John Locke asking if a man born blind were to gain his sight, would he be able to distinguish a
ball from a cube only by looking at them. Throughout the late seventeenth and the eighteenth century, philosophers returned to this problem as a way of considering the relationship between innate ideas and sensorial learning. Leibniz and many of the Scottish Realists sided with innate ideas (and thus an affirmative answer) while George Berkeley and most of the French sided with Locke in the negative. In these maps, Howe attempts to translate in form and conception the dramatic advances in harnessing vision for teaching abstract ideas into haptic media. Thus, if we were to criticize Howe for not being more imaginative in the materials through which he taught geography, we would also discount the belief that there were certain kinds of knowledge specific to sight, and to the visual form of the map.

Here, then, Howe confronts the main conflict that I want to emphasize in his thought. This is a conflict between a theory of universal capabilities on the one hand and a theory that certain kinds of knowledge may be sense-specific (and, therefore, potentially unavailable to individuals lacking that sense) on the other. In turn, if we broaden out from this very specific example, these tactile maps encourage us to consider in tandem the universalizing impulse of the graphic technologies developed in the eighteenth and nineteenth century alongside the differentiating consequences of emphasizing so strongly one sense and the knowledge dependent on that sense. For this reason, when thinking about the graphic nineteenth century, we need to consider the kinds of abstract thinking that the coordinated developments in printing technologies and graphic vocabularies encouraged and made possible that might be (or have been thought to be) specific to vision.

By way of conclusion, therefore, we can turn back to the connection between trompe l’oeil and geography to consider this tension between sense-specific knowledge and the universalizing impulse that fueled not only reforming efforts like Howe’s, but also liberalizing religion and republican ideology. [SLIDE 28] Here is Raphaelle Peale’s _After the Bath_, also known as _Venus Rising_
from the Sea—A Deception from 1822. Where Howe struggles to translate visual into tactile knowledge, Peale frustrates a desire for a visual experience by offering the illusion of a tactile one. In this sense, Peale educates his viewers about the limits of visual knowledge through his deception; in doing so, he suggests that visuality itself may have become overemphasized. Peale seems to desire some knowledge in his painting that the haptic can provide but which is always lacking in a visual medium.

[SLIDE 29] Thus, insofar as Samuel Lewis’ career suggests the close relationship between geography and trompe l’oeil in terms of visual epistemology, then the contrast between Peale and Howe suggests the opposing pressures within that visual epistemology. Here, two men attempt to translate knowledge between senses, admittedly with different levels of success and different motivations. In both, tactile maps and trompe l’oeil, then, the practical and epistemological difficulties of such a translation, quite literally, come to the surface. [SLIDE 30]