

WHAT IS AN ATLAS? AN HISTORICAL OVERVIEW
AND COMPARISON OF USE BETWEEN THE
NETHERLANDS AND THE UNITED STATES,
AND A RECONTEXTUALIZATION
FOR 21ST CENTURY DESIGN

by

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DEDICATION

This thesis is dedicated to my beautiful and brilliant children Alexis, Zachary and Olivia—whom I love beyond measure—for their unwavering confidence, unconditional love and motivational discourse throughout my graduate school process, and research and writing of this thesis. They had confidence in my abilities, even when I did not.

And I extend a very special thank you to Dale for his encouragement and steadfast belief in me, despite all circumstances.

I can hear my mother's prideful voice whispering in my ear, *I knew you could do it.*

“We must take care of our families wherever we find them.”

—Elizabeth Gilbert, Author



“I am told there are people who do not care for maps, and I find it hard to believe.”

—Robert Louis Stevenson, *Treasure Island*

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I. INTRODUCTION

A. Statement of Objective: *What is an Atlas?*

This thesis will provide a historical timeline and context for the atlas in the 21st century, as well as an assessment and comparison of its use between the Netherlands and the United States. Traditionally, the atlas has been a bound book of maps containing geographical information, but over time the use has broadened to that of a communication tool for presenting data and information in print and digital formats. The BBC documentary *The Beauty of Maps* explained the atlas as a combination of “art and science along with topography, geography of a place and history represented in a beautiful form.”¹ The contemporary atlas has evolved from the printed version of paper maps to an ever-expanding digital interpretation of the genre.

The origin of the atlas began during the 15th – 16th centuries, when the Dutch aesthetic virtually dominated the mapmaking and map-printing industry by virtue of their own travels, trade ventures and widespread commercial networks. Mapmaking, or cartography, was brought into full richness during the *Age of Discovery*, and the *Dutch Golden Age* in particular. These atlases were elaborately decorated and ornamental with detail. The mapmakers saw this as an unprecedented opportunity to display their newly acquired knowledge of the world.² The Netherlands in the early 16th century was a vibrant seaport, and explorers and sailors provided a continuous flow of new and vital information for visualizing the mapping of the world. As an extension of that input, they depended on these very maps for their continued voyages.

[1] Steven Clarke, “Atlas Maps: Atlas Maps – Thinking Big,” 8 Aug. 2011, *The Beauty of Maps*, BBC, 2 Mar. 2017, www.bbc.co.uk/programmes/b00s64f4.

[2] Cornelis Koeman, *Collections of Maps and Atlases in the Netherlands: Their History and Present State* (Leiden, Netherlands: E. J. Brill, 1961) 54.

Binding the individual maps into a book format proved more suitable for travel and ease of use, and also provided more profits for the publishers. Among those first books of maps was the *Theatre of the Round World*, printed in the Netherlands in 1570 by the Flemish cartographer and geographer Abraham Ortelius.³ But it was several years later in 1595 when Gerard Mercator, a colleague of Ortelius and also renowned as a cartographer and geographer, designated a bound book of maps as an *atlas* in his posthumously published *Atlas Sive Cosmographicae Meditationes de Fabrica Mundi et Fabricati Figura*.⁴ Mercator used the word atlas in reference to the Greek mythical god and cosmologist Titan Atlas who carried the world on his shoulders, and was called the “holder of the cosmos.”⁵

Shortly after Mercator’s death, the copper printing plates for his atlases were sold, and the publication of several editions continued for many years. These atlases now included the name of the new publisher, with the title *Mercator-Hondius Atlas*. The use of the name *Atlas* was used so frequently in many publications, that it was no longer considered a proper name, but had become synonymous as a metaphor for a book of maps, and by the end of the 17th century it had become widely accepted as the generic term.⁶

[3] “Atlas,” 28 June 2012, *Encyclopedia Britannica*, 13 Apr. 2017, www.britannica.com/topic/atlas-maps#ref21651.

[4] “History of Cartography. Golden Age of Netherlandish Cartography,” 14 Oct. 2017, *Wikipedia*, 13 Apr. 2017, bit.ly/2yvs0ou.

[5] James R. Akerman, “From Books with Maps to Books as Maps: The Editor in the Creation of the Atlas Idea” In *Editing Early and Historical Atlases*, (1995): 3 – 48, Edited by Joan Winearls, University of Toronto Press, *JSTOR*, 12 Apr. 2017, bit.ly/2tVFLb8.

[6] Peter van der Krogt, “From ‘Atlas’ to Atlas,” *Mercator’s World*, 1996, 61 – 63.

Dr. Peter van der Krogt*, preeminent Dutch scholar and historian of the atlas at the University of Amsterdam, explained the atlas with a traditional definition as “a systematic, cohesive collection of maps, usually published in printed book form, which represents a certain geographic area and deals with one or several geographical phenomena.”⁷

He asserted that “an atlas is defined as a book with maps” in which maps are the main medium of information, and where the accompanying texts must repeat or complete the same information in words.”⁸ He further explained the atlas as:

a collection of printed maps in book form or bound similar [sic] to a book with a printed title page; in cases where text is included, the publisher’s intention to give the dominance of graphic elements (particularly maps, plans or town views) over textual elements, must be clear, either from the title (expressed by the word *atlas* or not) or from the concept of the work; the rough uniformity of map format, design and presentation throughout the work; and the standardization (generally), from copy to copy in each edition, of composition and arrangement of atlas components.⁹

In an interview, van der Krogt held strongly to his personal belief that an atlas must be a printed version, but he relinquished that the definition of the atlas has been changing by the use of digital formats, and that perhaps his original definition of an atlas only applies to old Dutch atlases and in his cataloging of the works.¹⁰

*Dr. Peter van der Krogt’s full title: Jansonius Curator and Senior Researcher of the Explokart Research Program for the History of Cartography of the Special Collections University of Amsterdam and Researcher at the Faculty of Geographical Sciences at the University of Utrecht.

[7] van der Krogt, 61.

[8] Peter van der Krogt, “Explokart Research Project: Atlantes Neerlandici,” *Atlantes Neerlandici*, 03 Apr. 2017, bit.ly/2pu75x9.

[9] van der Krogt, Explokart.

[10] Peter van der Krogt, Personal interview, 14 Mar. 2017.

In an alternate, and perhaps opposing point of view than that of van der Krogt's, Thomas Castro, a contemporary Dutch designer and former principal owner of LUST, a graphic design studio in The Hague, Netherlands, declared indignantly in an interview that his definition of the atlas is “any abstract representation of anything.”¹¹ He further explained that he did not believe an atlas needed to be a bound book of maps or even maps at all, but could be experimental organizations of data and information that might be presented in print or digital formats or as installations. He believes that even though there are commonly used formats of the atlas, that designers are updating the typology—or classification—of the form of the atlas.¹² LUST, which closed its business in September 2017, described themselves as “a design, typography and propaganda collective.”¹³ They worked in a variety of media, including abstract cartography and data visualizations that explored the utilization of new technologies and the expanded use of data and graphics, and they sought to challenge the way viewers perceived displays of information.

In line with Castro's philosophy of the application of data and technology, modern society has been reinventing the traditional design and use of the atlas. No longer is the format of the atlas strictly presented as the bound book format of geographical maps, but rather designers and mapmakers are using modern and experimental approaches that show collections of maps, statistics, population information and a wide variety of other cartographic-related data to reveal mapping data through the use of design and data visualizations.

[11] Thomas Castro, Personal interview, 12 Mar. 2017.

[12] Castro.

[13] LUST | Graphic and Interactive Design, 12 Mar. 2017, lust.nl/#about.

B. Comparative Audit: *The Netherlands and The United States*

This thesis will employ a comparative research methodology to make observations in the use of the atlas. The research will focus on the historical developments and its evolution over the nearly six centuries since the inception of the atlas, and the unique differences in its design and formats in the Netherlands and the United States.

Initial ideation for the comparison of the use of the atlas as a thesis research topic was inspired directly from the book *Metropolitan World Atlas*, created by Dutch designer Joost Grootens, who is credited as “reinventing the atlas for the 21st century.”¹⁴ He is a prominent award-winning book designer based in Amsterdam who primarily uses the book format of the atlas as a vehicle for visually representing complex data related to maps, metropolitan areas and global regions. The *Metropolitan World Atlas* is a modern version of the world atlas, in which a wide range of categories including population, seaports, climate, pollution, economy, crime and other statistics that are pertinent to the selected cities are visually documented. The information is displayed in graphs, charts and mapping visuals that allow the viewer to comprehend and decipher meaning instinctively and intuitively.

Although the term *atlas* was first used in the Netherlands in the 15th century by the famous cartographer Gerardus Mercator as a name applied to a book of maps, it was not until the late 18th century that the United States also began producing their own version of the atlas. That format also continued to fit the original definition: a book of geographical maps bound together. Certainly other countries developed and printed their own versions of the atlas, but

[14] John L. Walters, “Paper Planet,” Winter 2010, *Eye Magazine*, 02 Nov. 2016, bit.ly/UImVkz.

comparative aspects lie in the deep historical connection between the Netherlands and the United States and the early Dutch colonization of America in the mid-1600s, primarily in the region now known as Manhattan.

The parallel comparative research will be used to show the stages and timeline of the atlas since its inception, the development and significance of the atlas as a bound book as well as its usefulness as a printed or digital vehicle for presenting data in the 21st century. The exploration will investigate not only the differences of the atlas but also the commonalities and the potential for future use in contemporary design.

II. BACKGROUND RESEARCH

A. History of Maps and Cartography

The essential tenant of an atlas is the map. The basic description of a map is a diagrammatic visualization of an area of land and a symbolic depiction of the relationships between objects, regions or themes.¹⁵ A further characterization of a map includes the harmonious design of data and space.

The term cartography is from the French *cartographie*, based on the Latin *carta* or “map.” Even before there was writing, there were maps. They were used to visualize the reality of life, whether on cave walls or carved into stone tablets.¹⁶ These renditions contained universal themes of cosmology, heaven, topography and geography with depictions of roads, waterways and cities. Maps influenced how people perceived the world, and their existence contained a graphical language that gives historical context of culture and is considered “one of the oldest forms of human communication.”¹⁷

We can trace the earliest use of mapmaking to the 6th century Babylonian maps of imagery engraved onto clay tablets.¹⁸ These rudimentary depictions are thought to have been made with very accurate surveying techniques, and the maps show symbolic representations

[15] “Map,” 19 Oct. 2017, *Wikipedia*, 13 Apr. 2017, bit.ly/2xbttMZ.

[16] Mirjanka Lechthaler, “The World Images in Maps – From the Old Ages to Mercator,” In *Cartography and Art*, ed. William Cartwright, Georg Gartner, Antje Lehn (Berlin: Springer, 2009) 15 June 2017, bit.ly/2yErfcg.

[17] J. B. Harley and David Woodward, “Cartography in Prehistoric, Ancient, and Medieval Europe and the Mediterranean,” In *Volume 1: The Map and the Development of the History of Cartography* (The University of Chicago Press, 1987) bit.ly/2ioxj2M.

[18] “History of Cartography,” 14 Oct. 2017, *Wikipedia*, 13 Apr. 2017, bit.ly/2zEM4CP.



Figure 2.1. Babylonian World Map, *Imago Mundi*. SOURCE: “Babylonian World Map,” Digital image, British Museum, Accessed 10 Apr. 2017, bit.ly/2oHdnFS.

Figure 2.2. Anaximander, *Map of the World*. SOURCE: “Anaximander World Map,” Digital image, Accessed 04 Apr. 2017, persiangulfstudies.com.

of topologies and landscapes.¹⁹ The Babylonian World Map, also known as the *Imago Mundi*, (fig. 2.1) is considered to be the earliest map of the world, and contains cuneiform inscriptions, or ancient writing as well as a diagrammatic mapping of Babylonia.

The disciplines of geography and cartography were also advancing in other parts of the world, including Greece. Anaximander (c. 610 – 546 BCE) created what is considered the first detailed world map. It can only be recreated from his description and writings of the general shapes, as no originals survived. His map was circular in form and depicted the known lands of the world which were grouped around the Aegean Sea at the center, in a format similar to the Babylonian *Imago Mundi*.²⁰

One of the most important Greek cartographers, Claudius Ptolemy (c.100 – 178), thought the world to be spherical. His maps were devised through the use of mathematical

[19] Amanda Briney, “The History of Cartography,” 28 Feb. 2017, *ThoughtCo.*, 13 Apr. 2017, bit.ly/2zEM4CP.

[20] Lloyd A. Brown, *The Story of Maps* (Dover Publications, 1980) 25.



Figure 2.3. Recreation of *Ptolemy's World Map*. SOURCE: Del Chierico, Francesco di Antonio, "Ptolemy's world map," Digital image, *Wikipedia*, Accessed 13 Apr. 2017, bit.ly/2pfDTb7.

calculations. He invented the concept of latitude and longitude, which is a mapping system that is still commonly used today, and became not only the basis for his *Ptolemy's World Map* shown in the influential *Geographia*, but also for the future of mapmaking.²¹ (fig. 2.3)

Mapmaking, or cartography, began as a form of ancient communication and storytelling that could be expressed through a visual language. People wanted others to know about the places they lived or spaces they had visited and experienced.²² Originally these simple presentations of mapping knowledge that were shown visually, led to rich and detailed artistic displays of the known and cosmological or mythological worlds. From cave paintings to ancient maps of Babylon and Greece, societies have created and used maps as essential tools to help them define, explain and navigate their way through the world.

[21] "Claudius Ptolemy," Apr. 1999, *University of St. Andrews*, Scotland, 13 Apr. 2017, bit.ly/2xTiF5z.

[22] Harley, 2.

B. Timeline of the Atlas, 15th – 17th Centuries

I. Netherlands, *The Golden Age*

In the early 15th century, at the beginning of the *Age of Discovery*, European explorers were setting sail on ships and traveling to unknown and unmapped parts of the world. The Dutch were in search of better routes to conduct trade, and in hopes of discovering new lands where they might find riches such as silver, gold, silk and spices. The explorers were in need of maps that could help them navigate, and the mapmakers also depended on these explorers to supply information about previously uncharted lands and waterways.²³ This era of exploration led to a rapid production of increasingly more accurate maps of the world.²⁴ The boundaries of geographical knowledge were expanding as never before. There was not yet a fully formed concept of the atlas that was a book of maps—but seafaring sailors were utilizing the smaller, portable maps that allowed for more ease of use than the current large wall maps that were more commonly produced.

Through a confluence of factors, the Netherlands was the European hub of innovation, including mapmaking. There were scholars of mathematics and science at the University of Louvain in the Low Countries who were creating new methodologies in cartography, and inventing instruments and tools for mapmaking and studying the practice of globe making. The city of Antwerp was bustling as the center of mapmaking activity and cartography, where printers, publishing houses, booksellers, artists and engravers thrived.²⁵

[23] “Age of Discovery,” 9 Oct. 2017, *Wikipedia*, 13 Apr. 2017, bit.ly/2yVcZgg.

[24] “Dutch Golden Age,” 14 Oct. 2017, *Wikipedia*, 7 Apr. 2017, bit.ly/1zhnbpS.

[25] Steven Vanden Broecke, “Dee, Mercator, and Louvain Instrument Making: An Undescribed Astrological Disc by Gerard Mercator (1551),” 01 Jan. 1970, *Annals of Science*, 13 Apr. 2017, hdl.handle.net/1854/LU-433526.



Figure 2.4. Gerardus Mercator's *Map of the World*, 1569. SOURCE: "Mercator 1569 World Map," Digital image, *Wikipedia*, Accessed 03 Feb. 2017, bit.ly/2tyTnMg.

The first bound book of maps that were uniform in size and of the same design—and what would later would be called an *atlas*—was printed in 1570 by Abraham Ortelius, a Flemish cartographer and geographer. The first edition of this *Theater of the World* consisted of 70 different maps, and several more editions were reprinted of this popular publication.²⁶

At the same time that Ortelius was preparing his *Theater of the World*, Gerardus Mercator was creating an equally important *Map of the World*. (fig. 2.4) Mercator was considered the most well-known mapmaker of the time, and is still widely respected today. He was not only an inventive and important cartographer, but a philosopher and mathematician. He engraved and printed maps, constructed globes and produced measuring instruments used for more precise mapmaking. His use of scale and the mathematically correct geographic grid was of

[26] Amanda Briney, "The History of Cartography," 28 Feb. 2017, *ThoughtCo.*, 13 Apr. 2017, bit.ly/2l2vNUW.

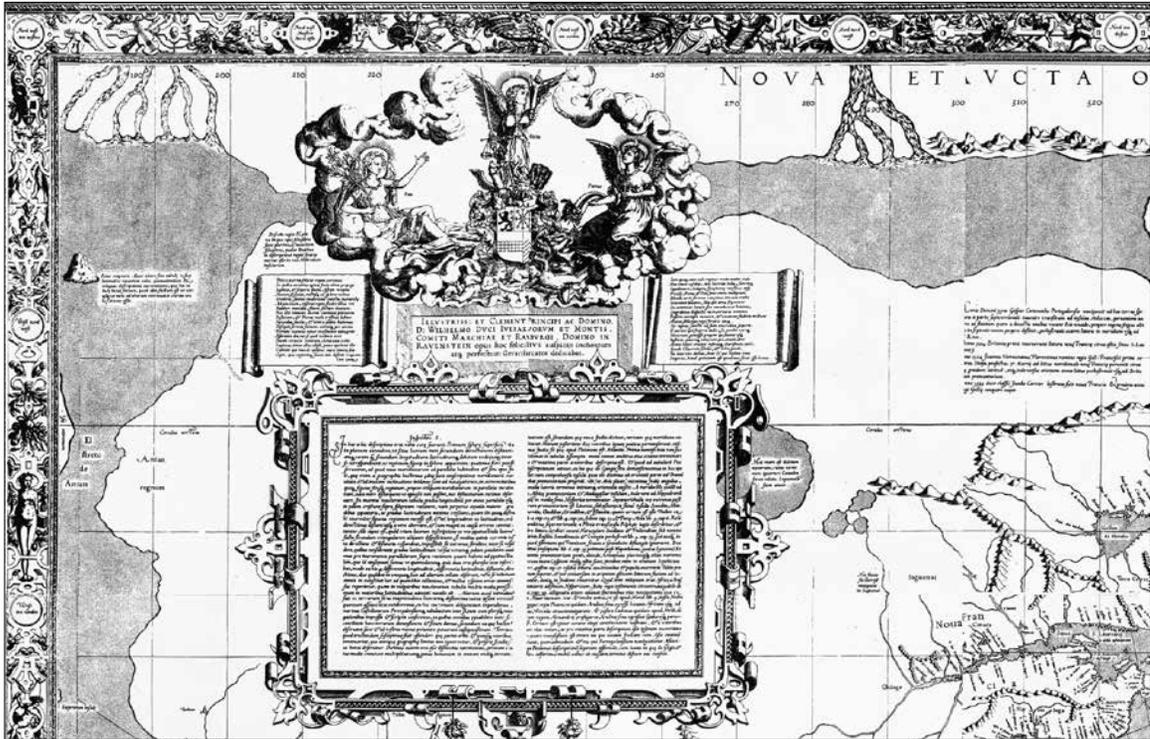


Figure 2.5. Gerardus Mercator's *Map of the World*, 1569, detail. SOURCE: "Mercator 1569 World Map," Digital image, *Wikipedia*, Accessed 28 June 2017, bit.ly/2u8Ae0H.

particular importance to sailors and mapmakers alike.²⁷ His *Map of the World*, or the *Mercator Projection*, in 1569 (fig. 2.5) contained the most relevant world mapping information available.

The *Mercator Projection* is still used today in the 21st century as a basis for navigational maps.

Ortelius and Mercator should be considered representative of the beginning of the *Dutch Golden Age of Cartography*. They were rivals and friends, envisioning and producing maps of the world simultaneously²⁸ in a time when the Netherlands was a vast seaport and thriving as an intellectual center of Europe. By the mid-1600s, at the height of the *Golden Age*, Amsterdam was liberal and Democratic. This new wealthy merchant class had money to spare, and the arts flourished with painters like Rembrandt and Vermeer, and atlases were commissioned as

[27] Cornelis Koeman, *Collections of Maps and Atlases in the Netherlands: Their History and Present State* (Leiden, Netherlands: E. J. Brill, 1961) 15.

[28] Cornelis Koeman, *The History of Abraham Ortelius and his Theatrum Orbis Terrarum* (The Netherlands: Elsevier Publishing Company, 1964) 15 – 17.

symbols of status.²⁹ The printing and production of maps and atlases continued to grow in popularity into and throughout the 17th century, and the Dutch map trade became dominant in the world, bringing cartography, commerce and art together.

a. Abraham Ortelius, *Theatrum Orbis Terrarum*, 1570

The Flemish scholar and geographer Abraham Ortelius (1527 – 1598) published the first edition of his *Theatrum Orbis Terrarum* or *Theater of the World* in 1570. (fig. 2.6) The book contained 53 maps, each with a detailed commentary. For production and printing, copperplates were specifically engraved, pages were hand-colored and type was hand-lettered. The 1570 printed

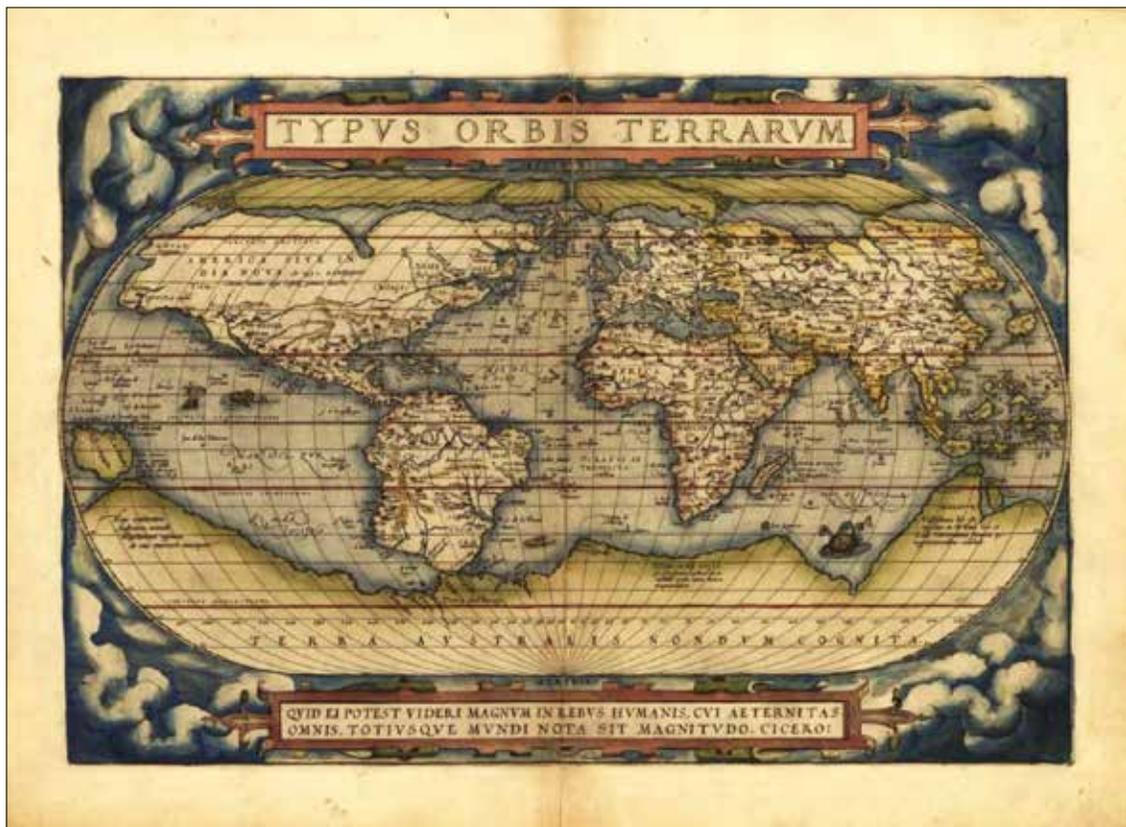


Figure 2.6. Abraham Ortelius, *Theatrum Orbis Terrarum*. SOURCE: Abraham Ortelius, Coppenius Diesth, and Humphrey Llwyd, "Theatrum Orbis Terrarum," Antverpiae: Apud Aegid, Coppenium Diesth, 1570, Map, Retrieved from the Library of Congress, bit.ly/2pg8PrG.

[29] Clarke.

edition of *Theatrum* was followed by productions in Latin, Dutch, French, German and Spanish, each book holding an ever-increasing number of maps.³⁰ Although it is considered to be the first true atlas in the modern sense—which is a collection of uniform map sheets and accompanying text bound to form a book—it did not have the word *atlas* in the title.

b. Gerardus Mercator, *Atlas Sive Cosmographicae*, 1595

Considered one of the founders of modern cartography, Gerardus Mercator (1512 – 1594) was the first to apply the term *atlas* in a geographical context to describe a bound collection of maps into a book format. For his atlas publications, Mercator compiled several maps from copies of large wall maps of Europe, and used additional maps that he had available in his workshop, as well as his own *Map of the World*.³¹ He carefully cut up and pasted the map sections together to fit the new atlas book format. He created aesthetically balanced regional maps, removing tables and illustrations that did not fit on the page.³² Along with the name *atlas*, he also gave the world his inventions of telescopes, sextants and map surveying instruments. He was also among the first to use a new italic typeface that made the map printed text more legible.³³ He originally envisioned these books as a cosmography, devoted to the heavens and the earth in a five-part set of atlases. The first of these books were published between 1585 – 1589, but

[30] Koeman, *Collections*, 63.

[31] “Gerardus Mercator,” 14 Oct. 2017, *Wikipedia*, 03 Dec. 2016, bit.ly/2yD2J9J5.

[32] “The Mercator Atlas of Europe,” 05 Dec. 2016, *Turning the Pages™ – British Library*, bit.ly/2pfUI5W.

[33] Russell Shorto, *The Island at the Center of the World: The Epic Story of Dutch Manhattan and the Forgotten Colony That Shaped America* (New York: Vintage Books Random House, 2005) 16.

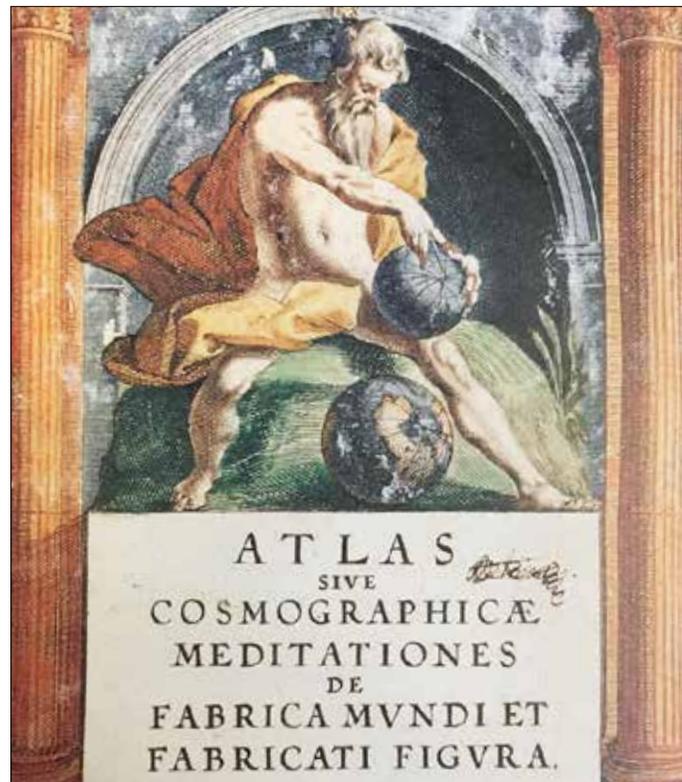
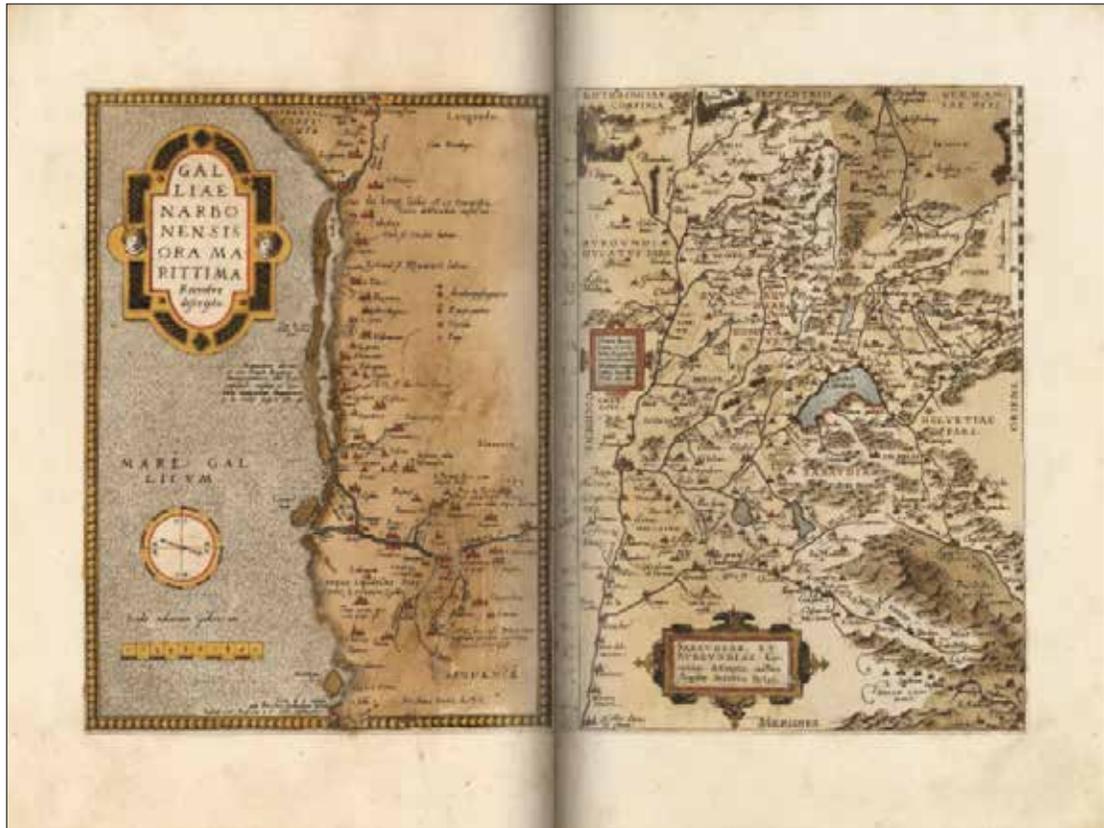


Figure 2.7. Gerardus Mercator, *Atlas*. SOURCE: Gerardus Mercator, "The Mercator Atlas of Europe," Digital image, British Library, Accessed 10 Dec. 2016, bit.ly/2pfU15W.

Figures 2.8 – 2.9. Gerardus Mercator, *Atlas* faceplate and detail. SOURCE: Author's photographs, taken at the British Library.

still none yet held the word *atlas* in their title.³⁴ The last book in this set used the word atlas prominently—“*Atlas Sive Cosmographicae Meditationes de Fabrica Mvndi et Fabricati Figvra*”—but it was not published until after Mercator’s death in 1589 by his son Rumold.³⁵ (fig. 2.7 – 2.9)

c. Joan Blaeu, *Atlas Maior*, 1662

Joan Blaeu (1596 – 1673), a prominent publisher and engraver of maps, was known as the “Prince of Amsterdam atlas-makers.”³⁶ In 1629, he and his father Willem bought copper printing plates that had once belonged to Mercator from the renowned Amsterdam printer Jodocus Hondius, and they reprinted a series of Mercator’s atlases. After his father’s death, Joan continued work on the atlases, with a final version of the *Atlas Maior*, or *Great Atlas*, in 1662. (fig. 2.10 – 2.12) This production appeared with 594 maps of the entire known world, in four languages—Latin, French, Dutch, German and later an unfinished version of Spanish—each with multiple volumes. This was the most expensive book published in the 17th century. He refined and printed various editions until his death in 1672. For over a hundred years, Blaeu’s *Atlas Maior* “remained the standard world atlas and the premier product of the Dutch publishing industry.”³⁷

[34] Clara Egli LeGear, “Mercator’s Atlas of 1595,” *Quarterly Journal of Current Acquisitions* 7, no. 3 (1950): 9 – 13, *JSTOR*, www.jstor.org/stable/29780586.

[35] Peter van der Krogt and Erend De Groot, “The Atlas Blaeu-van der Hem,” 02 Feb. 2017, *Explokart*, www.explokart.eu/research/vanderhem.html.

[36] Walter Goffart, *Historical Atlases: The First Three Hundred Years, 1570–1870* (Chicago: The University of Chicago Press, 2003) 54.

[37] van der Krogt, de Groot.

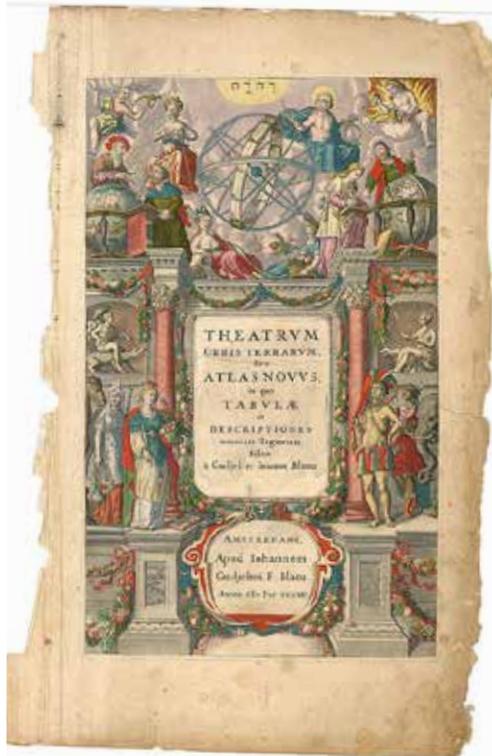


Figure 2.10. Joan Blaeu, *Atlas Maior*. SOURCE: Joan Blaeu, "Theatrum Orbis Terrarum," Digital image, *Wikimedia*, Accessed 10 Apr. 2017, bit.ly/2oJPyhv.

Figures 2.11 – 2.12. Joan Blaeu, *Atlas Maior*. SOURCE: Joan Blaeu, "Atlas Maior," Digital image, *David Rumsey Historical Map Collection*, Accessed 07 Jan. 2017, bit.ly/2q3qdjF.

2. America, *New Netherland*

In the early 17th century, America was still a very young country with various settlements and colonies occupied by the Dutch, English and French, that were located primarily along the north and middle eastern seaboard. Large numbers of religious groups left England to settle in New England. In the years 1609 – 1667, the Dutch were colonizing American settlements in the northeast, and named them New Netherland and New Amsterdam, or what is today Manhattan, New York.³⁸ The area was also commonly referred to as the Dutch West Indies, as an extension of the shipping and trading industry of the Dutch East Indies in the Netherlands.

These new colonies did not have much use for the large geographical atlases favored by Europeans, but rather they needed new maps of lands, territories and coasts of America. The explorers and cartographers began charting the new areas visually representing the topographical layouts, boundaries and waterways. The Colonial Americans were surveying the lands and preparing cartographic information and maps, but initially, the maps were being engraved and printed in Europe. The new survey information and maps were also being used by Europeans to update their own atlas productions that were used by explorers who were continuously in search of the best shipping trade routes.³⁹

[38] “New Netherland,” 17 Oct. 2017, *Wikipedia*, 15 Apr. 2017, bit.ly/2xbOt6k.

[39] David Bosse, “Maps in the Marketplace: Cartographic Vendors and Their Customers in Eighteenth-Century America,” 17 Apr. 2008, *Magert*, 15 Apr. 2017, bit.ly/2yvFJvJ.



Figure 2.13. John Smith, *Map of Virginia*, 1609. SOURCE: John Smith, “Map of Virginia,” Digital image, *Virtual Jamestown*, Accessed 12 Mar. 2017, bit.ly/1KXtqc9.

a. John Smith, *Map of Virginia*, 1609

One of the earliest maps of the new American settlements was created by Captain John Smith in 1609, and published in 1612. It was a detailed map of the Chesapeake Region which included the areas of what are now Virginia, Maryland, Delaware, Pennsylvania and Washington D.C.

A Map of Virginia: With a Description of the Country, the Commodities, People, Government and Religion was a useful and influential map until nearly the end of the century, and was considered to be highly geographically accurate, and many of the places that Smith named on the map are still in use in the 21st century.⁴⁰ (fig. 2.13)

[40] “Captain John Smith,” 01 Apr. 2017, *National Park Service*, bit.ly/2yXDAcN.

b. Adriaen Block, *Map of New Netherland*, 1614

Adriaen Block, a trader and explorer from Amsterdam, spent the early 1600s, exploring the area of the New Netherlands Dutch settlement along the Hudson Valley and Long Island Sound where the fur trade was bountiful, and provided for lucrative sales in Europe.⁴¹ Block was not a cartographer by trade, but he produced a map of his voyages in the new America, along with pertinent information of the areas he traveled. (fig. 2.14 – 2.15) He produced the annotated *Map of New Netherland* that was based on an earlier version of a map by Dutch cartographer Cornelis Doetsz. Block was the first to apply the name New Netherland, or *Nieu Nederlandt*.⁴²

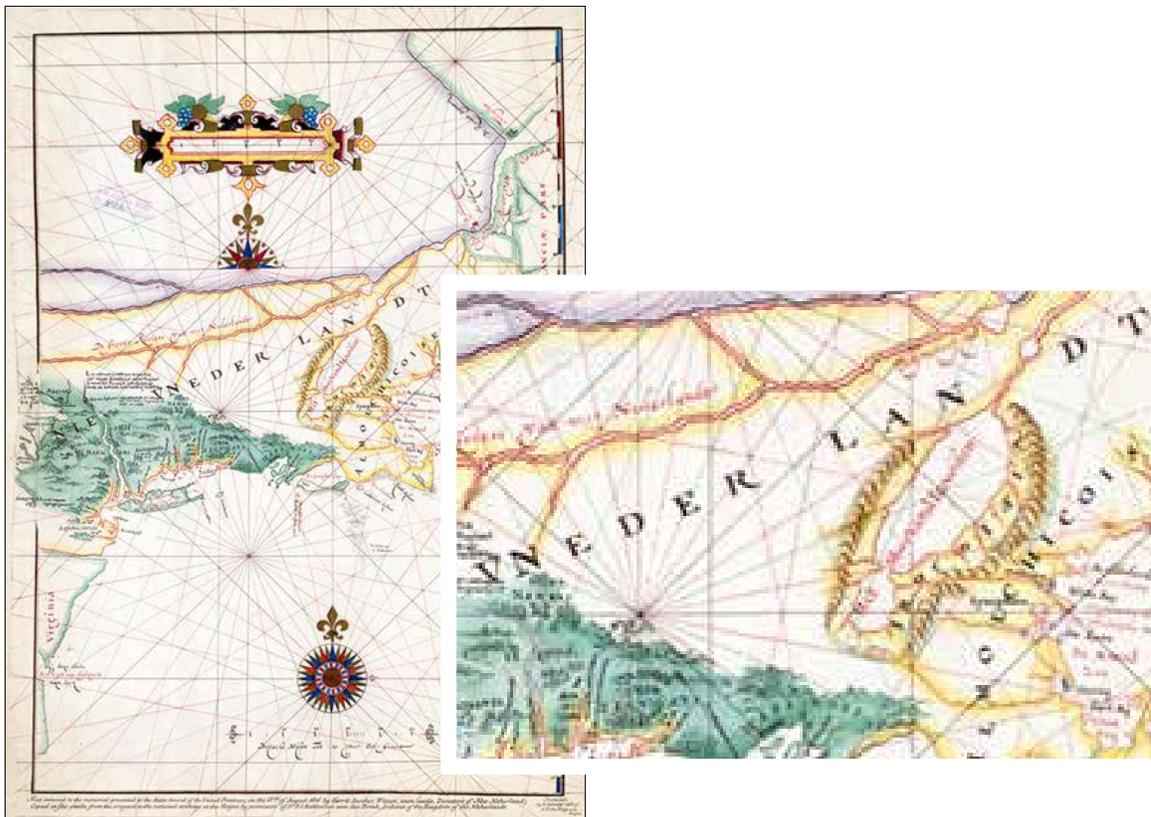


Figure 2.14. Adriaen Block, *Map of New Netherland*. 1614. Figure 2.15. *Map of New Netherland*, detail. SOURCE: Adriaen Block, “New Netherland,” Digital image, *Wikimedia*, Accessed 02 Feb. 2, 2017, bit.ly/2oKcUDI.

[41] “Adriaen Block,” 9 Oct. 2017, *Wikipedia*, 13 Apr. 2017, en.wikipedia.org/wiki/Adriaen_Block.

[42] “The Block Figurative Map,” 06 Aug. 2013, *NYC 99 – An Historical Atlas of New York City*, 04 Apr. 2017, www.nyc99.org/1600/block.html.

c. Nicolaes Visscher II, *New Netherland*, 1685

The Visscher family were prominent art dealers and printers in Amsterdam. Their business primarily produced landscape maps and illustrated maps for bibles. Nicolaes Visscher (1649 – 1702) was trained as a draftsman and mapmaker. At a time when there were very few geographical maps of America, his map of New Amsterdam provided vivid and rich detail that was engraved and hand-colored. This illustrated map of the new Dutch colony (fig. 2.16) was considered a very accurate representation of the New England area of the mid-1600s.⁴³

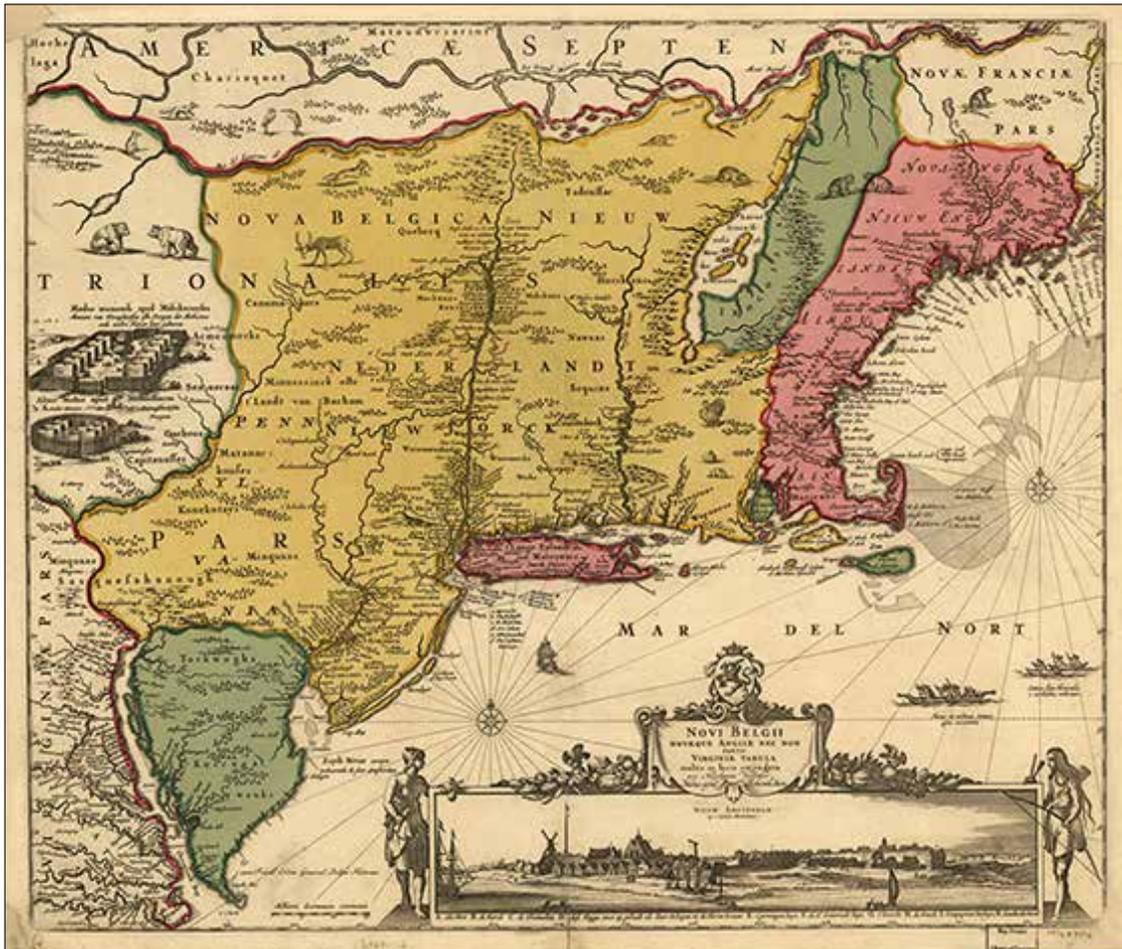


Figure 2.16. Nicolaes Visscher, *New Netherland*, 1685. SOURCE: Nicolaes Visscher, “Novi Belgii Novæque Angliæ: nec non partis Virginie tabula multis in locis emendata.” (Amsterdam?, 1685) Retrieved from the Library of Congress, Accessed 02 Apr. 2017, bit.ly/2wmnJC9.

[43] “Claes Jansz Visscher,” 09 May 2016, *Wikipedia*, Web, Apr. 14, 2017, bit.ly/2yWAJkn.



The 15th – 17th centuries were years of rapid advancements in the global community. The *Dutch Golden Age* saw increased intellectual curiosity and advanced university learning, acclaimed art and economic success. There was a continued increase in the exploration of the world. Explorers in Europe were eager to increase their wealth by trading goods with as yet undiscovered and unknown parts of the world, and finding faster routes of transport. This meant setting off on daring explorations by ship, using the stars as navigation.⁴⁴

During this time there was verification by explorers that the world was indeed round, and soon the accuracy of maps increased rapidly. The idea of binding maps into bound books, originally used by these seafaring navigators, allowed for lucrative printing businesses primarily in the Netherlands in the cities of Antwerp and Amsterdam.⁴⁵ Even as this *Golden Age of Cartography* began its decline at the end of the 1700s, the exploration of the world increased significantly. America was colonized by the Dutch and English in the early years, and the country quickly grew into a world power called the United States. With the expansion and settlement of these new lands, surveyors and printers created new maps, and eventually produced atlases. Initially, these were printed and produced mostly in Europe, but gradually as the country grew, the printing moved to American publishing houses.⁴⁶

[44] Patrick Karl O'Brien, "Atlas of World History," 2002, *Google Books*, 07 Apr. 2017, bit.ly/2oBM1pq.

[45] Dutch Golden Age. *Wikipedia*.

[46] Walter W. Ristow, *American Maps and Mapmakers: Commercial Cartography in the Nineteenth Century* (Detroit: Wayne State Univ. Press, 1985) 155.

III. COMPARATIVE AUDIT

A. Atlas in the 18th Century

1. Netherlands, 18th Century, *The Period of Decline*

According to Cornelis Koeman, cartography historian at the University of Utrecht, “The period between 1630 – 1700 is often referred to as the *Dutch Golden Age of Cartography*, while the 18th century is described as the *Period of Decline*.”⁴⁷ The Netherlands had once been the center of trade in Europe, but after many years of political corruptness, changes in government leadership and lengthy wars with Spain, France and England had led to diminished financial stability for this small country. These economic conditions caused a decreased exploration of the world, and less cartographic input to update the content of the Dutch-produced maps and atlases. Larger countries, notably France and England, who had larger financial resources, were taking over as the leaders of map and atlas production for the world.⁴⁸

The printing and publishing of maps—primarily atlases—had become an important development in the growth of the Dutch economy throughout the 16th and 17th centuries. As America grew and the settlements increased in size and independence, the Dutch held less control as the English and the French competed for more ownership of that continent.⁴⁹ Fewer maps were being printed in Europe as the publishing of American maps became

[47] Cornelis Koeman, *Collections of Maps and Atlases in the Netherlands: Their History and Present State* (Leiden, Netherlands: E. J. Brill, 1961) 54.

[48] Koeman, *Collections*, 57.

[49] Walter W. Ristow, *American Maps and Mapmakers: Commercial Cartography in the Nineteenth Century* (Detroit: Wayne State Univ. Press, 1985) 25.

more prevalent through publishing houses in the United States. There was a growing need for maps of the territories for use in war during the tumultuous 1700s while America was involved in the French and Indian War and later the Revolutionary War.

The ornately decorated maps and atlases with their high level of craftsmanship and engraving that had once been so valuable for the Dutch during the 17th century were no longer in high demand.⁵⁰ During the *Period of Decline*, many of the well-known atlas printers in the Netherlands began liquidating their stock of maps, atlases and copperplate engravings. These were purchased by smaller publishers who continued to assemble these materials into atlases to reprint them for collectors. No new or original map work for atlases of this genre was being produced any longer, as other European mapmakers, mainly the French, increased their production through advanced printing techniques and the availability of more accurate maps.⁵¹

Although there had been a massive decline in the production of *new* atlases during the 18th century—in comparison to the steady and lucrative printing business of years earlier—the demand from private collectors for reproduction atlases from previous centuries grew exponentially.⁵² Wealthy collectors, libraries and museums were particularly interested in compiling decorative editions of ornate and illustrated maps. These were often produced as an *atlas factice* or composite unbound sets of maps that were assembled to order.⁵³

[50] Peter van der Krogt, “Commerical Cartography in the Netherlands: With Particular Reference to Atlas Production (16th – 18th Centuries)” In *La Cartografia dels Països Baixos*, 1995, PDF, bit.ly/2xVD0vN.

[51] Koeman, *Collections*, 55.

[52] Komen, *Collections*, 56.

[53] Koeman, *Collections*, 60 – 64.

2. United States, 18th Century

During the 18th century, America grew from the small colonies once occupied by various European countries, and declared its complete independence from England in 1776. They voted into power a new form of government and a president, George Washington, who was himself a renowned cartographer. It was now the United States of America, a nation with 13 states. Throughout the century, along with the continued rapid growth of the country and expansion of settlements and exploration of the vast lands, there was a considerable need for better and more accurate maps for these settlers and explorers.

The American colonies had been printing their maps in Europe, primarily in London. Because of this, London in the mid-1700s was fast becoming an important and leading map producer for the world. During that time, Thomas Jefferys, a prominent English printer of maps, who has been called “one of the most significant map sellers of the mid-eighteenth century”⁵⁴ began gathering surveys, charts and maps from North America and incorporating them into new books of maps. He produced *The American Atlas* in 1775.

It was nearly a decade into the independence of the United States before an atlas specifically *for* the American market was produced *in* America. Mathew Carey was the publisher, and he printed *A General Atlas for the Present War* in 1794. Because of its popularity, it was quickly followed up with his version of the *American Atlas* in 1795.⁵⁵

[54] J. B. Harley, “The Bankruptcy of Thomas Jefferys: An Episode in the Economic History of Eighteenth Century Map-making,” 29 July 2008, *Imago Mundi* 20, no. 1 (Jan. 1966): 27, 10 Oct. 2016, bit.ly/2l0YYHG.

[55] Ristow, 154.

a. Thomas Jefferys, *The American Atlas*, 1775

Thomas Jefferys (1719 – 1771) was a prolific international mapmaker and publisher in London, and has been recognized as “the leading chart and map supplier of his day.”⁵⁶ He is credited with producing some of the most important maps of the 18th century in both Europe and America. In the years 1750 – 1760 alone he published at least 45 maps and charts of the United States. Additionally, he printed illustrated maps for books and magazines.⁵⁷ Although Jefferys was a prosperous mapmaker, he and many map publishers of the time were forced to produce and sell their books and maps for low profits, and by the time he died in 1771, he was bankrupt.⁵⁸

In 1775, *The American Atlas: Or, A Geographical Description Of The Whole Continent Of America* was produced with 22 maps compiled by the publishers Sayer and Bennett, who had acquired Jefferys’ maps and prints after his death, and assembled them into atlases. (fig. 3.1) A second version was released in 1776 in a larger format with additional maps. These and other atlases were financially successful, so they continued to use Jefferys’ name for many years. The title *atlas* was used, but Jefferys never intended any of these maps to be bound together in one publication, but rather that the maps to be produced and sold individually.⁵⁹

[56] E.G.R. Taylor, *The Mathematical Practitioners of Hanoverian England, 1714 – 1840* (London: Cambridge University Press, 1966) 181.

[57] Bosse, 5.

[58] Harley, 27 – 48.

[59] R. A. Gardiner, “Thomas Jefferys’ American Atlas, 1776,” *The Geographical Journal*, vol. 142, no. 2, 1976: 355 – 358, 14 Feb. 2017, *JSTOR*, www.jstor.org/stable/1796651.

Map historian Walter Ristow considered *The American Atlas* by Jefferys to contain the most comprehensive geographical description of the American continent, and called it “the most important 18th-century atlas for America,”⁶⁰ He further believed that this major cartographic reference work had been “consulted by American, English and French military officers during the Revolution.”⁶¹



Figure 3.1. Thomas Jefferys, *The American Atlas*, 1776. SOURCE: Thomas Jefferys, “American Atlas,” Digital image, *David Rumsey Historical Map Collection*, Accessed 07 Jan. 2017, bit.ly/2pgRcYJ.

[60] “The American Atlas; or, a Geographical Description of the Whole Continent of America,” *DonaldHeald.com*, 2 Apr. 2017, bit.ly/2oCragM.

[61] *Ibid.*

b. Mathew Carey, *A General Atlas*, 1794

Mathew Carey (1760 – 1839) struggled to make a living through various endeavors during his early years as a printer and publisher. Though often on the brink of bankruptcy, he founded newspapers, created and published a subscription-based magazine, printed medical pamphlets and even owned a bookstore. In 1794 he printed and sold volumes of William Guthrie's *A New System of Modern Geography*, which contained an atlas of 50 large maps and charts.⁶²

He found it expeditious and cost-effective to redraft and assemble existing maps made by American engravers to create atlases that were directed specifically at the market in the United States.⁶³ Cartographer and map historian Brian Harley has written that Carey “became a master in the art of packaging the same maps for reissue in several of his publications.”⁶⁴

According to Ed Redmond at the Library of Congress, “Mathew Carey, a Dublin-born printer and publisher who immigrated to Philadelphia in 1784, is generally recognized as the first publisher of an (American) atlas in the United States.”⁶⁵ His first publication of a book with *atlas* in the title was printed in Philadelphia in 1794 called *A General Atlas for the Present War*. Notably, the printing of this atlas gave Carey “the honor to have introduced and printed the atlas in the United States exactly 200 years after the death of its ‘inventor,’ Gerardus Mercator.”⁶⁶

[62] James N. Green, *Mathew Carey, Publisher and Patriot* (Philadelphia: The Library Company, 1985) 10.

[63] John A. Wolter and Ronald E. Grim, *Images of the World: The Atlas Through History* (New York: McGraw-Hill, 1997) 280.

[64] J. Brian Harley, “Atlas Maker for Independent America,” *Geographical Magazine*, 1977. 769.

[65] Ed Redmond, Library of Congress, E-mail message to author, 31 Jan. 2017.

[66] Peter van der Krogt, “From ‘Atlas’ to Atlas,” *Mercator’s World*, 1996, 61 – 63.

Carey's atlases were small, and the maps of foreign countries were largely copied from existing European maps, but many of the maps of the states were the works of emerging American engravers and cartographers.⁶⁷

c. Mathew Carey, *American Atlas*, 1795

Carey followed up the success of *A General Atlas for the Present War* with his *American Atlas* in 1795. (fig. 3.2 – 3.3) This atlas contained a compilation from a previously printed geography textbook published earlier that year from Guthrie's *Geography* (also known as *The General Atlas For Carey's Edition Of Guthrie's Geography Improved*.)⁶⁸ Even though his *General Atlas for the Present War* was also called an atlas, many historians of cartography—including David Rumsey, the noted map collector and founder of the David Rumsey Map Collection at Stanford, Carey's *American Atlas* is considered to be the “first American geographical atlas of America printed in America.”⁶⁹

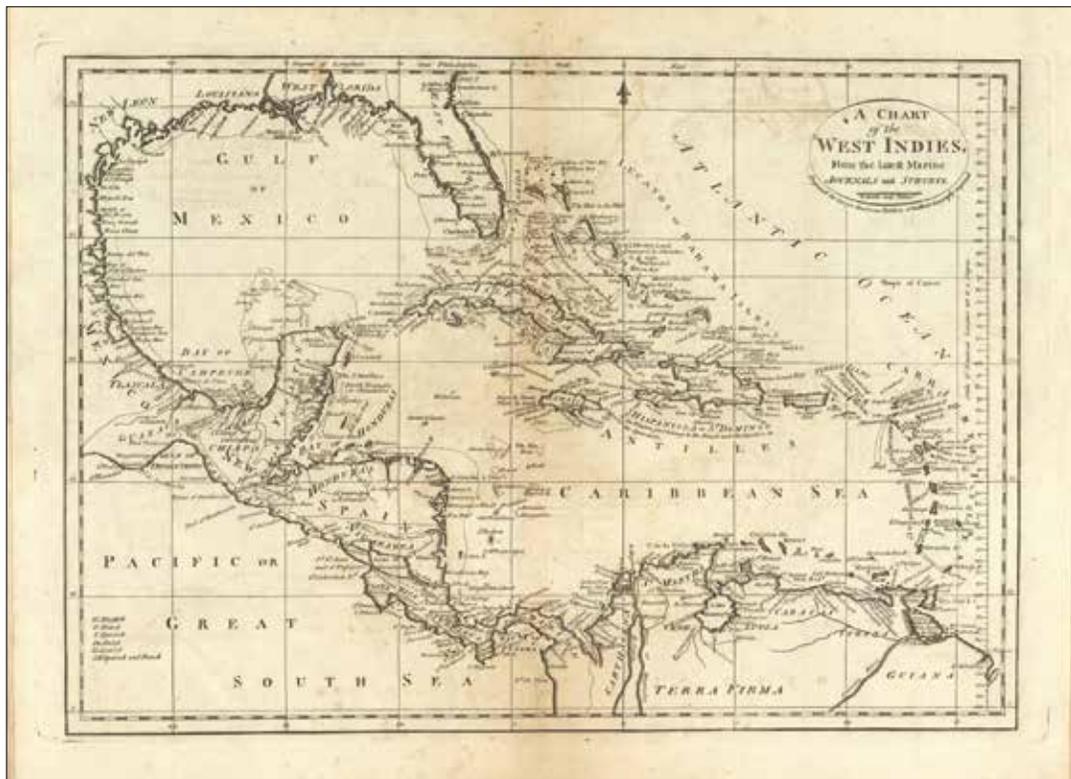
Other American printers quickly adapted to Carey's concept of packaging the same maps for reissue, or using existing maps to form atlases, and they began publishing similar formats. Often a map printed in one publication would then show up later in several others.⁷⁰ This is not unlike the earliest days of atlas creation when Mercator used available maps that he could assimilate into atlases.

[67] Erwin Raisz, “Outline of the History of American Cartography,” *Isis* 26, no. 2 (1937): 373 – 391, *JSTOR*, www.jstor.org/stable/224924.

[68] “Mathew Carey Atlas,” *David Rumsey Historical Map Collection*, 17 Mar. 2017, bit.ly/2zBF3T6.

[69] “Carey's American Atlas,” *David Rumsey Historical Map Collection*, 2 Feb. 2017, bit.ly/2oSI9i1.

[70] Ristow, 154.



Figures 3.2 – 3.3. Mathew Carey, *American Atlas*, 1795. SOURCE: Mathew Carey, “Carey’s American Atlas,” Digital image, *David Rumsey Historical Map Collection*, Accessed 02 Jan. 2017, bit.ly/2pmNHZx.



As noted previously, the second half of the 18th century showed a pronounced decrease in the production of maps and atlases in the Netherlands, and is described as the *Period of Decline*. Even though there was little demand for new versions of atlases, Dutch publishers continued to produce reprints of the older existing atlases that were commercially successful throughout the 17th and the first half of the 18th centuries. Many of these came from print houses of second- or third-generation publishing families who had printed atlases in the 16th and 17th centuries, and they still owned many of the original copperplates and engravings that had been used for the printing more than a century ago.⁷¹ The production of these atlases changed character in the mid-18th century with a return to the *atlas factice*, or the made-to-order assemblage of printed maps, bound or unbound. Wealthy collectors were acquiring these atlases in multiple volumes, known as an ‘atlas major,’ as measures of distinction. Atlases with one hundred maps or less were known as an ‘atlas minor.’⁷²

The Dutch had lost their prominence in the world as the main suppliers of new and original maps and atlases, but the United States was finding a surge of popularity in surveys of their new lands along with the increased production of their own maps and cartography. Thomas Jefferys and Mathew Carey were of particular importance in their publications of atlases, and other American printers soon began publishing atlases also, as it was a lucrative and growing trade.⁷³

[71] Peter van der Krogt, “Explokart Research Project: Atlantes Neerlandici,” 03 Apr. 3, 2017, *Atlantes Neerlandici*, bit.ly/2pu75x9.

[72] *Ibid.*

[73] Ristow, 155.

B. Atlas in the 19th Century

I. Netherlands, 19th Century

In the 17th century there were hundreds of Dutch publishers and “more books were printed in the Netherlands than in all other European countries put together.”⁷⁴ Among them, one of the most profitable was Willem Blaeu who was known for his publications of maps and multi-volume atlases. The 18th century brought the *Period of Decline* in atlases and mapmaking, and by the 19th century, the *Dutch Golden Age of Cartography* had come to an end.⁷⁵ In the 1800s there was little or no demand for the large, elegant productions of world atlases. The Netherlands no longer held esteem as one of the most important print production cities in the world and it was not the center for the shipping trades, learning, technology or the arts.⁷⁶

Mapmaking and the production of atlases in the 19th century became a much different process as compared to previous centuries largely due to changes in the printing technologies. Maps and books could now be printed faster and cheaper, and there was a larger market for relevant maps that held true mathematical scale and accuracy of geography—or a formal cartography—instead of the more artistic interpretations and decorative iterations of the earlier Dutch maps and atlases.

[74] Paul G. Hoftijzer, “The Dutch Republic, Centre of the European Book Trade in the 17th Century,” 23 Nov. 2015, *European History Online*, 02 Jan. 2017, bit.ly/2pEzeTh.

[75] *Ibid.*

[76] “History of the Netherlands,” 14 Oct. 2017, *Wikipedia*, 02 Apr. 2017, bit.ly/2xTAWcs.

a. *Bosatlas*, 1877

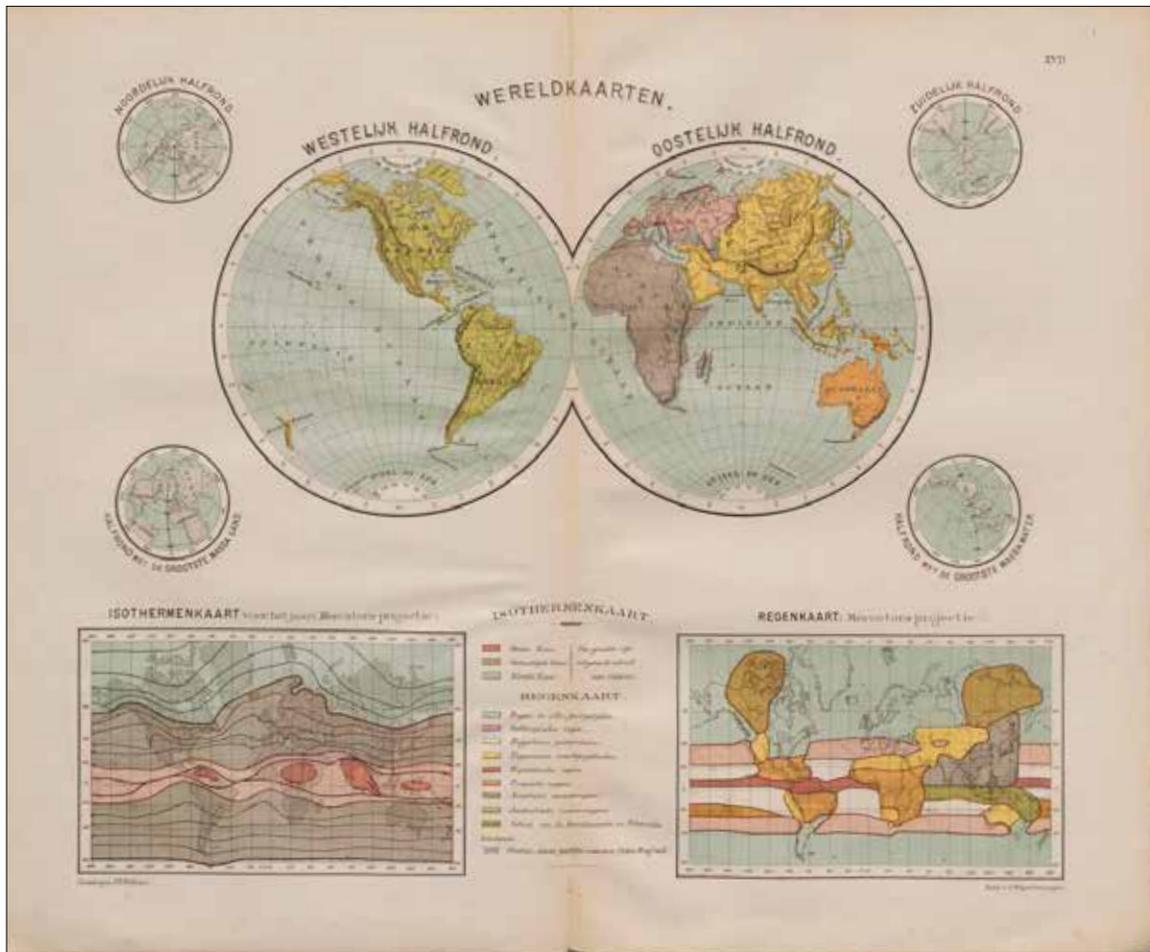
Though the publication of atlases had declined substantially in the late 19th century, the Dutch still operated some of the finest printing houses in the world. Because of their long history in mapmaking and atlas production, they began developing a different type of atlas—a school geography book. The first edition of the *Bosatlas* was published in 1877 and named after its editor, geographer and educator Pieter Roelf Bos. It was originally called the *Bos' Schoolatlas der geheele aarde* or *Bos' School Atlas of the Whole World*.⁷⁷ (fig. 3.4 – 3.6) The title was later reconfigured as the *Bosatlas*, also known as *De Grote Bosatlas* or the *Large Bosatlas*. It would eventually become the most common atlas in the Dutch education system, and one of the best-known atlases in modern history.

There were 12 other school atlases published in 1877, and many more were produced in the second half of the 19th and into the 20th century, but the most common was the *Bosatlas*. One school atlas in particular, by Dutch geographer Anton Albert Beekman, was the closest competitor and continued publication until 1924.⁷⁸ The maps in each successive publication of the *Bosatlas* were continually updated with new geographical information, and refined with color improvements through enhanced printing techniques. And 150 years after the first publication, the *Bosatlas* remains the bestselling atlas in the Netherlands. The 55th print and first digital edition was released in 2016.⁷⁹

[77] Joop W. Koopmans, “Historical Dictionary of the Netherlands,” *Google Books*, 25 Apr. 2017, bit.ly/2puidKx

[78] F. J. Ormeling and Rob Van Der Vaart, *Biografie van de Bosatlas* (Groningen: Wolters-Noordhoff Atlasproducties, 2005) 136.

[79] “Bos’ Atlas of the Whole Earth,” *Special Collections – Utrecht University Library*, 12 Jan. 2017, bc.library.uu.nl/editie-1-187778-pieter-roelf-bos-bos-schoolatlas-der-geheele-aarde



Figures 3.4 – 3.6. Pieter Roelf Bos, *Bos' Atlas of the Whole Earth*, 1877. SOURCE: Pieter Roelf Bos, "School Atlas of the Whole Earth 1877," Digital image, *Universiteit Utrecht*, Accessed 05 Mar. 2017, bit.ly/2oO9KxX.

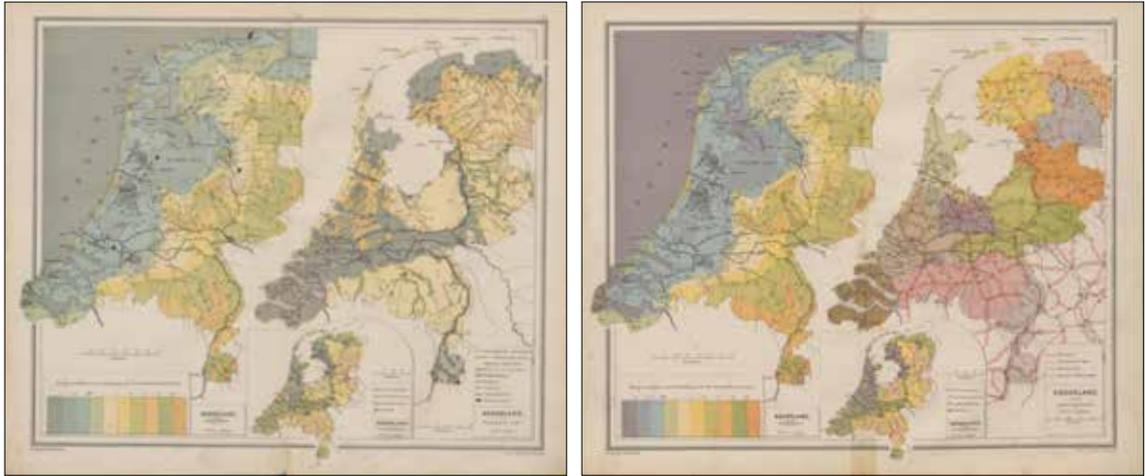


Figure 3.7. Utrecht University Library, digital display. Synchronized viewer, showing maps of the Netherlands in the 1883 and 1884 editions of *De Bosatlas*. SOURCE: Digital image, *Special Collections–Utrecht University Library*, Accessed 09 Apr. 2017, bit.ly/2rN0Zaa.

The University of Utrecht in the Netherlands created a digital presentation for a comparison of the progression and evolution of the printed editions of the *Bosatlas*, 1877 – 1939. The online synchronized viewer allows for an evaluation of the changes in a side-by-side display by year.⁸⁰ (fig. 3.7) This digital exhibition provides a unique overview of all the pre-war editions of the *Bosatlas*, and is intended for use as an extension of the textbook for grade schools as well as for historical research.⁸¹

[80] “Bos Atlases: Mapping the World (1877 – 1939),” *Special Collections – Utrecht University Library*, 09 Apr. 2017, bc.library.uu.nl/exhibition-information/44.

[81] Marco van Egmond, “A New Online Historical Atlas: The Dutch *Bosatlas* Digitized and Annotated (1877 – 1939),” 28 Apr. 2017, *Academia*, 05 June 2017, 107 – 08, bit.ly/2qY9Zbf.

2. United States, 19th Century

Even though the early 1800s were a marked period of decline in Dutch atlas production, it was also the *Golden Age of American Cartography*. The United States was undergoing significant population growth and changes as the nation continued to move west. With an expansion of the territories and development of roads and railroads, there was a great need for more and improved maps. Commercial cartography evolved as well, along with the availability of new geographical data and increased interest in maps and atlases.⁸² Publishing companies were able to meet this demand with innovations in printing that allowed for faster and cheaper production.⁸³ For most of the early 19th century, Philadelphia had been the most important center for map production, but with the shift to middle America later in the century, Chicago became the epicenter of America, largely due to economic growth and the rapid expansion of the railroads.⁸⁴ The Rand McNally publishing company now held the dominance of map production in the United States.⁸⁵

Several new atlases were published during the early part of the century, including various compilations of maps created by the Army and Navy, and for the War of 1812. Other atlases of significance were published by Henry Schenck Tanner, who was a noted American cartographer in New York. His edition of the *New American Atlas* was first printed in 1823. He changed the name to *A New Universal Atlas*, in 1836, and it became the standard American atlas until 1860.

[82] Raisz, 381.

[83] Joe McAlhany, "American Atlas Publishers in the 19th Century," 14 July 2015, *The Great Republic*, 12 Apr. 2017, bit.ly/2zpZmlp.

[84] John Rennie Short, *Representing the Republic: Mapping the United States, 1600 – 190* (London: Reaktion Books, 2001) 159.

[85] Short, 221.

It was considered a landmark in American cartography for its map representations of the United States.⁸⁶ The printing of maps had moved from the use of copperplates to lithography stones, which was much less expensive and more efficient. The hand-colored maps with elaborate borders, the use of ornamentations and all the decorative practices that had been common in early Dutch atlases, were once again popular in the late 19th century in America.

a. Sidney Morse, *Cerographic Atlas of the United States*, 1842

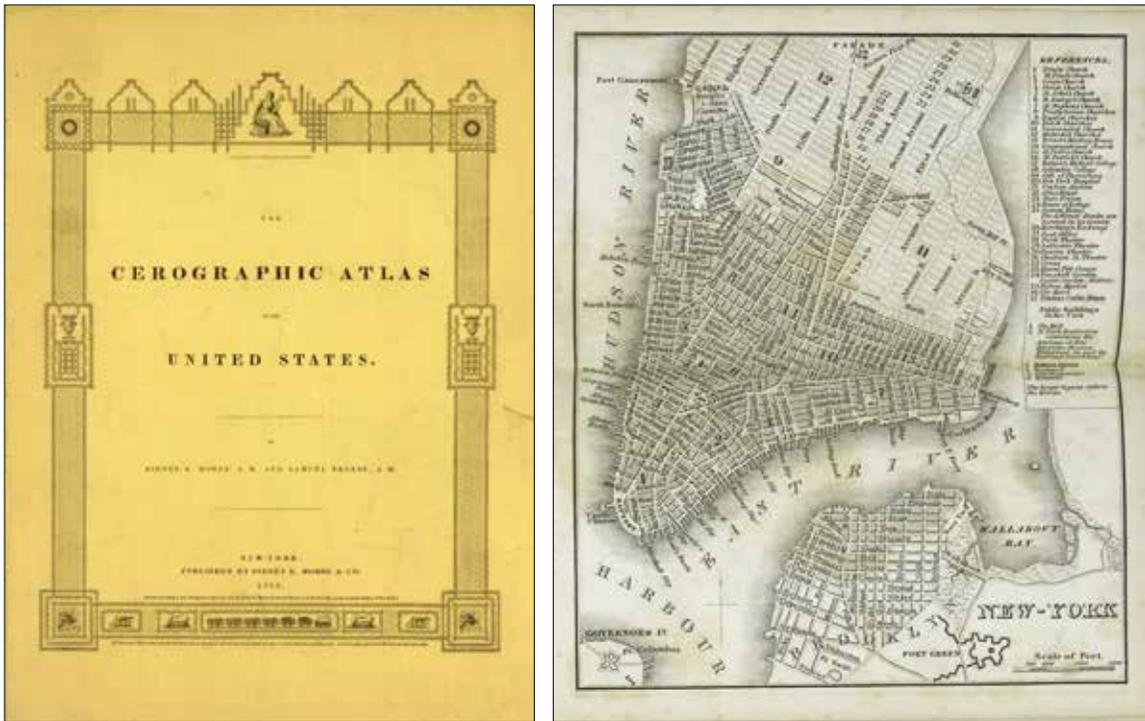
An important innovation in map and atlas printing in the United States was implemented with Sidney Morse's invention of cerography, or wax engraving.⁸⁷ In 1842 he used this method to produce his *Cerographic Atlas of the United States*. This process was much cheaper than copperplate engraving or lithography, and was considered a "major technological breakthrough that had a particularly great impact on American map publishing."⁸⁸ For nearly the next hundred years, atlases published in the United States used this fast and efficient technique. The *Cerographic Atlas* (fig. 3.8 – 3.9) was first published in three parts as a supplement to the *New York Observer* in 1842, 1843 and 1845, and was republished as a bound edition in 1845 as *Morse's North American Atlas*, with updates to the maps and the addition of color.⁸⁹

[86] McAlhany.

[87] Hugh Chisholm, *Cerography*, 11th ed. Vol. 5, Encyclopædia Britannica (Cambridge University Press, 1911) 762.

[88] "The First Published Cerographic Maps," *Cohen & Taliaferro*, 20 Apr. 2017, bit.ly/2oKgOjD.

[89] "The Cerographic Atlas Of The United States, 1842." *David Rumsey Historical Map Collection*, 22 Apr. 2017, bit.ly/2qqRtYr.



Figures 3.8 – 3.9. Sidney Morse, *Cerographic Atlas of the United States*, 1842. SOURCE: Lionel Pincus and Princess Firyal Map Division, The New York Public Library, “The Cerographic Atlas of the United States,” *New York Public Library Digital Collections*, Accessed 29 Apr. 2017, on.nypl.org/2p7F8fO.

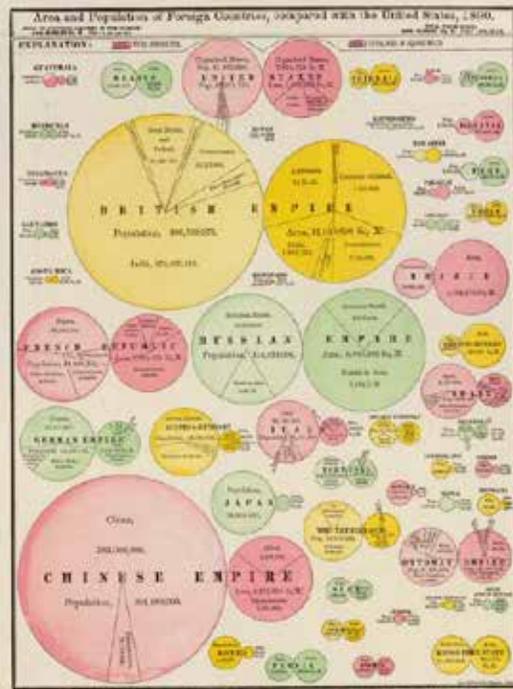
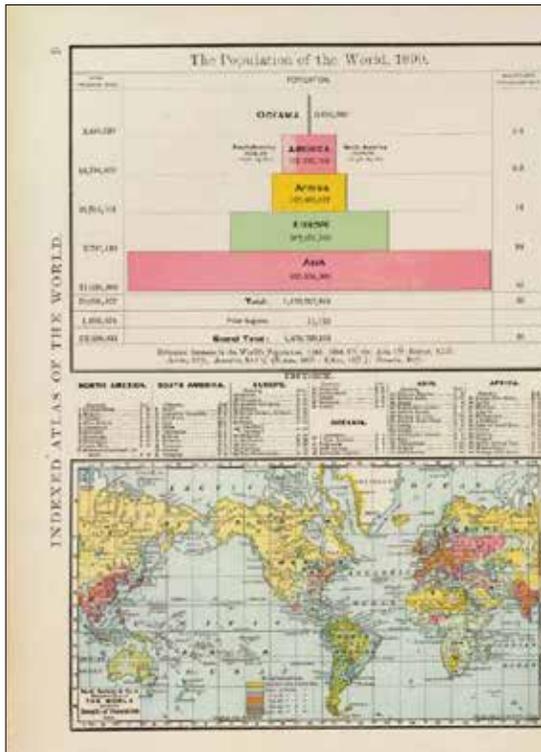
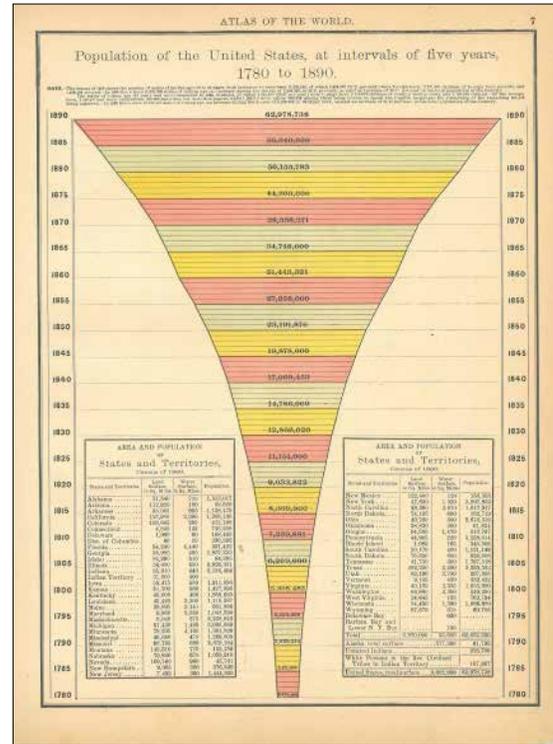
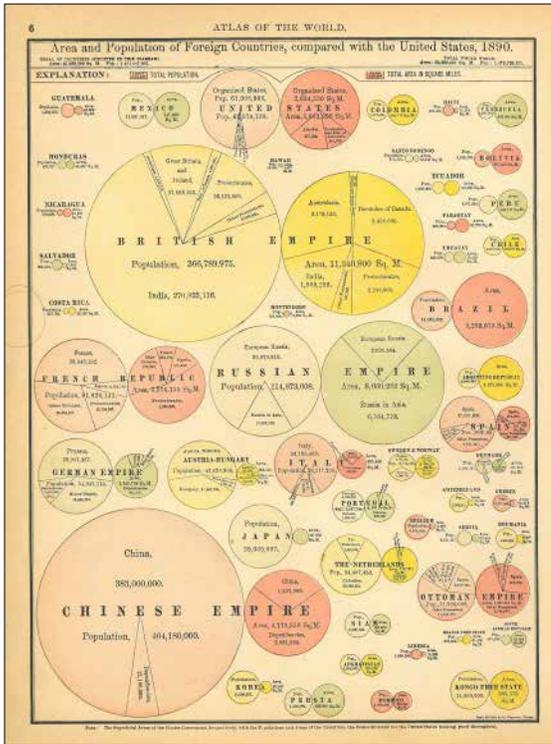
b. Rand McNally, *New Standard Atlas of the World*, 1890

William Rand and Andrew McNally formed a partnership and what began as a small print shop in Chicago in the 1850s. The company initially focused on the rapidly expanding railroad industry through the printing of tickets, timetables and railway guides. Their first printed map appeared in one of these guides, and its popularity led to further production of maps.⁹⁰ In 1880 they began printing educational maps, followed by the production of geography textbooks and globes.⁹¹

The company produced nearly 30 different types of atlases from the late 19th century into the early 20th century, often giving away the inexpensive books as promotional items. In 1890

[90] Short, 222.

[91] “Rand McNally – History,” *JRank Encyclopedia*, 08 Apr. 2017, bit.ly/2znVKk9.



Figures 3.10 – 3.12. Rand McNally, *New Standard Atlas of the World*, 1890. SOURCE: G. K. van Patter, “Data Visualization 1890,” *Humanific*, 27 Aug. 2016, Accessed 02 Feb. 2017, <http://bit.ly/2qb9U7n>.

they published the *Rand McNally New Standard Atlas of the World*, (fig. 3.10 – 3.12) an atlas that showcased a Mercator projection world map centered on the United States, along with a variety of illustrations, diagrams, maps and pictorial engravings of United States presidents. The last several pages were reserved for advertising and adverts.⁹² This *Atlas of the World* format was used as an ongoing template that was often modified for various clients, but sometimes the only change was the cover title of the atlas.

Samuel Morse's invention of cerography, or wax engraving, was more fully developed by the Rand McNally company, and it contributed in a large part to their success as printers. With this process, the wax engraved plates lasted longer than copperplates, and they were easily correctable and updateable, which allowed the company to produce more maps for far less money. By the end of the 19th century, Rand McNally was the largest mass producer of maps and atlases in the country.⁹³



The once popular large decorative Dutch atlases had gone out of fashion by the 19th century. Although cartography in the Netherlands was in an overall period of decline, there were improved printing processes and new technologies which allowed for much cheaper printing of maps and books, and the Netherlands continued to be valued for their printing houses.

In the United States, the need for maps and atlases increased dramatically as the country grew. American printing houses benefited from the new printing innovations that moved away from copper engraved plates to more economical wax engravings. For the first time in history, America was creating and publishing their own atlases.

[92] Short, 229 – 230.

[93] Short, 225 – 226.

C. Atlas in the 20th Century

In the 20th century, mapmaking was more popular than at any other time in history and “there was an explosion of mapping,” according to Mark Monmonier, Distinguished Professor of Geography at Pennsylvania State University and editor of the book *The History of Cartography, Volume 6: Cartography in the 20th Century*.⁹⁴ Cartographers could now see the world from above, with visuals from airplanes, and later from outer space. Old maps were converted into digital form as satellites captured topographical data and maps became increasingly interactive. Monmonier further believed that the electronic transition defined the 20th century more than anything else.”⁹⁵

i. Netherlands, 20th Century

The late 19th century saw a cultural revival in the Netherlands and the world, especially in the 1880s – 1890s. Art, literature, music, architecture and science all flourished.⁹⁶ Along with many technological advances in industry, machinery and printing, the *Bosatlas* school textbook continued to be the most-produced and bestselling atlas in the Netherlands. The impact of World War I 1914 – 1918 was profound in the Netherlands. While they were still rebuilding and re-establishing their country, World War II took place 1940 – 1945. The country had been ravaged by wars, and the following 20 years were spent on post-war reconstruction.⁹⁷

[94] Mark Monmonier, ed, *The History of Cartography, Vol. 6, Cartography in the Twentieth Century*, (The University of Chicago Press, 2015)1388, PDF, bit.ly/2ywPmKs.

[95] Sarah Laskow, “7 Maps That Only Could Have Been Made in the 20th Century,” 14 May 2015, *Atlas Obscura*, 16 June 2017, bit.ly/2yF3wcd.

[96] *Wikipedia*, Netherlands.

[97] Anita Blom, Simone Vermaat and Ben De Vries, *Post-War Reconstruction in the Netherlands 1945 – 1965: The Future of a Bright and Brutal Heritage* (Rotterdam: Nai010 Publishers, 2016) Introduction.

a. Anton Albert Beekman, *Geschiedkundige Atlas*, 1913

The geographer Anton Albert Beekman (1854 – 1947) is known as a Dutch pioneer in the field of historical cartography. In his multi-volume *Geschiedkundige Atlas van Nederland* or *Historical Atlas of the Netherlands*, Beekman himself drew maps and wrote much of the text, and combined his enthusiasm for history, geography and cartography. (fig. 3.13 – 3.14) The maps were published in more than 120 magazines from 1913 to 1939. The sources for these and many other publications were from his expansive private library of books and map.⁹⁸ He also provided the cartography for a school atlas of the Netherlands, *Schoolatlas van Nederland* (1889 – 1929), and another of the world, the *Schoolatlas van de Geheele Aarde* (1893 – 1927).⁹⁹



Figure 3.13. Anton Albert. Beekman, *Geschiedkundige Atlas van Nederland*, 1913. SOURCE: Anton Beekman, “Geschiedkundige Atlas van Nederland,” Digital image, Accessed 04 June 2017, bit.ly/2szHENy.

Figure 3.14. Anton Albert. Beekman, *Schoolatlas van de Geheele Aarde*, 1893. SOURCE: “Schoolatlas van de Geheele aarde,” *University Library Utrecht Special Collections*, Accessed 03 July 2017, bit.ly/2sGip7l.

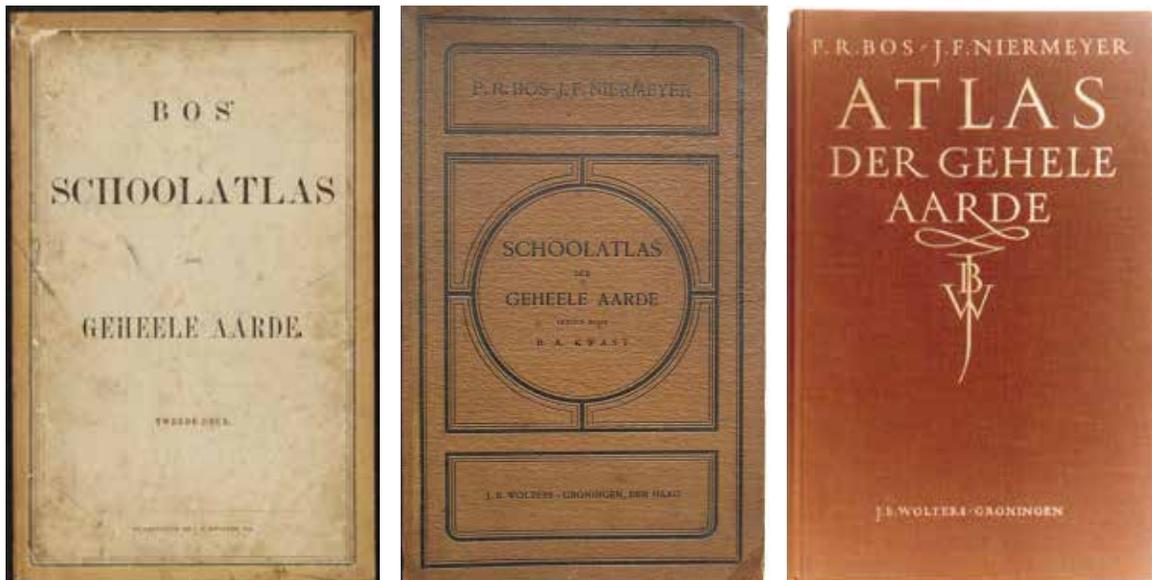
[98] “The Map Collection of a Pioneering Historian,” Sept. 2015, *Special Collections, Utrecht University Library*, 02 June 2017, bc.library.uu.nl/map-collection-pioneering-historian.

[99] Anton Albert Beekman, *Wikipedia*, 04 June 2017, bit.ly/2sz3C1L.

b. Wim Crowwel, *De Grote Bosatlas*, 1968

The prominent Dutch graphic designer and type designer Wim Crowwel, born in 1928, is highly regarded as one of the most important and influential designers of the 20th century. He has received international acclaim for his iconic posters, unique typographic alphabets and other notable designs including logos, phone books and postage stamps. Additionally, he is well-known for the catalogs and posters he designed for the Van Abbemuseum in Eindhoven 1955 – 1963, and the Stedelijk Museum in Amsterdam from 1963 – 1985.¹⁰⁰ The Dutch design group Experimental Jetset said of his influence [on Dutch design], “The graphic landscape in which we spent our childhood years was largely designed by Wim Crowwel and his peers.”¹⁰¹

Crouwel’s designs have a formal adherence to typographic simplicity and the clean design principles of Modernism. Among his most notable projects is his cover redesign of the Dutch *Bosatlas*, the beloved school atlas of the Netherlands. (fig. 3.15 – 3.17) The redesign of the 46th



Figures 3.15 – 3.17. *Bosatlas* covers 1879, 1923 and 1955. SOURCE: Berend Albertus Kwast, “Bos-Niermeyer Schoolatlas,” *Special Collections, Utrecht University Library*, Accessed 16 May 2017, bit.ly/2syZ2Rq.

[100] “Wim Crowwel: A Graphic Odyssey,” *Stedelijk Design Museum*, Accessed 02 June 2017, bit.ly/2sk9utA.

[101] Emily King, “Wim Crowwel,” 06 Sept. 2017, *Frieze*, 01 June 2011, bit.ly/2xpE9u6.

edition cover and title page, published in 1968,¹⁰² was completed by Crouwel and his studio Total Design. This newly designed book included a reduced format size, and was noticeably changed from the previous simple covers of classical styling that had been largely unchanged since the *Bosatlas*' inception in 1890. Crouwel simplified the graphics and title through the use of a large sans serif typeface, and added a color palette of a gray background with blue and white typography. (fig. 3.18) He also designed the inside faceplate of the book a modern graphic style for.¹⁰³ (fig. 3.19) The *Bosatlas* would now be known as *De Grote Bosatlas* or *The Large Bosatlas*. Professor of Cartography at Utrecht University and historian of the atlas Ferjan Ormeling, noted that the updated atlas design was used for two editions of the *Bosatlas*, but for the 49th edition "Crouwel's lettering was retained, and the background was filled up with a photograph." By the 50th and further editions, all traces of Crouwel's input had disappeared.¹⁰⁴

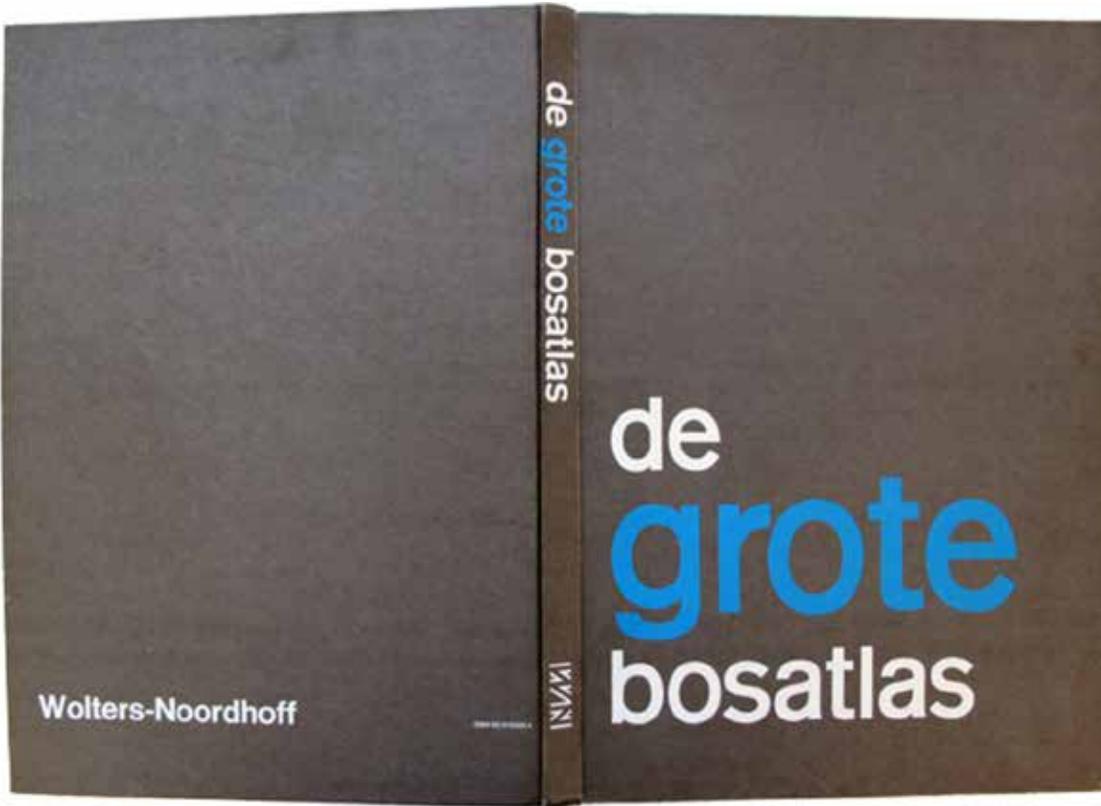
By commissioning an iconic Dutch *designer* to redesign an iconic Dutch *atlas*, a radical shift in the design assumption was allowed. When Crouwel moved away from the expected design considerations of style that had been in place for nearly a century, this allowed a break from the traditions of past *Bosatlas* designs, and a move into the modern era without the previous 'mandated' constraints. Ormeling also attributes the redesign to the idea that people were "tired of the old design,"¹⁰⁵ and this was the opportunity for a new phase.

[102] Titia Ketelaar, "Modern Spirit of Simplicity and Order," 07 Apr. 2011, *NRC*, 08 Feb. 2017, bit.ly/2sIWDRs.

[103] Jaap Proost, "Crouwel and De Grote Bosatlas," *Monowolf.com*, 18 Mar. 2017, bit.ly/2pKfKwi.

[104] Ferjan Ormeling, *Utrecht University*, E-mail message to author, 19 Sept. 2017.

[105] *Ibid.*



Figures 3.18 – 3.19. Wim Crowel, *De Grote Bosatlas*, 1968. SOURCE: Jaap Proost, “Crowel and De Grote Bosatlas,” Digital image, *Monowolf.com*, Accessed 18 Mar. 2017, bit.ly/2pKfKwi.

2. United States, 20th Century

By the early 1900s, the United States had established itself as a world power. And as the new century ushered in advances in technology, it was another golden age of mapmaking as maps and atlases were now an everyday aspect of American life. Throughout the 20th century, changes in maps took place through advancements in technology and events in society—there were two World Wars, moon landings and the onset of the digital revolution.¹⁰⁶

Aerial photography and satellites provided images of the Earth that allowed cartographers to create more efficient and precise methods for visualizing physical features such as coastlines, roads, buildings and topography. Electronic technology also contributed to an expansion in mapmaking through the use of computers, monitors, plotters, printers and scanners. Overall, the quality and quantity of information and data was finding its way onto maps.¹⁰⁷

Another major innovation was the automobile, and it was fast becoming one of the most important modes of transportation, increasing the mobility of the population. As the popularity of cars grew in the United States—and the world—the production of road atlases increased as well, in particular, the *Rand McNally Road Atlas*. With the rapid growth of population in America, there was a growing demand for up-to-date maps, including state and regional atlases. Also popular were county atlases, which were large-scale wall maps that were converted into an atlas format, or bound book of maps,¹⁰⁸ much like the earliest compilations of Mercator's atlases in the 15th century.

[106] Tom Harper, "The Map of the World in the 20th Century," *British Library*, 18 June 2017, bit.ly/2rwTRhe.

[107] "Cartography," *Wikipedia*, 7 October 2017, Web, 9 December 2016, bit.ly/2sIyygc.

[108] David A Yehling, "The Mapping of New York State: A Study in the History of Cartography," *Dyasites*, 2011, 19 Apr. 2017, bit.ly/2sITkfb.

a. Rand McNally, *Goode's School Atlas*, 1923

As had happened in the Netherlands in the early 20th century, the school textbook version of the atlas proved to be very popular in the United States as well. *Goode's School Atlas* is named for John Paul Goode, a cartographer and Professor of Geography at the University of Chicago.¹⁰⁹ He developed the school atlas through his experience teaching geography in schools and universities. He saw a need for a United States-based atlas, because the previous textbooks had been imported from Europe, and therefore had been very Euro-centric in focus.

Goode was particularly interested in the legibility of data on his maps through the use of color, line and outline thickness and the size and style of typefaces.¹¹⁰ (fig. 3.20) The first edition

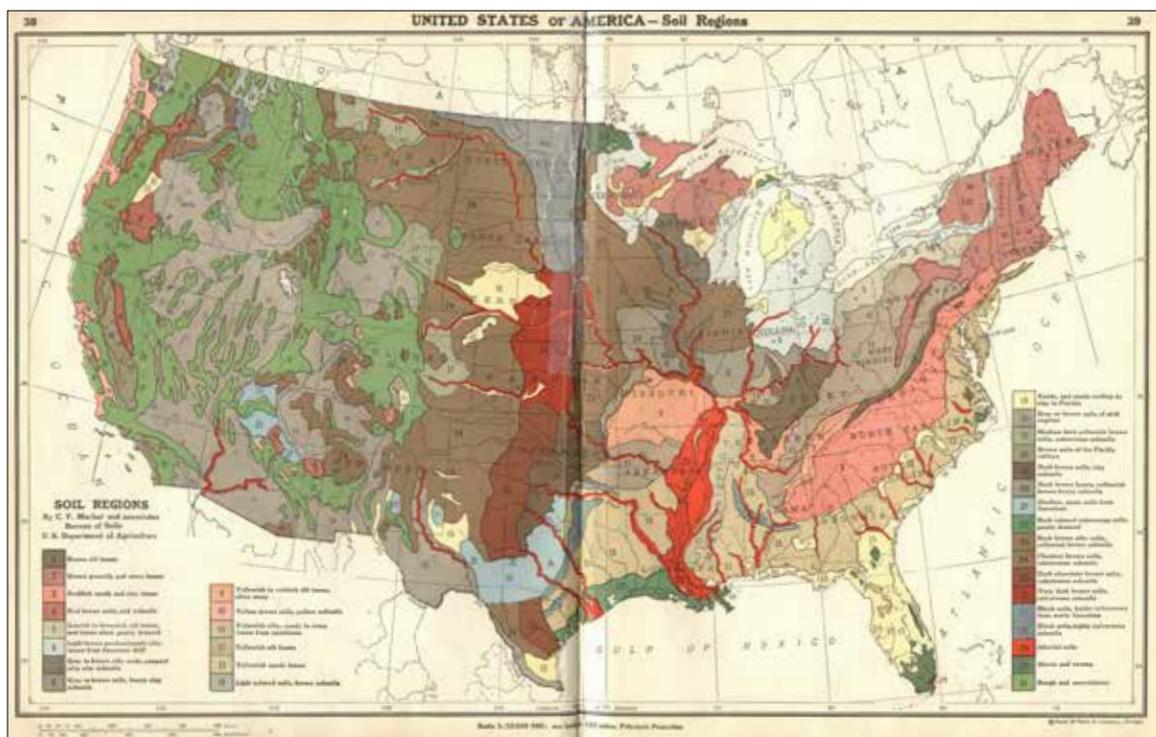


Figure 3.20. *Goode's School Atlas*, 1923. SOURCE: John Paul Goode, *Goode's School Atlas*, Michigan State University Libraries, Accessed Apr. 8, 2017, bit.ly/2rQWda4.

[109] "Rand McNally," 14 July 2017, *Wikipedia*, 18 February 2017, bit.ly/2sjBzTK.

[110] John Paul Goode, Ph.D., *Goode's School Atlas*, Abridged ed. Vol. 1 (Chicago: Rand McNally & Company, 1922) v.

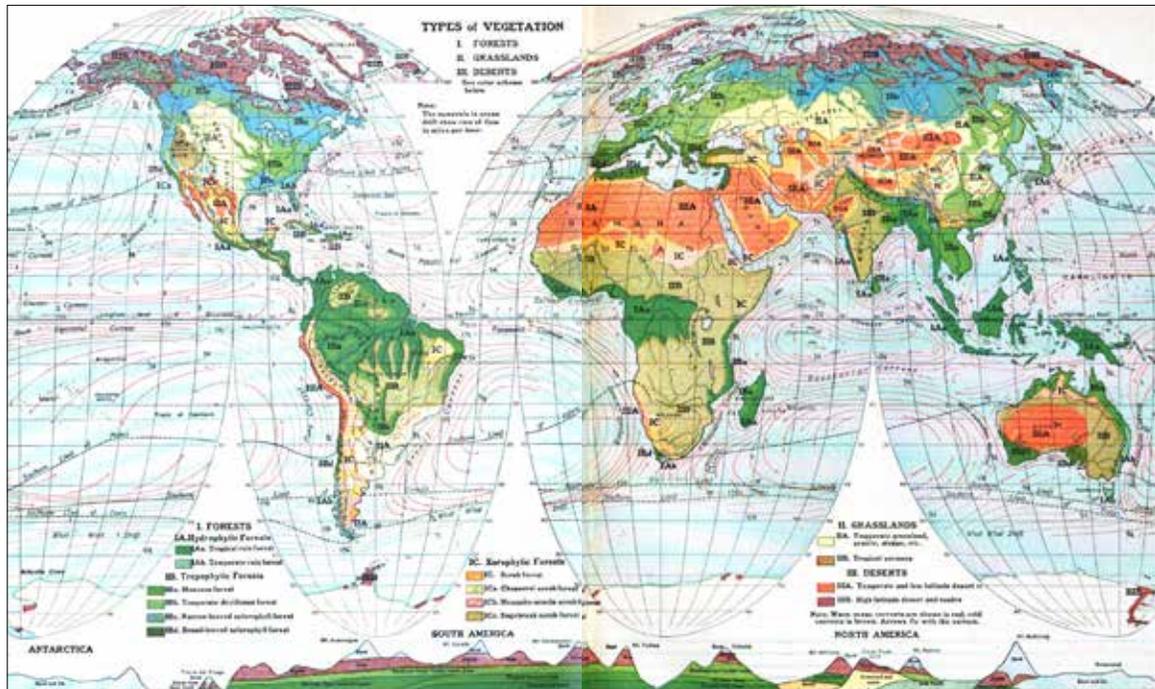


Figure 3.21. *Goode's School Atlas*, 1923. Homolographic Projection. SOURCE: John Paul Goode, *Goode's School Atlas*, Google Books, Accessed 18 May 2017, bit.ly/2smm6lC.

of *Goode's School Atlas* was published in 1923 by Rand McNally and later retitled *Goode's World Atlas*. This became a standard text for high school and college geography courses.

Among Goode's most important contributions in the presentation of the atlas is his invention and use of the homolographic projection. In contrast to the Mercator projection, which allows distances on a map to grow larger in the higher latitudes, the application of the Goode's Interrupted Homolographic Projection shows all aspects of the map in their true relative size.¹¹¹ (fig. 3.21) In 2016 the 23rd Edition of *Goode's World Atlas* was released in printed and digital formats, incorporating the latest technology and geographical research.

[111] Goode, vi.

b. Herbert Bayer, *World Geo-Graphic Atlas, 1953*

Designer and artist Herbert Bayer (1900 – 1985) was prominent in the Bauhaus movement. Labeled a “degenerate” by the Nazi regime, he left Europe for the United States where he held a long career in the graphic arts. Container Corporation of America Chairman Walter Paepcke, who was a patron of graphic arts and design, commissioned Herbert Bayer to update their 1936 *Atlas of the World* for his company’s 25th anniversary, that was newly titled *World Geo-Graphic Atlas A Composite of Man’s Environment*.¹¹² Bayer spent more than five years researching atlases and developing a book that incorporated physical and political maps, text, thematic maps, illustrations, cross-sections, graphs and diagrams. (fig. 3.22) The atlas was published in 1953 as

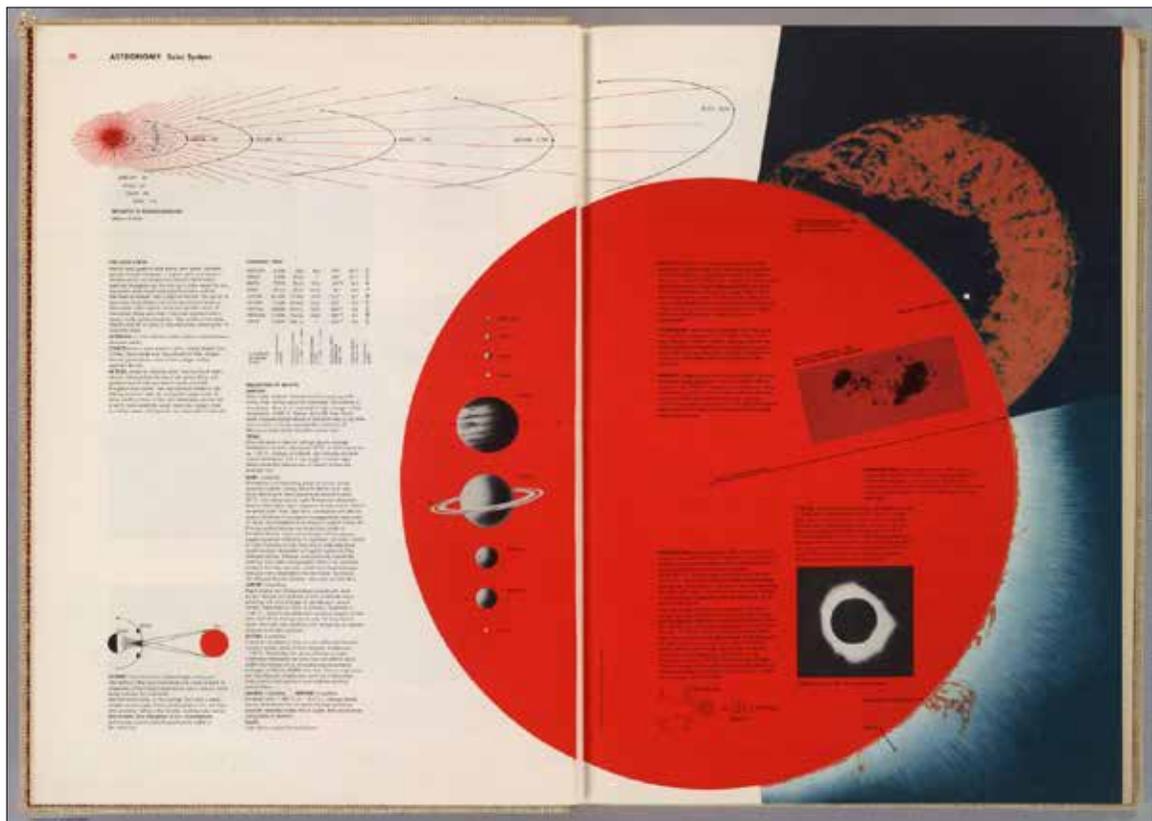


Figure 3.22 *World Geo-Graphic Atlas. Astronomy and Solar System.* SOURCE: “World Geo-Graphic Atlas,” David Rumsey Historical Map Collection, Accessed 16 Apr. 2017, bit.ly/2ph9Lul.

[112] “World Geo-Graphic Atlas (CCA),” *History of Graphic Design*, 03 Nov. 2016, bit.ly/2rjCK5H.

a gift to their customers, colleges and universities, and is considered a “triumph of the Bauhaus ideology of clarity put into practice.”¹¹³ (fig. 3.23 – 3.26) It was hailed by the *Geographical Review* as the “first ‘American’ atlas that properly belongs in the category of great world atlases.”¹¹⁴

In the forward of the *World Geo-Graphic Atlas* titled “Why Container Corporation Publishes an Atlas,” Paepcke wrote:

Most people have [an] occasion to use and study an atlas. It is our hope that this one, quite different from any other atlas we know about, will give information and enjoyment. It is important that we know more about the geography and the conditions of life of our neighbor[s] in the world so that we may have a better understanding of other peoples and nations.¹¹⁵

The Container Corporation offered a unique viewpoint on the usefulness of an atlas, not only as a marketing tool, but as an opportunity to provide work to designers and to show its clients the versatility of design. The company continued to hire prominent designers and artists for projects including an ad campaign, *Great Ideas of Western Man*, from 1950 – 1975. They also amassed a collection of art works that were eventually donated to the National Museum of American Art, now known as the Smithsonian American Art Museum.¹¹⁶

[113] “Bayer, Herbert: World Geo-Graphic Atlas. Chicago: Container Corporation of America, 1953,” 14 June 2014, *Modernism101.com*, 19 Nov. 2016, bit.ly/2sMg1k9.

[114] *History of Graphic Design*.

[115] *Modernism101.com*.

[116] “Container Corporation of America’s Great Ideas of Modern Man,” 28 Aug. 1970, *Otis College of Art and Design*, 02 Aug. 2017, bit.ly/2vYxxjH.

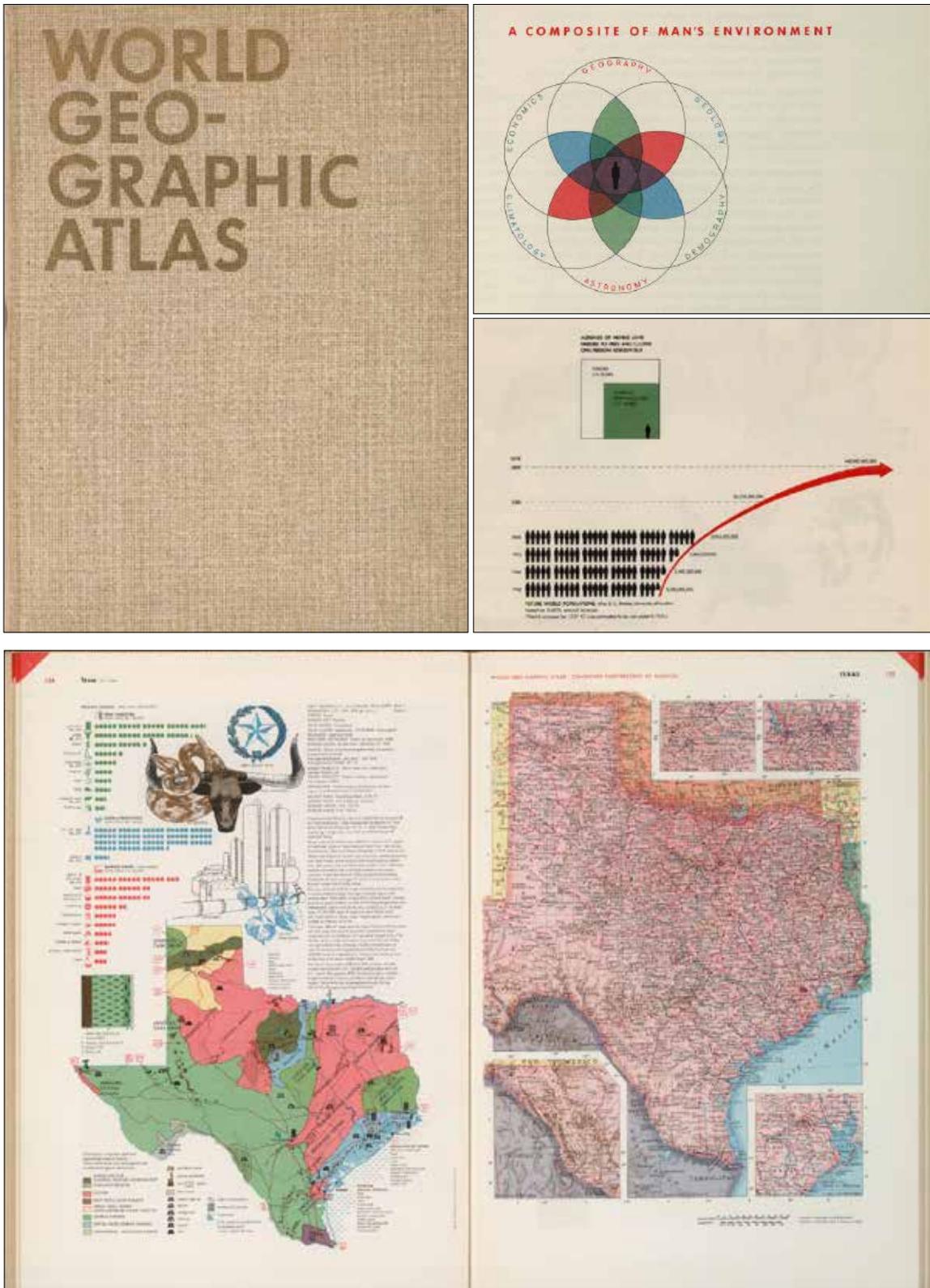
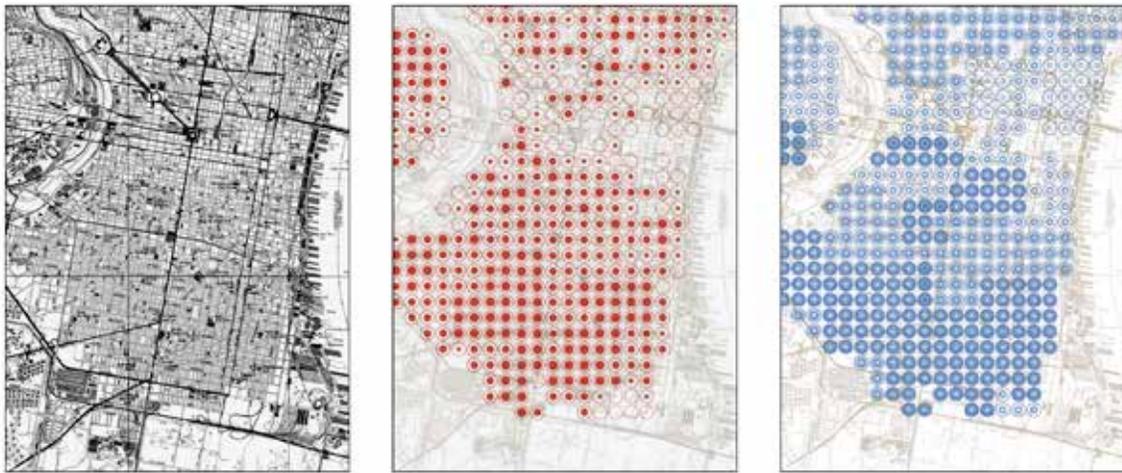


Figure 3.23 *World Geo-Graphic Atlas*, cover, 1958. Figures 3.24 – 3.25 Logo and semiotic graph of world population. Figure 3.26 Texas map. SOURCE: “World Geo-Graphic Atlas,” *David Rumsey Historical Map Collection*, Accessed 16 Apr. 2017, bit.ly/2ph9Lul.

c. Richard Saul Wurman, *Urban Atlas*, 1967

The American architect and graphic designer Richard Saul Wurman, born in 1935, is the author of more than 80 books, including a series of city guidebooks and his *New Road Atlas: U.S. Atlas*. He may be best-known as the founder of TED talks, which he started in 1984 as a forum for the exchange of ideas from the fields of technology, education and design.¹¹⁷ Early in his career, he coined the term “information architect” as an application of organizing data and complex information and making it easily understandable both for himself and others.¹¹⁸

Wurman designed the *Urban Atlas: 20 American Cities* in 1967 along with architect Joseph R. Passonneau. (fig. 3.27 – 3.29) It was considered the first statistical atlas of the United States to compare “geography, land use, income and population density at the same scale.”¹¹⁹ Traditional road atlases used maps of any scale to fill the page, but the *Urban Atlas*



Figures 3.27 – 3.29. Saul Wurman, *Urban Atlas*, 1967. SOURCE: Joel Katz, *Designing Information*, (Somerset: John Wiley & Sons, Inc.) Accessed 01 June 2017, *ProQuest Ebook Central*.

[117] Marie Bouleau, “An Image Speaking the Truth,” 13 Oct. 2015, *Kvadrat Interwoven*, 03 June 2017, bit.ly/2mkuayr.

[118] “2004 AIGA Medalist: Richard Saul Wurman,” 01 Mar. 2004, *AIGA*, 06 June 2017, bit.ly/2rA1uYE.

[119] Joel Katz, *Designing Information*, (Somerset: John Wiley & Sons, Inc.) Accessed 01 June 2017, *ProQuest Ebook Central*.

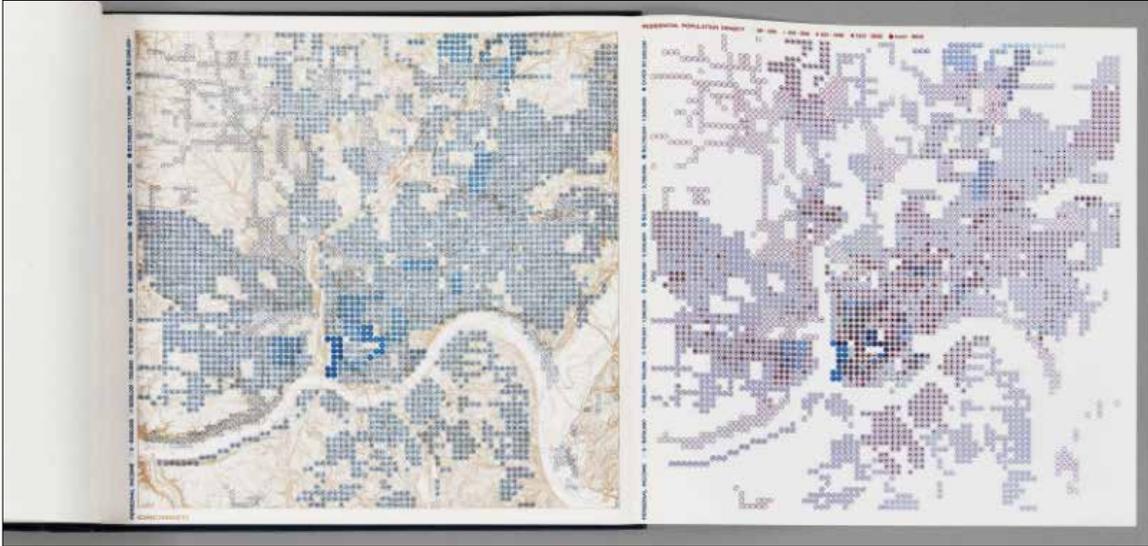


Figure 3.30. Saul Wurman, *Urban Atlas*, 1967. SOURCE: Marie Bouleau, “An Image Speaking the Truth,” 13 Oct. 2015, *Kvadrat Interwoven*, Accessed 03 June 2017, bit.ly/2mkuayr.

placed cities centrally and used a consistent scale and uniform data grid throughout. This uniformity of the map layouts and use of color and pattern made it possible to compare the data and statistics between the cities. (fig. 3.30)

In 2017 he was currently working on his latest project, the Urban Observatory with Esri, the largest cartography software producer in the world. It is a web-based application that allows the user to compare cities through 16 layers of information, making the world’s data understandable and useful.¹²⁰

[120] “Understanding Precedes Action: 192021 Project,” *Urban Observatory*, 16 June 2017, bit.ly/1bNBYjG

C. Atlas in the 21st Century

Digital and printing innovations are advancing at a rapid pace in the 21th century, and as the Netherlands and the United States utilize these new forms of technology, the use, function and visualization of maps and information continues to change. The model of paper maps that was once prevalent as the form of the atlas throughout cartographic history, has evolved into other iterations and usages. There have been drastic progressions in mapmaking techniques, presentation methods and interpretation of data. Technological innovations have influenced many of the changes in mapmaking and the creation of atlases in the evolution from paper to web-based and digital iterations.¹²¹ The creation of an atlas no longer require the involvement of seafaring navigators, surveyors or hand-drawn landscapes and topography, but rather it allows for a creative interpretation by the mapmaker, and a redefinition of the atlas by the user.

I. Netherlands, 21st Century

Although the making of maps did not originate in the Netherlands, this small country was the hub of mapmaking for nearly two hundred years beginning in the 15th century, and they dominated the mapmaking and commercial map printing industry during that time. The Dutch cartographer Mercator coined the term *atlas* that has lasted through the ages to describe a book of bound maps. As the *Dutch Golden Age* of maps faded, other European countries took the lead. There was a surge of popularity in the reformatting and reprinting of the large elaborate atlases, and later the Dutch found an even more enduring use for their atlases in the form the *Bosatlas* school textbook. The 21st century is proving to be an era where the Dutch are

[121] Aileen Buckley, "Atlas Mapping in the 21st Century," *Cartography and Geographic Information Science* 30, no. 2 (2003): 149, doi:10.1559/152304003100011117.

revitalizing the use and design of the atlas. Prominent designers are taking the atlas into new formats—printed and digital—and are allowing for expanded ideas about what the use of an atlas may be, according to the audience, product or need.

a. Joost Grootens, *Metropolitan World Atlas*, 2005

Cited by *Eye Magazine* someone who is “reinventing the atlas for the 21st century,”¹²² the acclaimed Dutch designer, Joost Grootens, is as much an information designer as a book designer. Originally trained as an architect, he is a self-taught graphic designer best known for his award-winning atlases, and for creating new typologies, or classifications of the atlas through his use of uncomplicated graphic design, and his rethinking of the book’s function in the digital era. Grootens and his Amsterdam-based design studio specialize in organizing complex information through map design, which is often presented in the form of an atlas.¹²³ He applies the idea of translating numbers and data into visuals and graphic elements using color and shapes, allowing the viewer to interpret the data more intuitively, and said, “It’s a misconception that something which is complex should also look complicated.”¹²⁴

He sees the essence of an atlas as “making everything visual, and then relating it to a kind of information system,” and defines the atlas as “a collection of maps or a collection of information” presented in a book format of the data that has been visually translated.¹²⁵

[122] John L. Walters, “Paper Planet,” Winter 2010, *Eye Magazine*, 02 Nov. 2016, bit.ly/UImVkz.

[123] Khumo Sebambo, “Joost Grootens: Organising Complex Data Through Design,” *Design Indaba*, 19 Mar. 2017, bit.ly/1XRWsgH.

[124] Walters.

[125] Joost Grootens, Personal interview, 14 Mar. 2017.

Grootens' atlases are thematic and deal with specific topics such as urban development and political or historical issues. Having designed more than eight atlases, his best-known work is the *Metropolitan World Atlas*, which documents 101 metropolitan areas through analysis and a combination of same-scale map views and statistics. The atlas uses information graphics and maps to compare categories and statistics including population density, navigational routes, data traffic, air travel and air pollution.¹²⁶ (fig. 3.31) The atlas is notable in its use of a highly legible sans-serif font, clean abstract design and a cover of a generic map printed in orange Day-Glo ink. The vibrant color is used throughout the atlas to highlight important statistical values¹²⁷ through a system of orange dots varying in size to visually represent how a given city compares to others in any category. (fig. 3.32 – 3.34)



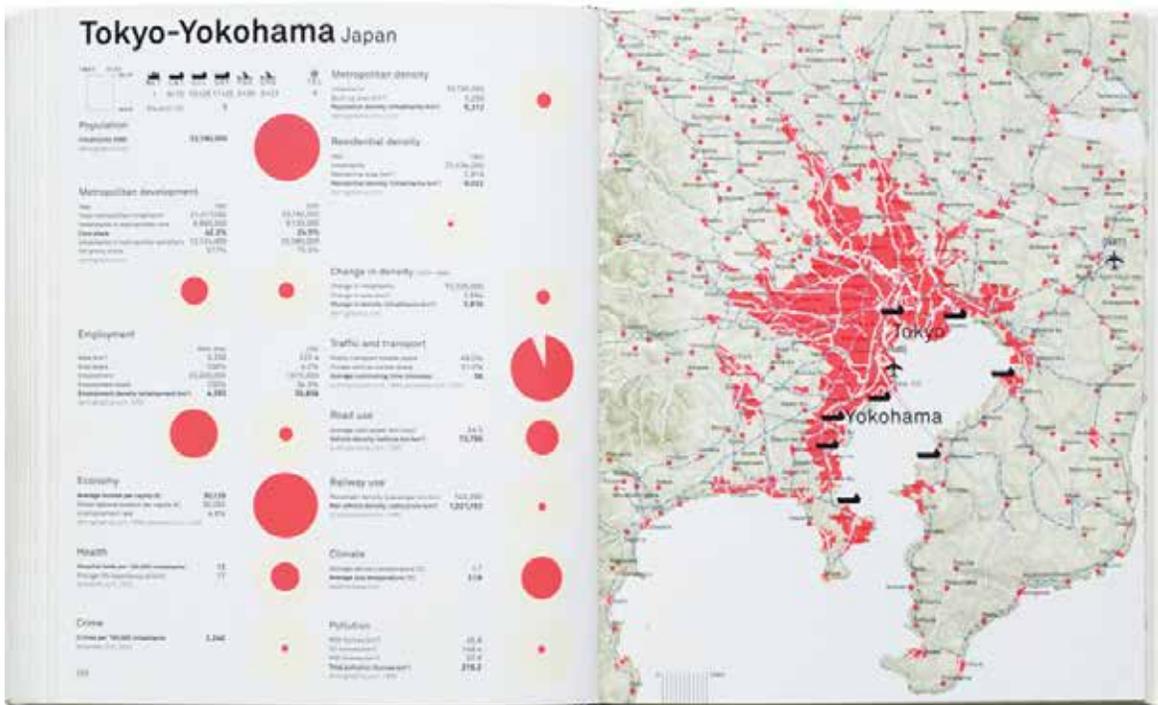
Figure 3.31. Joost Grootens, *Metropolitan World Atlas*, 2005, detail. SOURCE: “Joost Grootens On Paper,” 12 Jan. 2012, *De Monsterkamer*, Accessed 20 June 2017, bit.ly/2srlqf1.

[126] Joost Grootens, “The Metropolitan World Atlas,” *Studio Joost Grootens*, 04 Feb. 2017, bit.ly/2tOQHx6.

[127] Rob Carter, “Typographic Design: Form and Communication,” *Google Books*, 01 June 2017, bit.ly/2rSzK1f, 190.



Metropolitan World Atlas: Anchorage, Antwerp-Brussels, Athens, Atlanta, Auckland, Baghdad, Bangalore, Bangkok, Barcelona, Beijing, Berlin, Bogotá, Boston, Buenos Aires, Busan, Cairo, Calcutta, Charlotte, Chennai, Chicago, Cincinnati, Copenhagen, Dallas-Ft. Worth, Denver, Detroit, Dhaka, Djakarta, Dubai, Durban, Frankfurt, Geneva, Hamburg, Hong Kong, Houston, Hyderabad, Indianapolis, Istanbul, Jerusalem-Tel Aviv, Johannesburg, Kaohsiung, Karachi, Kinshasa, Kobe-Osaka-Kyoto, Kuala Lumpur, Lagos, Lahore, Las Vegas, Le Havre, Lima, Lisbon, London, Los Angeles, Louisville, Madrid, Manila, Melbourne, Memphis, Mexico City, Miami, Milan, Minneapolis-St. Paul, Monterey, Montreal, Moscow, Mumbai, Nagoya, New Delhi, New Orleans, New York, Orlando, Oslo, Paris, Perth, Philadelphia, Phoenix, Pittsburgh, Randstad Holland, Rhine-Ruhr, Rio de Janeiro, Rome, Sacramento, San Francisco-Oakland, Santiago de Chile, São Paulo, Seattle, Seoul-Incheon, Shanghai, Singapore, St. Louis, St. Petersburg, Stockholm, Sydney, Taichung, Taipei, Tangier, Tehran, Tianjin, Tokyo-Yokohama, Toronto, Vancouver and Washington-Baltimore.



Figures 3.32 – 3.33. Joost Grootens, *Metropolitan World Atlas*, 2005, front & back cover.
Figure 3.34. *Metropolitan World Atlas*, Map of Tokyo. SOURCE: Author's own photos.

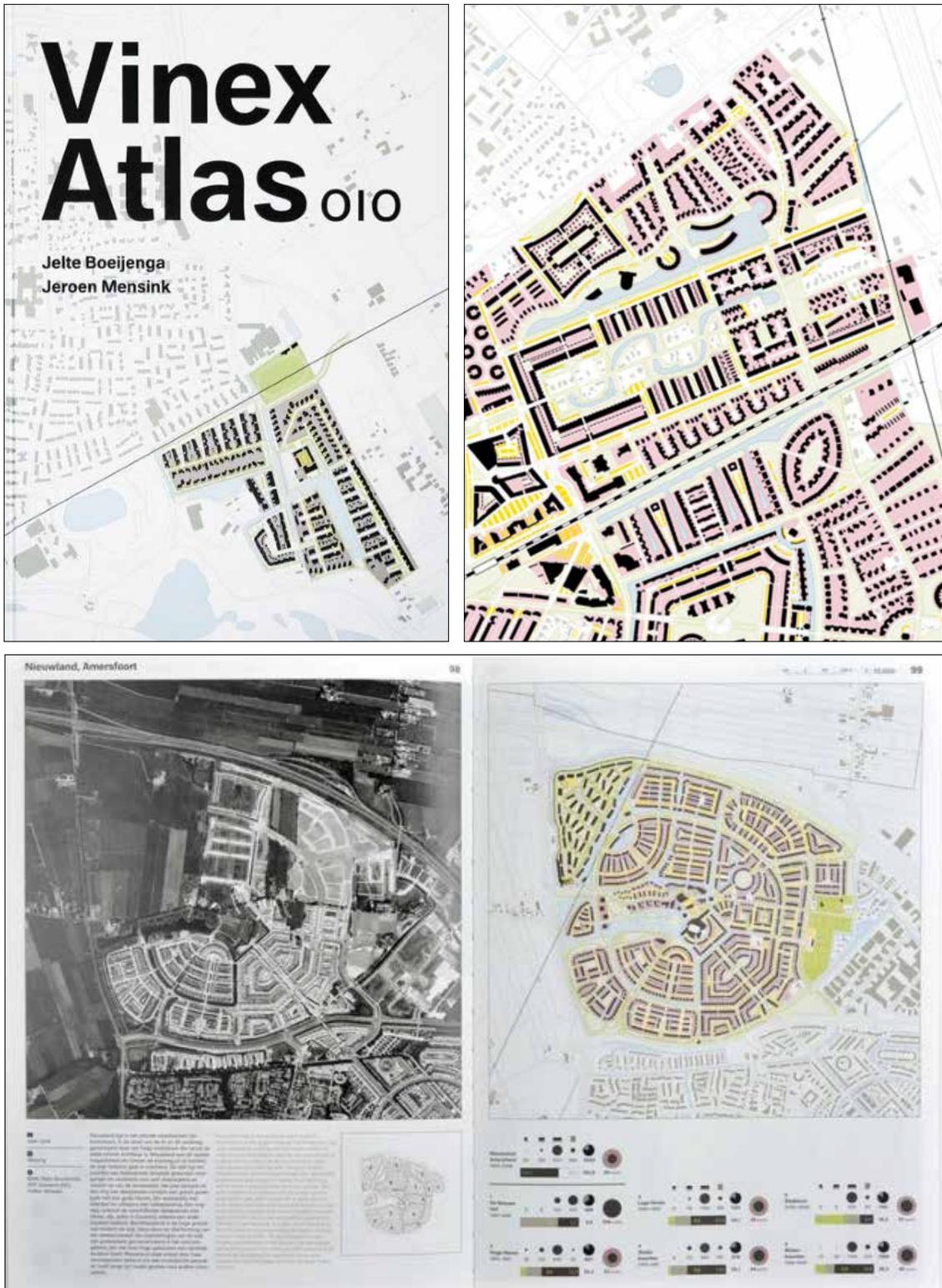
b. Joost Grootens, *Vinex Atlas*, 2008

When asked about his approach to atlas design, Grootens stated, “I’m more interested in the atlas than the maps, because the map by itself is nothing, just an image. But as soon as they [the maps] become related and creates an information system, then it is more interesting for the user as an information system.”¹²⁸ He acknowledges that there are many reasons not to make books, because websites are faster, searchable and have the most up-to-date information, but believes books are superior because of their tangible materiality and tactile nature. The *Vinex Atlas* incorporates the important tactile aspects that Grootens relies on in the design and creation of his books—including the use of vibrant colors made with special ink mixes printed on carefully-selected papers with a clean font choice for graphic clarity. (fig. 3.35)



Figure 3.35. Joost Grootens, *Vinex Atlas*, 2008, detail. SOURCE: “Vinex Atlas Map,” *Hanae Shimizu Portfolio*, Accessed 09 June 2017, bit.ly/2s6NdP5.

[128] Grootens.



Figures 3.36 – 3.38. Joost Grootens, *Vinex Atlas*, 2008, front cover, detail and inside spread.
 SOURCE: “Vinex Atlas Map,” *Hanae Shimizu Portfolio*, Accessed 09 June 2017, bit.ly/2s6NDP5.

Traditionally an atlas has contained a collection of maps, normally comprised of maps and regions of the world, but an atlas might also incorporate any related thematic visualization of facts, statistics and data.¹²⁹ The *Vinex Atlas* designed by Grootens in 2008, is a visual presentation of maps, displays and charts of pertinent information and essays referencing and explaining the unique spatial planning operation in the Netherlands for a particular city section know as the Vinex Housing Programme. Imagery of the 52 Dutch Vinex housing districts includes aerial view photos from the mid-nineties, recent photographs, district plans and site data of the program.¹³⁰ (fig 3.36 – 3.38)

c. LUST Studio, *North Sea Atlas*, 2004

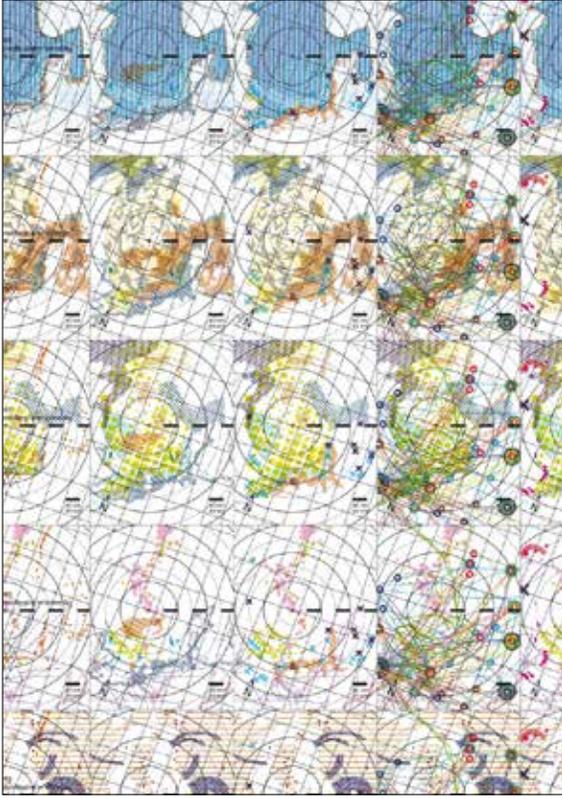
LUST was a design studio based in The Hague, Netherlands, that closed in 2017. They primarily worked in a variety of media including abstract cartography, data visualizations, interactive installations as well as print, book and type design. The studio explored new technologies to utilize the overlaps of data, systems and graphics.¹³¹ The *Noord Zee: Cartografie van een wereld zee* or *North Sea: Cartography of a World Sea*, is a production of digital and print atlas created by LUST in 2004 with maps that cover history, culture and geographical information. The content of the maps includes fishing, religion, ethnicity, shipwrecks and more, and the conceptual visual representations are shown as colorful graphics and patterns.¹³² (fig. 3.39 – 3.41)

[129] Kenneth Field, “Vinex Atlas 110/365 by Jelte Boeijenga and Jeroen Mensink, 2008,” 20 April 2014, *ICA Commission on Map Design*, 29 June 2017, bit.ly/2srKWgU.

[130] “Vinex Atlas,” *NAI010 Publishers*, 29 June 2017, bit.ly/2ss2fhT.

[131] Robert Urquhart, “Dutch Masters,” 13 Jan. 2015, *Grafik*, 04 June 2017, bit.ly/2tgOQ17.

[132] Lauren Manning, “Visualizing Information,” 02 Jan. 2014, *Scenario Journal*, 12 June 2017, bit.ly/2tf3q8F.



Figures 3.39 – 3.41. LUST Studio, *North Sea Atlas*, maps and atlas, 2014. SOURCE: *North Sea Atlas*, In LUST | Graphic and Interactive Design, Accessed 10 June 2017. lust.nl/#projects-5736.

Former LUST partner, Thomas Castro, does not adhere to a belief system that an atlas is a ‘bound book of maps,’ but rather sees an atlas as an interpretation of data and information made visual, and an opportunity to update the typology and classification of how an atlas is defined.¹³³ The *North Sea Atlas* applies a more traditional description of an atlas with the use of a book of maps containing cartographic information, and an oversized printed wall map. The atlas is illustrated with maps and visual essays that have distinct themes about the sea including the sea floor, a city map, a water map, a dirt map and a myth map. The large map is comprised of those themes, allowing for a grid of 412 unique maps. The companion interactive digital atlas uses the illustrated visual essays that show over 70 historic and newly-created maps.¹³⁴

d. LUST Studio, *Glasgow Atlas & Megacities*, 2014

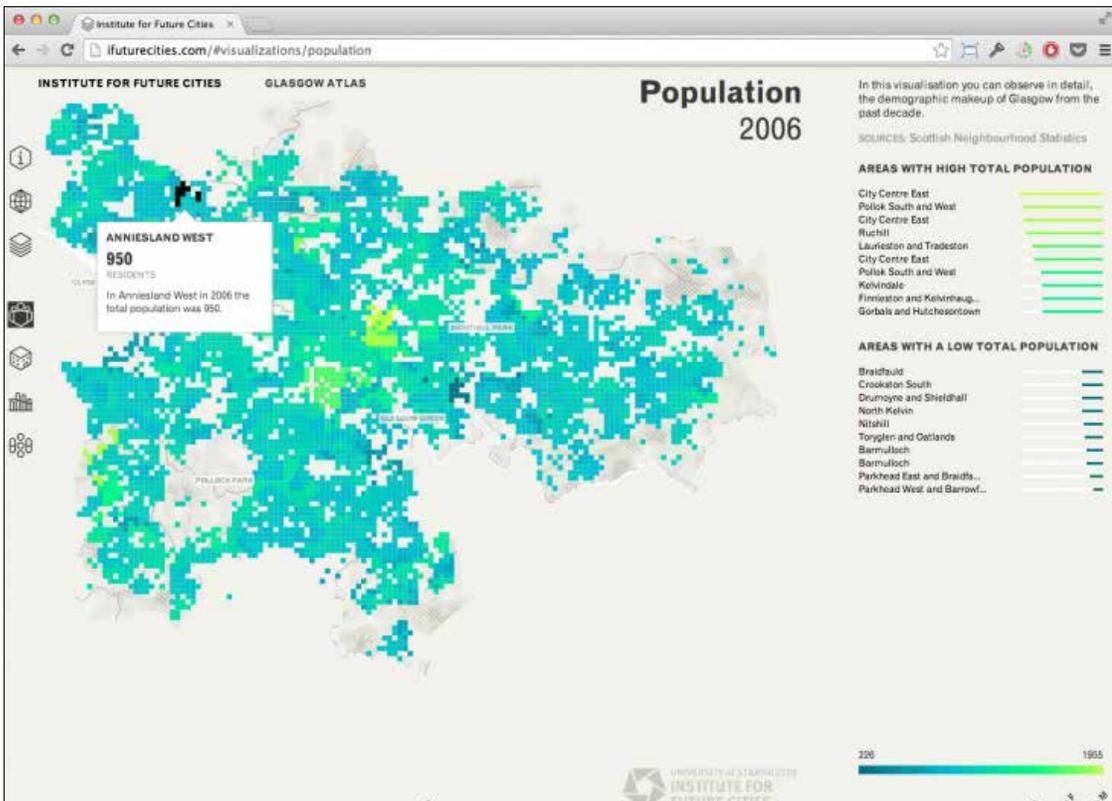
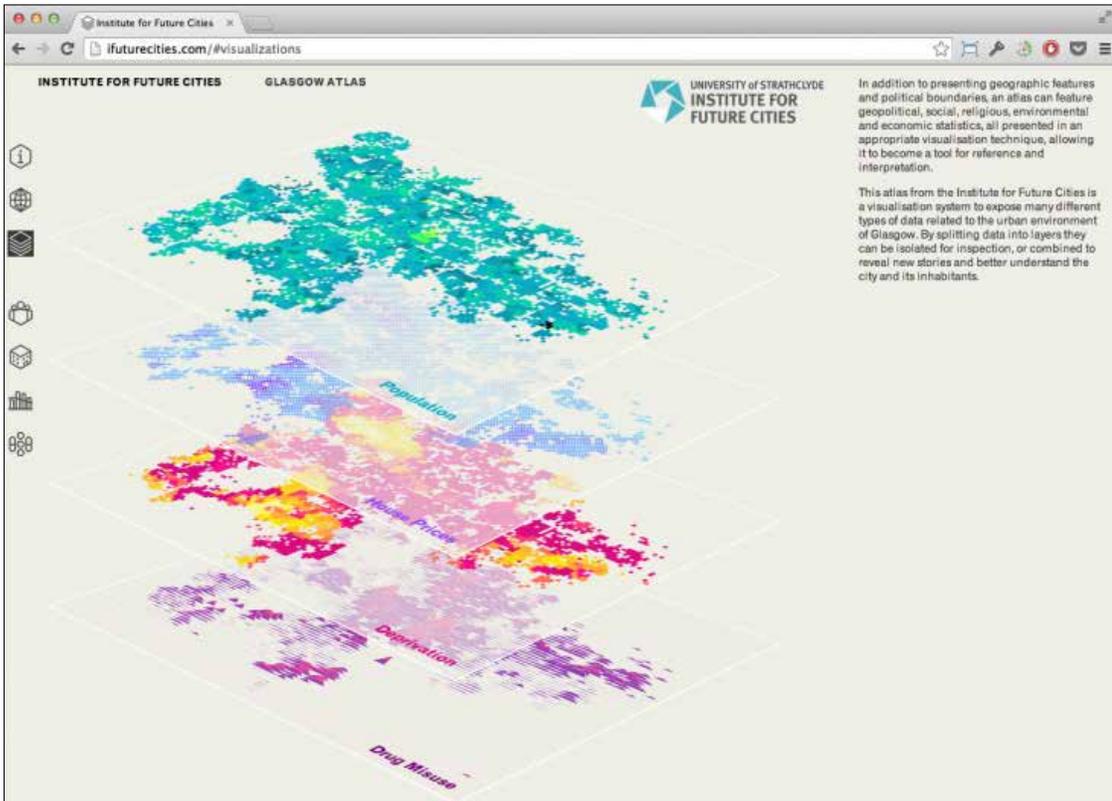
In a less conventional version of the modern atlas, LUST’s visualization system for the *Glasgow Atlas & Megacities* is an online interactive mapping site that allows the user to view disseminated layers of data correlated to the urban environment of Glasgow.¹³⁵ (fig. 3.42 – 3.43) The data can be combined or isolated into separate layers to reveal new stories and information about the city and its inhabitants. The dynamic nature of this atlas allows maps, geographic features, geopolitical, social, religious, environmental and economic statistics to be updated with new information, making it a useful a tool for reference and interpretation.¹³⁶

[133] Thomas Castro, Personal interview, 13 Mar. 2017.

[134] “Thomas Castro,” 2017, *Stroom Den Haag*, 26 June 2017, bit.ly/2sgvyDQ.

[135] “Glasgow Atlas & Megacities,” *LUST | Graphic and Interactive Design*, 02 June 2017, lust.nl/#projects-5736.

[136] Sean Adams and Terry Lee Stone, *Color Design Workbook: A Real-World Guide to Using Color in Graphic Design* (Beverly, MA: Rockport Publishers, 2017) 182.



Figures 3.42 – 3.43. LUST Studio, *Glasgow Atlas & Megacities*, 2014. SOURCE: “Glasgow Atlas & Megacities,” *LUST | Graphic and Interactive Design*, Accessed 10 June 2017, lust.nl/#projects-5736.

2. United States, 21st Century

a. Peter Hall, *Else/Where: Mapping*, 2006

Editors Janet Abrams and Peter Hall introduce their book with a discussion of mapping in reference to a process of analyzing data. They view the act of *mapping* as a central aspect of what designers do, and that the process allows the invention of strategies for visualizing information to make new interpretations.¹³⁷ They wrote about the emergence of the use of new cartographies and mapping:

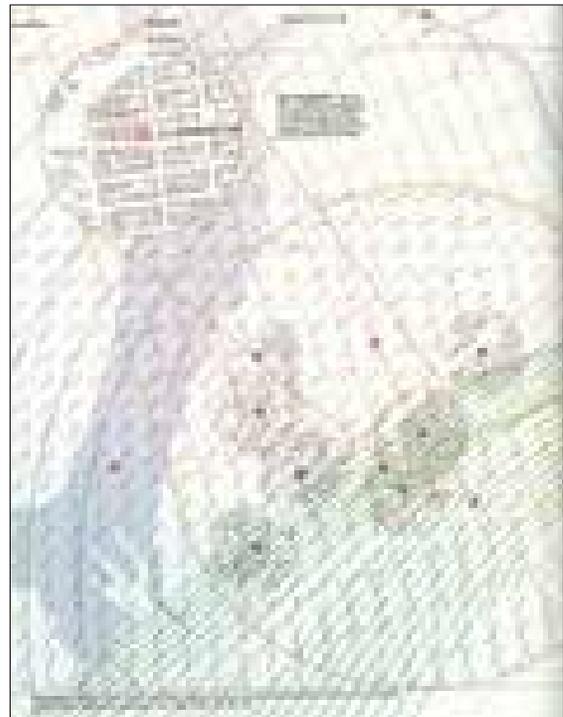
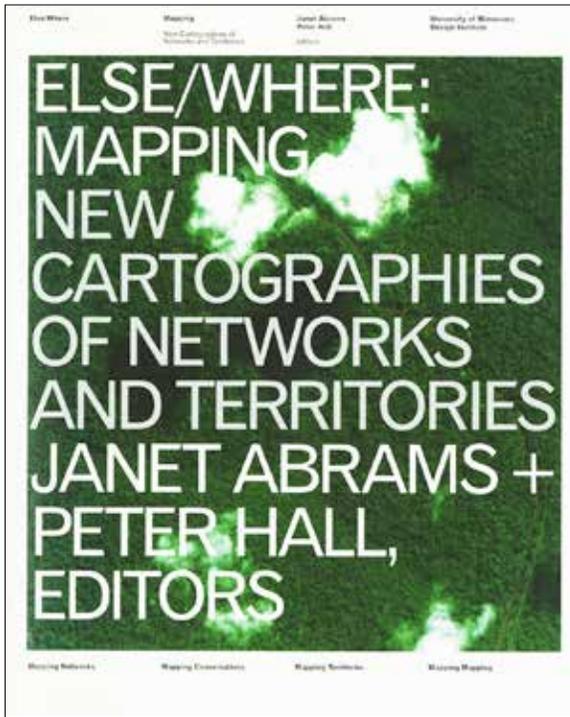
Mapping has emerged in the information age as a means to make the complex accessible, the hidden visible, the unmappable mappable. As we struggle through the torrent of data unleashed by the Internet, and to situate ourselves in a world in which commerce and community have been redefined in terms of networks, mapping has become a way of making sense of things.¹³⁸

Else/Where: Mapping is not a book on cartography, and not an atlas in the traditional sense, but is rather a compilation of essays, interviews, case studies, discussions and a variety of interpretations of mapping and data visualization from sixty contributors including artists, designers, scholars, architects, engineers, consultants, critics and curators.¹³⁹ Each essay contains an exploration of cartographic techniques and combinations of traditional mapping applied with new digital technologies, ranging from archival woodcuts to Web-based maps and GPS drawings. (fig. 3.44 – 3.46)

[137] Janet Abrams and Peter Hall, eds, *Else/Where: Mapping – New Cartographies of Networks and Territories* (University of Minnesota Design Institute, 2006) 12.

[138] Ian Heywood and Barry Sandywell, eds, *The Handbook of Visual Culture* (London: Bloomsbury, 2017) 582.

[139] Kevin Hunt, “Else/Where Mapping,” *Material Culture* 43, no. 1 (2011): 122 – 25, bit.ly/2ueeoZ9.



Figures 3.44 – 3.46. Janet Abrams, Peter Hall, *Else/Where: Mapping*, 2005. SOURCE: “Else/Where: Mapping New Cartographies of Networks and Territories,” Author’s own photos.

Abrams and Hall present the idea that the designer holds a central role in contemporary mapmaking, with or without the involvement of the cartographer. The book fulfills the traditional definition of an atlas: *a bound book of maps*, but is a collection of new kinds of maps determined from the point of view of design rather than pure cartography. *Else/Where* is an exploration of the new realities of a technology-driven world, one led by GPS, satellites, the Internet and mobile phones.¹⁴⁰ Topographical maps are useful for visualizing spatial relationships, but technology allows and demands interaction of three-dimensional maps, GoogleMaps and other types of user-generated maps. The increasing amounts of global data that are available to be processed and visualized by computers create a new type of dynamism for the users and creators of maps.¹⁴¹ This new generation of mapmakers is using technology to challenge what a map can or should be, and they are exploring the importance of maps as aids to navigation and cultural representation.¹⁴²

b. Stamen Design, *American Panorama Atlas*, 2016

Stamen writes about themselves: “We’ve been designing and building custom maps since before Google Maps was a thing”.¹⁴³ They have designed a broad range of styles of online maps for a large variety of companies including Microsoft, Google, the David Rumsey Map Center,

[140] William Owen and Fenella Collingridge, “Getting Lost on the Critical Path,” Autumn 2006, *Eye Magazine*, 23 June 2017, bit.ly/2sjcgxS.

[141] Abrams, 54.

[142] “Else/Where: New Cartographies of Networks and Territories,” 23 Aug. 2011, *University of Minnesota Press*, 02 June 2017, bit.ly/2sOkBND.

[143] “We Make the Best Maps on the Web,” *Stamen*, 02 June 2017, stamen.com/maps.

the 2012 London Olympics and many others. Stamen creates customized data-based mapping systems, and they “bring a fresh approach to the ancient art of mapmaking that combines technical savvy with pop-culture flair.”¹⁴⁴

In 2015 Stamen worked with the Digital Scholarship Lab at the University of Richmond in the development of software and visualizations for *American Panorama: An Atlas of United States History*. (fig. 3.47 – 3.48) This is an online version of a historical atlas of the United States in the 21st century that uses a combination of research, data and interactive mapping.¹⁴⁵ The impetus for the project was based on Charles Paullin’s 1932 *Atlas of the Historical Geography of the United States*, that is considered a “monument to historical scholarship” with its 700 maps and history of American life.¹⁴⁶ Alan McConchie, the lead cartographer at Stamen, called Paullin’s atlas “state of the art data visualization for the time.”¹⁴⁷

American Panorama, called a “stunning data visualization project” by the *New York Times*,¹⁴⁸ brings the collaboration information to life in a data visualization of digital archives that includes interactive maps of the overland trails in the American West, foreign-born populations, the forced migration of enslaved Americans, canals of the eastern U.S. and international trips of presidents and secretaries of state.

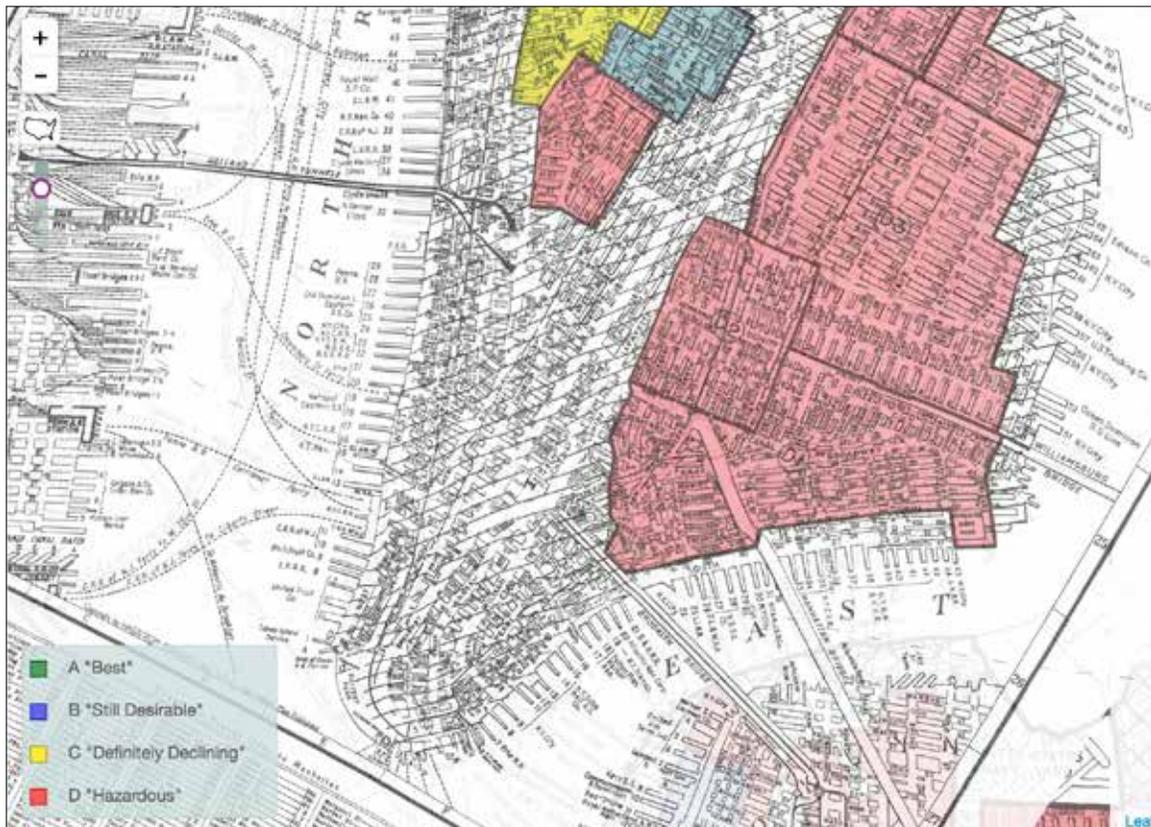
[144] Stamen.

[145] *American Panorama: An Atlas of the United States History*, 26 May 2017, dsl.richmond.edu/panorama/.

[146] Laura Bliss, “A New Historical Atlas of America, Built for the 21st Century,” 15 Dec. 2015, *CityLab*, 26 May 2017, bit.ly/2tNXiSs.

[147] Alan McConchie, “Visualizing the Past, Building Tools for the Future: Designing an Interactive Atlas of American...” 02 June 2017, *Hi.Stamen*, 29 Feb. 2016, bit.ly/2hnloy6.

[148] Damon Darlin, “Stuff We Liked: Amazingly Amazing Scientific Papers,” 18 Dec. 2015, *The New York Times*, 04 June 2017, nyti.ms/2yB9xGx.



Figures 3.47 – 3.48. Stamen Design, *American Panorama: An Atlas of United States History*, 2016.
SOURCE: “American Panorama: An Atlas of United States History,” *University of Richmond*,
Accessed 03 June 2017, bit.ly/2tKo3Kx.

IV. CONCLUSION

A. The Atlas: A New Definition

What is a new definition of the atlas as applied to the 21st century? What is the future use of maps in an atlas format? What are the implications of the digital atlas, and other iterations of what can now be considered an atlas? What constitutes an atlas or differentiates an atlas in format? Is a book still the logical format for an atlas? What is the difference between a book of maps and a book with maps? Is the term *atlas* merely the name for a vessel of information whether it is a book, website or other form of an information system? Does this format need to include the word *atlas* as a descriptor?

These questions can present possible parameters for the use of the atlas in the 21st century, but there is no overarching, definitive definition or unique qualification for what constitutes an atlas. The interpretation of design and use of the atlas format—and even its contents—can be determined by various interactions between the designer, researcher, client, urban planner, cartographer and end-user of the product. The editors of *Else/Where*, Janet Abrams and Peter Hall, believe that the act and use of mapping has emerged in the information age as a means to “make the complex accessible,”¹⁴⁹ and they see this process as a way of sorting information. If we map information without the context of creating visualizations of actual maps, *then this very thesis document is an atlas on the history of the atlas.*

[149] Janet Abrams and Peter Hall, eds, *Else/Where: Mapping – New Cartographies of Networks and Territories* (University of Minnesota Design Institute, 2006) 12.

The paradigm of the atlas has shifted in use over time. Its original function was a book of maps for navigators to use in their search for new lands and waterways. The design functionality of that format gave way to uniquely beautiful and ornate versions of the atlases—more art than design—that were collected by wealthy patrons, and the Dutch continued to produce these atlases throughout the 18th century.

During the historical development of mapmaking, the Dutch not only gave the world the name *atlas* as applied to a book of maps, but they laid the foundations for the growth of modern cartography, while they also largely dominated commercial map and atlas production throughout the 16th and 17th centuries. Some of the earliest and most important advancements in the field of mapmaking came from the Netherlands, including the invention and application of the Mercator Projection, uses of longitude and latitude, the creation of surveying instruments and the collection of world geographical data from Dutch and other European navigators. In the earliest days of map- and atlas-making, cartography and the visual arts were closely related. Art and mapmaking collaborated through the use of imagery, application of color, the style of typography and lettering, printmaking and hand-colored engravings. The inclusion of science in the process provided additional accuracy in the mapmaking process.

An atlas has largely been recognized as a collection of various maps of the earth or a specific region of the earth, such as the United States or Europe, and the maps within atlases contain geographic features, the topography of an area's landscape and political boundaries. Additionally, they may also show climatic, social, religious and economic statistics of an area.¹⁵⁰

[150] Amanda Briney, "What is an Atlas: An Overview and History of Atlases," 03 Mar. 2017, *ThoughtCo.*, 25 Jan. 2017, bit.ly/2oJBhB6.

Peter van der Krogt asked in his essay *Commerical Cartography in the Netherlands*, “What is an atlas really?”¹⁵¹ His personal definition follows the established traditional view that an atlas is “a collection of maps bound together,” but he specifies that the maps must be printed and hold a relationship to each other through size and artistic style, and that they must contain geographical descriptions. He further sees the atlas as “a book with maps that is available in an edition of identical copies.”¹⁵²

By the 19th century, as the United States grew into a large and powerful nation, they also began creating new versions of their own atlases. Maps themselves became more ubiquitous with the advancement of printing and surveying techniques and methodologies. They contained more specific and detailed information about cities, population and other statistics. The atlas became a new useful instrument of road travel, and in the early 20th century, the road atlas evolved as a tool for drivers in the new booming automobile era. We can find similarities of use between these new drivers and the early sea navigators, each in search of new destinations, using an atlas as a guide.

The earliest atlases were originally formed as functional containers of relevant maps and information. A further extension of mapping innovation and technology has led us into the digital age where maps are easily accessible as online versions on computers and smartphones. The user can quickly generate collections of personal-use maps and their own virtual *atlases* with iterations of roadmaps and directional maps using services such as Google Maps, MapQuest and other mapmaking applications. Other types of creative and interactive maps can also be

[151] Peter van der Krogt, “Commerical Cartography in the Netherlands: With Particular Reference to Atlas Production (16th – 18th Centuries)” In *La Cartografia dels Països Baixos*, 1995, PDF, bit.ly/2xVD0vN.

[152] Ibid.

produced via open-source coding,* that is accessible for free online through sources such as MapBox and OpenStreetMaps. These user-generated maps can further be used on personal and business websites.

Because we now have the ability to generate our own personal directional maps or use apps and other interfaces that supply navigation, the role of design for the atlas is no longer primarily one of pure and original meaning—*that of a bound book of maps*—but rather has taken on a larger context where the user’s role becomes more prominent in the process of map creation. The form or style of the atlas is not contained only to printed pages, but rather the atlas is the *container* for data, memory, statistics and other information. Thomas Castro proposed that because so much content is now available online, there has been a shift in book publishing toward more specialization in distribution with the production of inexpensive and print-on-demand on one end, and high-end elite publishing of specialized books, such as those designed by Joost Grootens, on the other.¹⁵³ Reinder Storm, curator of Cartography at the University of Amsterdam, explained that the continued success of expensive publications of atlases is in direct correlation to the popularity of collecting books as design objects.¹⁵⁴ Grootens, who tends to work on specialized books with small print runs, surmised that printed book versions of atlases such as his *Metropolitan World Atlas* may be purchased more often by designers or those in need of very specific information. He sees the book as a luxury in a time where the flow of information is fast and in flux.¹⁵⁵

*Open source refers to source code that is made available for use or modification by users or developers, and developed as a public collaboration. www.whatistechtarget.com/definition/open-source.

[153] Thomas Castro, Personal interview, 13 Mar. 2017.

[154] Reinder Storm, Personal interview, 14 Mar. 2017.

[155] Joost Grootens, Personal interview, 14 Mar. 2017.

B. Contemporary Mapmaking: 21st Century Applications

Is there still a need for physical maps and atlases when an online map is likelier to be more up-to-date than the printed version, which could have been published years ago? Can we call Google Maps an atlas? Peter van der Krogt disagrees with that concept, stating “Google Maps is, in fact, a single map of the whole world and not a group of maps,” and that an atlas must be a group of [map] related images.¹⁵⁶ Although Joost Grootens sources or edits information using digital technologies, mapping software, ‘open-source’ collaborative tools, mobile mapping applications and geotagging,¹⁵⁷ his atlases are presented in book formats.¹⁵⁸ He explained that not *any* book which relates information is an atlas, but that it also needs to have a visual translation.¹⁵⁹ Van der Krogt and Grootens both presuppose, or assume the use of maps as presented in a book format, adhering to the more traditional definition of an atlas.

Is an atlas in the 21st century required to have geographical maps at all? Stamen Design, the former LUST Studio and many other designers and studios have been working outside of the traditional atlas format through the mapping of data into interactive, digital and print formats, but also applying the title *atlas* to the works. The contemporary use of the atlas must become an extension of, and even dependent on, the audience’s participation toward a broader application of *mapping*. This definition of the term proposes that the atlas should be viewed as a type of design, one that is an open-ended format that can be interpreted and expanded upon, where designer and user interaction allows for the final end-use format.

[156] Peter van der Krogt, Personal interview, 14 Mar. 2017.

[157] Joost Grootens, E-mail message to author, 20 Oct. 2017.

[158] Alice Rawsthorn, “Rays of Light Amid the Gloom,” 29 Nov. 2009, *The New York Times*, 05 July 2017, nyti.ms/2t5SrvL.

[159] Grootens, Interview.

Nicholas Bourriaud, a French curator and writer, first used the term *relational aesthetics* in his book published in 1998, in the presentation of a theory that described “design [that] relies on an active, participatory* audience—a collective entity who takes on a productive existence in experiencing the work.”¹⁶⁰ Andrew Blauvelt, who previously served as the Senior Curator of Design, Research and Publishing at the Walker Art Center in Minneapolis, wrote in his article *Toward Relational Design*, “Design, because of its functional intentions, has always had a relational dimension,” further explaining that “relational design is preoccupied with design’s effects, extending beyond the form of the object and its attendant meanings and cultural symbolism. It is concerned with performance or use, not as the natural result of some intended functionality, but rather in the palm of behavior and uncontrollable consequences.”¹⁶¹ In this context, we can view the modern atlas as an information container that allows or even depends on the participation and interaction of users, and as a vehicle that goes outside the original designer-created system of binding maps together in a book format. This type of observation allows the atlas to become a vehicle for making “complex information accessible.”¹⁶²

What is an atlas today? In the more than 400 years since its inception, the function and form of the atlas has continued to expand from its original book format. There is also an ongoing evolution in the definition of a book, as well as the genre of book design and in the entire field of graphic design. Grootens believes the role of the [book] designer has evolved to become that

*Participatory design allows the user or audience to have an active role in the process and development of the design, along with designers.

[160] Bennett Simpson, “Public Relations: An Interview with Nicolas Bourriaud,” *ArtForum*, 2001, web.mit.edu/allanmc/www/simpson1.pdf

[161] Andrew Blauvelt, “Towards Relational Design,” *Design Observer*, 03 Nov. 2008. Web, 18 June 2017, bit.ly/14x3i4h.

[162] Janet Abrams and Peter Hall, eds, *Else/Where: Mapping – New Cartographies of Networks and Territories* (University of Minnesota Design Institute, 2006) 12.

of an “intermediary” in the facilitation of the communication process, and that this presents the opportunity to create specialty books known as atlases that serve as tools of reference on a particular topic.¹⁶³ With an opposing viewpoint, Castro sees the role of the designer as one who can provide disseminated information in contexts that are not necessarily presented in the formats of expensive publications and books that only the very wealthy can afford. His belief borrows from Marxist ideals that say “in a decentralized system, the power of distributing information is with the people.”¹⁶⁴ In this example, Castro refers to the availability of appropriating online content in the form of open-sourced coding, cloud-based storage and the option of owning your own tools for production and printing.

Stamen Design employs the use of data visualization—or the visual representation of data—as a form of communication that is created through an exploration of cartography and research, primarily as online interactive media. This alternate application of map design is used to create interactive maps as a way to present large amounts of data.¹⁶⁵ They offer classes on designing and building interactive online maps using their own open source visualization tools. In a sense they are providing a platform for “content appropriation” of data and source code, allowing the user to control the output.

In a commentary on design that could also apply to the evolution of the contemporary atlas, Blauvelt further wrote about experiments in form and content, and how design allows for an exploration of context and a diversity of forms through the interactions of “social, cultural,

[163] Tina DiCarlo, “Joost Grootens,” 24 May 2013, *Klat Magazine*, 01 Sept. 2017, <http://bit.ly/2yYiWsT>.

[164] Castro.

[165] “We Make the Best Maps on the Web,” *Stamen*, 02 June 2017, stamen.com/maps.

political, geographic, technological [and] philosophical” manifestations. He sees that these types of design thinking and design practices may allow for, or determine, the trajectory of design for the next century.¹⁶⁶

Because there is no one conventional model or process for the form and use of the contemporary atlas, the variety of vehicles and formats will continue to be reformatted and recontextualized as we continue into the 21st century. As society is moving into an ever more complex world of content available at our fingertips, an atlas can no longer be contained as a book of maps, or even a book at all, but must grow and expand into diverse forms of usage. The atlas is a medium that works in a range of modes, one that allows for multiple ways of viewing information and it will continue to seek new paths and contexts for relevancy.

[166] Blauvelt.

C. Future Investigations

I. Recontextualization

This research will continue to focus on a recontextualization of the atlas that will include examinations of subject matter and an exploration of the future uses of the atlas that facilitate user and reader interaction. Investigations will examine an expanded definition of the atlas through an exploration of formats and their relationship to data and content including maps, geographic information, images, graphs, charts and written information. This will allow for the experimentation of unbound or unstructured formats, but may need a commonality of structure, specifically through the use of *atlas* in the title. Using the specific word as a descriptor creates a visualization of form for the content, and provides a parameter for a collective use of the expanding usability and definition of the atlas.

The opportunity to expand the form of the future atlas is energized by a shift in the power of mapmaking toward the ordinary end-user. The concept of *critical cartography* has been used to define the act of “mapping the unmapped,” and as a “theoretical critique of the social relevance, politics and ethics of mapping.”¹⁶⁷ William Rankin, the author of *After the Map*, discusses the term as an observation of the theory that maps were once considered *objects of power*, dominated in dissemination and production by elite publishing houses or the government. He sees ambiguity in the earlier processes of developing maps, and a movement toward the user or map-maker due to the availability of geographic knowledge, new technologies and the simplicity of generating maps.

[167] “Critical Cartography,” *MIT SLAB*, 21 Oct. 2017, PDF, bit.ly/2zFI5G2.

A fundamental aspect of the atlas in the 21st century is the power shift that lies in the creation of maps and mapping. This process allows for users to experiment with new ways of gathering data and visualizing the information. The use of digital technologies—mapping software, open-source tools, collaboration and mobile and online mapping applications—has made it possible for all types of mapmakers to enter the field of creating non-traditional maps. “Maps are no longer exclusively the product of experts.”¹⁶⁸ We can recognize that the “possibilities for mapping and mapmaking are as multiple as the people who choose to make maps.”¹⁶⁹

This shift in power back to the user as the designer or the user as the producer, aligns with the theories discussed previously by Thomas Castro, and his intent to decentralize access to information and printing, and to “give the power back to the people.”¹⁷⁰ Whether through open-source code or other available materials, it is a system that allows the individual user to generate and distribute, or print and produce materials as needed.

2. New Visualizations

Johanna Drucker, Professor of Information Studies at UCLA, explores the history of visual and graphical forms, from ancient hieroglyphics and stone carvings to digital texts and maps. Her book *Graphesis: Visual Forms of Knowledge Production* looks at the way traditions have shaped the formats used in current design:

[168] Jeremy Crampton and John Krygier, “An Introduction to Critical Cartography,” *ACME: An International Journal for Critical Geographies*, 4.1 (2005): 11-33, PDF, 21 Oct. 2017, <http://bit.ly/2zFI5G2>.

[169] Rhiannon Firth, “Critical Cartography,” 23 Apr. 2015, *The Occupied Times*, 21 Oct. 2017, theoccupiedtimes.org/?p=13771.

[170] Castro, interview.

Maps, like other graphic conventions, construct normative notions about time, space and experience that become so familiar we take them for accurate representations rather than constructions. . . that cannot be presented in standard cartography any more than the variable concepts of temporality can be charted on a standard timeline.¹⁷¹

Drucker acknowledges that digital visualization tools have become more ubiquitous, which allows for graphic ambiguity, or confusion in design. She expresses a concern in the common practice of the graphic interpretation of information as factual and authoritative, where the user is unaware of the manipulation of content. This approach assumes that the viewer is a an informed critical reader, and that they are evaluating the credibility and validity of the writing and the content. Her approach to the visualization of content and the graphic display of information relies an inherent understanding of the ways graphical formats and visual images structure meaning. There needs to be an understanding of the use of ambiguity and the importance of educating the viewer to the nuances of graphic display.¹⁷²

Graphic interpretations are no longer only created by cartographers and designers and those with the power to decide the definition of a map or an atlas, but *maps can be made by anyone*, and an atlas can exist through the compilation of content through crowdsourcing and collaborative organization of data. This can cause further ambiguity in the presentation of information, but allows for a re-evaluation of what an atlas might become in the future.

Presented as a part of this thesis research are a series of explorations titled *Meta-Phorical Graphic Atlas* that are visual explorations in the theory of using the atlas as a tool to present and disseminate information. (fig. 3.49 – 3.54) These visualizations extend to a variety of

[171] Johanna Drucker, *Graphesis: Visual Forms of Knowledge Production* (Cambridge, MA: Harvard University Press, 2014) 82, Print.

[172] Johanna Drucker, "Humanities Approaches to Graphical Display," *Digital Humanities Quarterly*, Vol. 5, 2011, Web. digitalhumanities.org/dhq/vol/5/1/000091/000091.html.

potential formats that are metaphorical in nature and symbolic in their intent as new variations of the atlas. An overlay of the written contents of this research document allows for new viewer entry points into and exploration of the material. The graphic identity of the *Meta-Phorical Graphic Atlas* represents a reference to Herbert Bayer and his innovative *World Geo-Graphic Atlas* from 1953, which was an example of how complex data can be made accessible, and is considered a precursor to the current applications of information design.¹⁷³

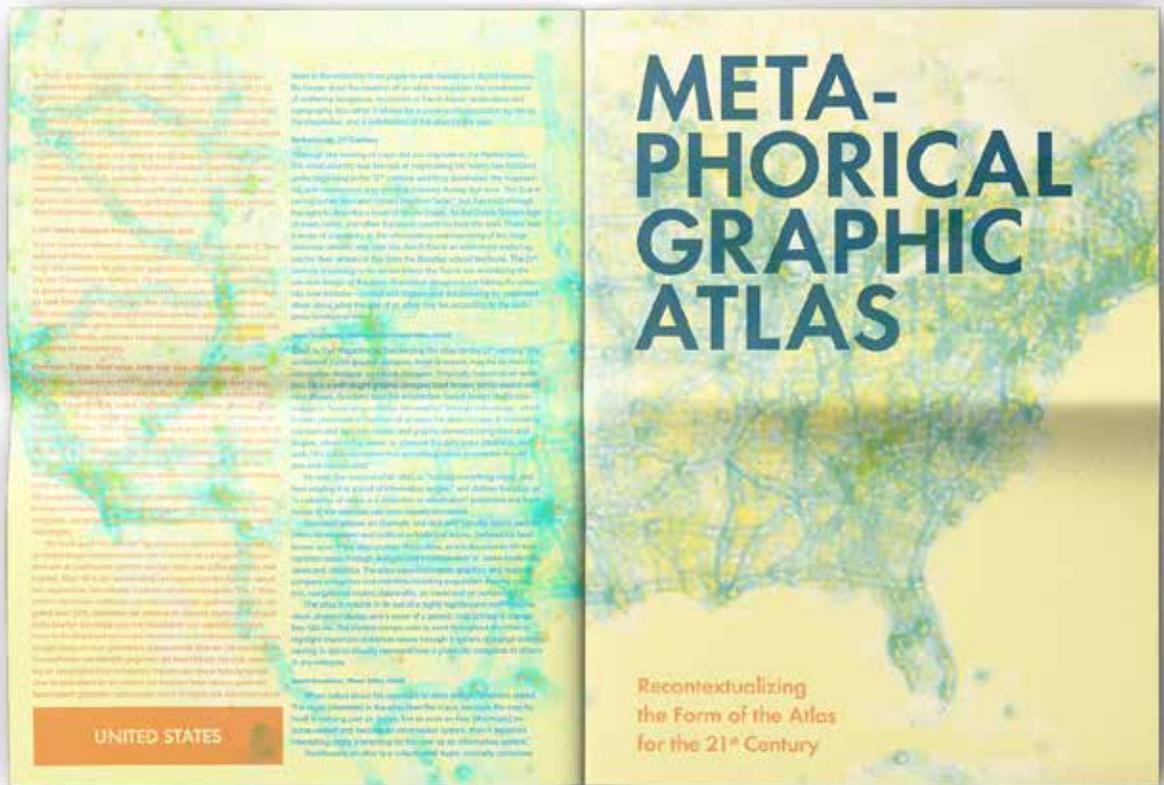
It is important that these new versions of atlases continue to carry meaning through the reorientation and re-examination of the ambiguity and display of data and other information, but the functionality of the *Meta-Phorical Graphic Atlas* is not intended for use as geographical representations or locators, and not as navigational road maps or compilations of statistics. Instead they are a gathering of map imagery, photos, documents and writings held together by the commonality in the application of the name: *atlas*. This exploration calls into question whether the future atlas for the 21st century and beyond is required to display maps and mapping data, or merely contain the word *atlas* in the title as a description of the content.

The research presented in this thesis proposes that an atlas be *boundless*. There should no longer be boundaries imposed on the format of an atlas, instead, the atlas can take on new forms including newspapers, magazines, booklets, journals, wall or gallery installations, light projections, participatory user assembly, digital interfaces and other technological applications that have not been considered or that may be developed. These content investigations will not be limited to information about maps, but rather they can allow for the visual linking of focused meaningful insights of new topics.

[173] Steven Heller, "Bauhaus Mapping: Herbert Bayer's Innovative Atlas," 24 July 2012, *Print Magazine*, Web, 20 October 2017, <http://www.printmag.com/imprint/herbert-bayer-world-geo-graphic-atla/helle>.

The original format of the atlas has become a paradigm over the centuries, but future investigations of its use as a design tool and container of information will allow for an ongoing development of alternative cartographies. By choosing what we map and how we map through the visualization of information, we can find idioms of expression through mediums and presentation of data. Mapping at multiple scales and formats, through print and technological applications, can show location and space in the world, build environments and encourage social consciousness and human experience through narrative and design.

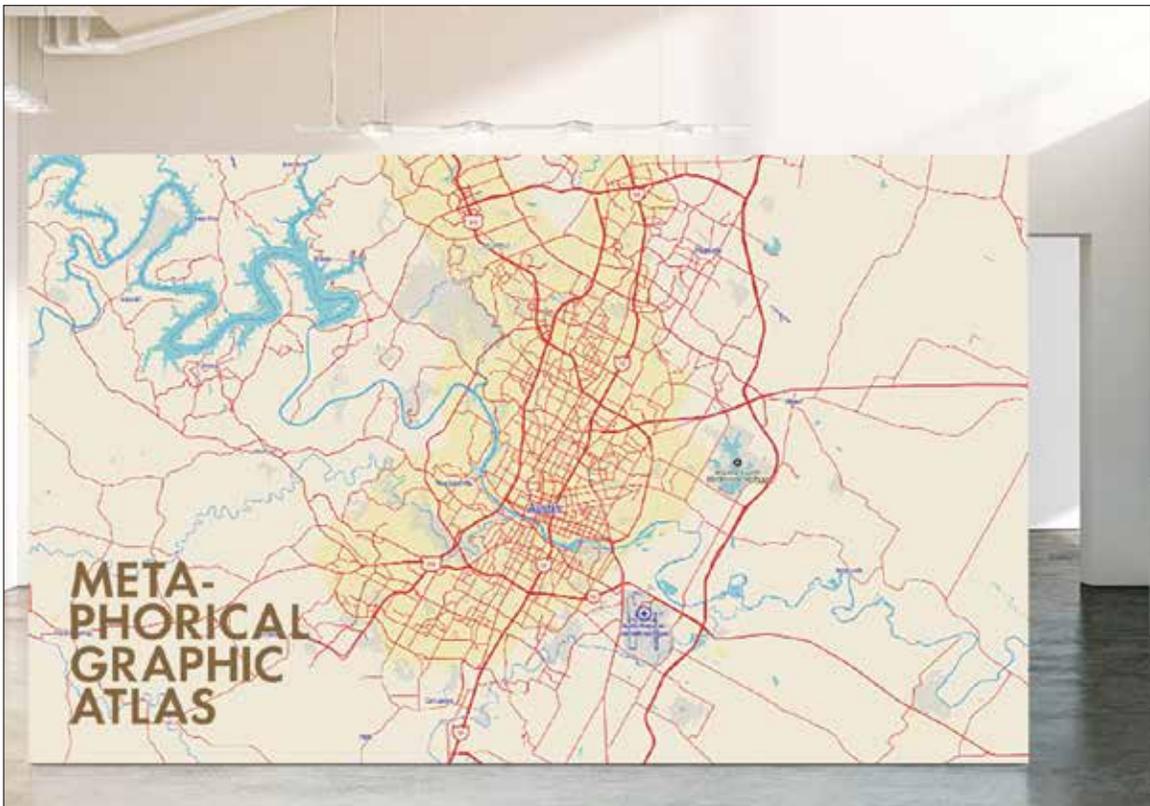
Continued research and design-thinking will be applied toward new visualizations of the atlas and its use as an unbound container for information. There will be considerations of whether the name of the vehicle of presentation must include the word *atlas* to define a collective use. Additionally, the employment of an open-ended investigation will create the opportunity to explore the theory and practice of an atlas as a neutral tool, and will encourage an expanded role of the user and a development of visual education for viewers. The ongoing research will include analysis into a better understanding in the nuances of ambiguity in design. Through the implementation of relative practice through graphic visualizations of topics, the future forms of the atlas can be limitless, or *boundless*.



Figures 3.49 – 50. *Meta-Phorical Graphic Atlas*. An atlas in newsletter format as a design object.
SOURCE: Author's own design.



Figure 3.51. *Meta-Phorical Graphic Atlas*. An atlas in magazine/book format as a design object.
SOURCE: Author's own design.



Figures 3.52 – 53. *Meta-Phorical Graphic Atlas*. An atlas in a wall installation format as a design object. SOURCE: Author's own design.

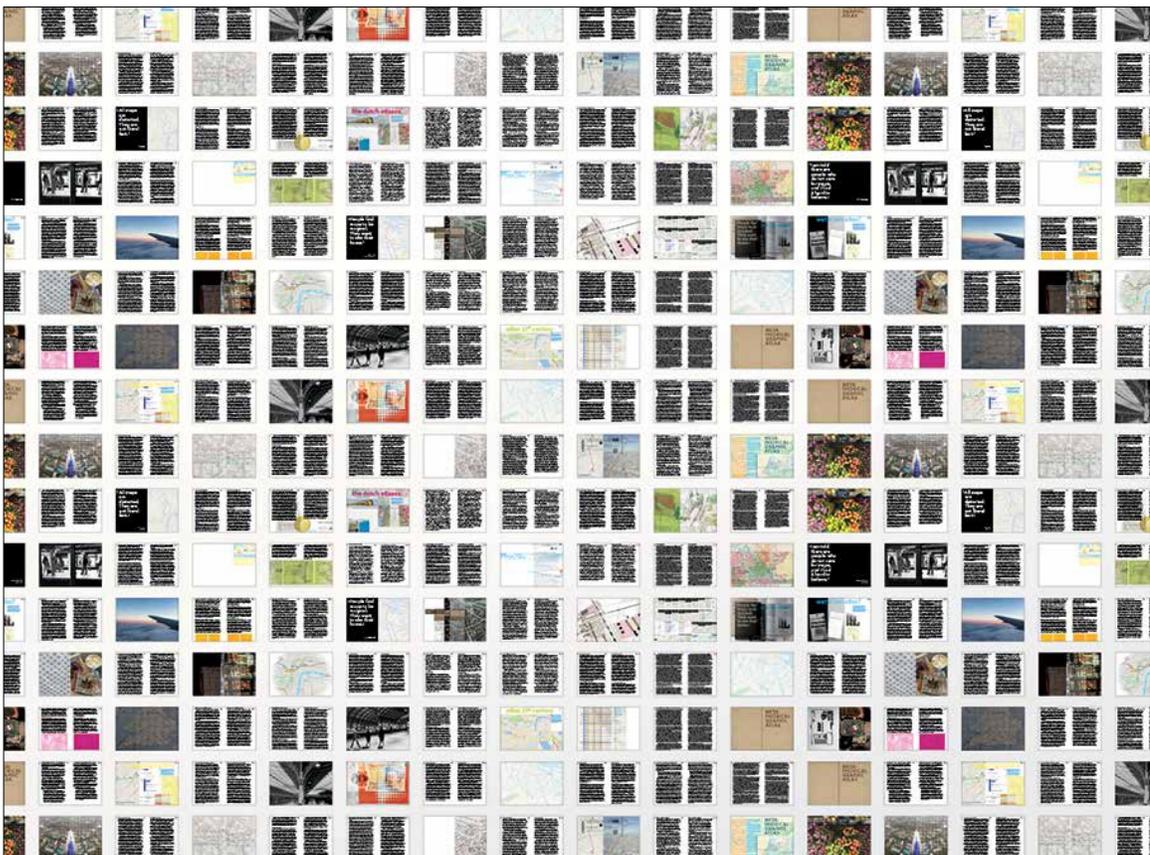


Figure 3.54. *Meta-Phorical Graphic Atlas*, an atlas in a wall installation format as a design object.
SOURCE: Author's own design.

APPENDIX SECTION

Interview Transcripts

These interviews were conducted by the author as primary research in support of the history, use and comparison of the atlas. Those interviewed are designers, educators, museum directors and scholars of the atlas who are considered to be experts in their field. The interviews took place over the week of March 12 – 21, 2017, and were conducted in-person. These transcripts have been edited for clarity.

List of Interviews:

Rickey Tax

Erik Geleijns

Meermannoo Museum, Den Haag, The Netherlands – March 13, 2017

Thomas Castro

LUST Studio, Den Haag, The Netherlands – March 13, 2017

Dr. Peter van der Krogt

Dr. Reinder Storm

Bijzondere Collecties, Amsterdam University, The Netherlands – March 14, 2017

Joost Grootens

Design Studio, Amsterdam, The Netherlands – March 15, 2017

Appendix A

Meermannno Museum
Rickey Tax
Erik Geleijns
Den Haag, The Netherlands

[Lisa Jayne Willard] **Thank you for meeting with me.**

[Rickey Tax] My pleasure.

[LW] **What is your first encounter with an atlas?**

[RT] When we went to school, not the first six years, but later on, how do you call it, high school, we all had to have our own atlas. It's called the *Bos Atlas*. It has a long tradition in Holland, and everybody has one. It's an atlas of the world. So it starts of course with the Netherlands, very detailed, and then Europe and then several European countries, very much in detail like Belgium and Germany, Britain and France, and then when it goes to the world it gets less detailed. Holland is a small country, and we are very much focused to the outside world. Maybe that is a very specific difference between the United States and Holland, well with Trump of course, it seems like the United States is more looking inside itself, maybe because it is such a huge country. When you look at scale the Netherlands is such a small country. The United States has misconceptions about Holland.

I met with Joost Grootens last year, and his idea of the atlas really changed my idea what I thought an atlas was. My research led to find that the origination of the atlas was in the Netherlands, and that's how I came to this idea of doing a comparison of use. The Netherlands has a much longer use [than the United States] of the atlas by more than 200 years. I am hoping to find how the same title can allow for such different usage and interpretation of the word atlas.

[RT] Actually the concept of the atlas has grown enormously, especially the *Bos Atlas*. The editor decided to make thematic atlases or historical atlases—how Europe changed in history, the borders and things like that. For us an atlas is almost a thing, well, everybody has one in their home.

It's not as much of a thing in the United States. It has various usages, including medical textbooks. Are you familiar with Joost Grootens and his work?

[RT] Very much so, that sprang to mind immediately because he has made such enormous change and he looks at atlases in a completely different way.

That's what sparked my interest right away, that his are so different and so much more evolved than the traditional form of the atlas, but such an interesting use that can be applicable in a broader sense.

Do you have very old atlases here in the museum?

[RT] Actually we have, and I will show you, the famous Blaeu atlas in the museum which is 16 volumes and dates from about 1660 – 1670, and its particularly beautiful because all the main maps are also colored. In the 17th century this was a thing that you bought an atlas but you could make it more beautiful. There were several people who specialized in coloring atlases.

So you could buy atlases that weren't colored, or pay more for the colored version?

Yes, and it's very interesting because someone who colored these plates was called an offsetter. "Offsetten" in the Dutch vernacular means to take advantage of someone's money. So that means that this was extremely expensive to have these atlases colored. Someone you should meet is Truscha Hudings because she made an exhibition a couple years ago by a person who colored these maps, so she knows a lot about the topic. We also have most of Joost Grootens' works. We have on display now the Dutch Best-Designed books, and he is always included in that.

He work is new to me. I met him in this past year on our trip with Claudia, and I loved his work. It takes complex information and allows it to speak in a simple way.

[RT] He thinks digital, but creates print. His dictionary, it is incredible.

When you talk about the atlas as print, because you are a print museum, is it evolving to digital? What does that mean for the future of the printed atlas? I feel like with designers like Joost, the printed book atlas will not go away.

No. For Joost who thinks digital...we had an exhibition last year about making books in the past and now, and we invited him to cooperate in this, and we had his dictionary on display. But what was very interesting was he also gave us some archive material, for instance was the models for boxes he made for the dictionary. He thinks digital, but he also thinks, especially in this case, that the outcome should be a book. But of course with a dictionary it goes two ways. The dictionary is a database, and can be updated immediately and a book is a static thing. With maps, I am prejudice because I work in a book museum, every child from high school onward has his own atlas at home. When my family plans a holiday we look at the paper physical map to see where we are and what could we do from the base.

From here I am going to LUST Studio, if you are familiar with them. They also call some of the work *atlas* but it is primarily digital, even rooms of digital installation art. So I want to know why it the word used so freely in the Netherlands. I want to find out if it means something unique here, as the word is used differently than in the United States. That's why I am meeting with so many different types of designers and studios to see what that means. I don't find the same in the United States.

[RT] Surely there are?

I wonder if it is a vernacular, the use of the word "atlas."

There's one thing that I want to mention in relation to the paper v digital. I was in the States last year for the first time, and I spent time in Cleveland and New York. I was invited to dinner

with some people and a couple were publishers. They published educational books and books of maps and atlases. They had their books printed in China. They were asked to publish books for China, and then they had a problem because on the maps it said Taiwan, and they didn't want that on the map. I found that quite scary. That can happen in the digital world and you can change borders or draw a Mexican wall. At least on paper you have something that you can't change. You see it now with Crimea that is now included in Russia, which is very strange because it's all attached to Ukraine, but it's now Russian territory all of a sudden. So I think digital has many advantages. I also, of course, use Google Maps. I used it yesterday looking for a direction. You just type it in and you can zoom in and see the photo. That is fantastic.

It's interesting for me that when I visited Europe my phone doesn't work. I don't have access to Google Maps, so I have a paper map. It is such a different way to think.

[RT] Otherwise you just follow directions. I see this as a disadvantage of digital. Do children in the United States have a map of the world?

In the 20th century schools used the *Goode's Atlas*, but I am not sure if it is used anymore. My children did not have it. I never had one, that I can recall. In grade school we briefly studied geography. Mostly about the United States.

[RT] I recommend you talk to Truscha and look at the *Bosatlas*, speak to Joost...

[RT] Would you like to see one of our atlases?

I would love to.

[RT] We will have a look at the Blaeu atlas. This is my colleague Erik.

Yes, we met last year when you gave our group with Claudia Röschmann on a tour.

[Erik Geleijns] Oh, yes, okay.

Is that the full set of the Blaeu atlases?

[EG] There isn't such a concept as a full set, because they are all different. There is a sort of basic content available and according to the budget of the one who commissioned it. You could add images of cityscapes or buildings, etc. It's very difficult to geographically describe the Blaeu atlas because they are all different.

[I paged through the atlas and took photos.]

[EG] Peter van der Krogt [atlas historian at Amsterdam University] has a theory that this atlas is a reissue of a 1662 edition.

Yes, I am meeting with him, and I am quite interested in hearing his views on the atlas.

[EG] This one is special in that it was hand-colored by the most famous map colorist of the 17th century (name?). He lived in Amsterdam, and in fact that's who this copy belonged to. It was auctioned in 18th century and the great uncle of one of the founders of museum bought it, and it ended up here. Lithography wasn't until the 19th century, so this is hand-colored.

[EG] What is the title of your thesis?

The Atlas: An Historical Overview and a Comparison of use Between the Netherlands and the United States in the Early 21st Century.

Thank you for your time!

[EG] It was my pleasure.

[END OF INTERVIEW]

Appendix B
LUST Studio
Thomas Castro
Den Haag, The Netherlands

[Lisa Jayne Willard]: I sent you some questions.

[Thomas Castro]: I saw, but just ask.

I am writing my thesis about the atlas. The idea came to me primarily though my trip here last spring when meeting when meeting with Joost Grootens. His use of the atlas was like nothing I had ever seen before. And then I came here (to LUST) and your use of the atlas is completely different than his, also in ways I had not experienced. Your atlases are online and multi-media presentations. It made me think that the use of the atlas in the Netherlands is not like in the United States.

[TC] That's not true. A lot of the ideas we have are also used at MIT and Yale. So, we aren't the only ones. I think it's more that in your trip you were introduced to a certain set of people who think about data in the same way.

That's a good way to think about it. Perhaps it's more mainstream to think about data in that way in the Netherlands. Outside of MIT or Yale, when I ask "what is the atlas?" the common response is the Rand McNally atlas people carry in the trunk of their car.

[TC] In a way, that is the atlas. It's what we all call the atlas, but we are trying to update what is the typology of the atlas can be now.

And that is the focus of my research, how the atlas became something more.

[TC] But in your thesis-writing I would be careful of making shortcuts in thinking like that.

[TC] We have really good colleagues in America, like David Reinfurt who work in this fashion and understand.

It's hard to find those designers in America. Who can I look at?

[TC] I would go visit him (David Reinfurt). He's one of our good friends, and he is part of Dexter Sinister, they are duo. He published DotDotDot magazine with Stuart Bailey, of course that doesn't exist anymore, so they have the Serving Library which is a decentralized way to distribute their ideas. Another one could be Brian Kuan Wood, also in New York, of eFlux. He's an artist, writer, editor, curator. He's very much into, he understands these kinds of models. He's not himself necessarily making this kind of work. So when you look at eFlux the website, I would even say that Brian would think of his website as kind of an atlas. Another one who's a smart guy who I know who could talk to you about this is Jon Sueda, the chair of the MFA program in San Francisco. He's very tight into a lot of these types of ideas. Others I know who work more in the fringes but have very good ideas about how to decentralize information, there's Kikko Paradela in Detroit, he's a Philippine American. For him an atlas is maybe a network of people.

So I find there are a lot of definitions of what the atlas is.

[TC] What's your definition?

Originally I thought it was book of maps, but now I see it as a way to take complex information and present it in a non-complex way, or a way for the masses to more easily understand. So that can really apply to just about anything.

[TC] But why it important, the context of the masses there?

I think because I view the atlas as something that a lot of people use, and I am still stuck on the idea of the atlas as a printed artifact, but wanting to understand the implications of the digital atlas. I am fascinated by those implications.

[TC] Do you know the story of Bruno & Sylvia, by Lewis Carroll, the author of *Through the Looking Glass*? It's about a king who wanted to make map of his country, so he asked his

cartographers to make a map. So they made a map and he said, “but it’s not perfect and exact enough. Make it bigger.” So they made it bigger, and through iterations they made a map that was 1:1 in scale with the country, and the king thought that was the perfect map. By that time the map covered the country, and it disappeared. It’s more an anecdote to show that an atlas is basically any abstract representation of anything. [An allegorical tale, *On Exactitude in Science* by Jorge Luis Borges.]

Is that what an atlas is to you?

[TC] Yes, in essence. You can get deeper and further into the definition, but basically it is that once removed representation where you have the real world, and then you have a map of that. And that map can be an atlas. A list of data can be an atlas as well, and that data can be mapped on to the world. I am not really too hung up on definitions, it’s more like a feeling.

At first I was against the idea of a medical textbook called an atlas, but it is also a presentation of data. The more I ask and understand, the more free form I become in my thinking about what is an atlas.

[TC] When we show our work to regular people they don’t understand either in that sense. I would say maybe in the context of Dutch design, I think more people in Holland would understand fine arts or high-level design, as maybe opposed to America. The normal person on the street, would not necessarily understand our work of atlases. If you ask them what is an atlas, you would get the same answer as in America. In terms of the importance of design in our culture here in Holland, if you take a bell curve of people who understand what design is, in America maybe 10% who really understand it, whereas in Holland it’s a little bit bigger.

So maybe that’s a better base of comparison, to include the idea of Dutch design, and how it applies.

What do you think the future use or implications of the atlas are? You're in the digital world of atlas production. Is that the future? Is print going away?

[TC] No, of course not. When you look at publishing, there are more and more books.

Basically the shift in publishing becomes more specialized and elite, and on other side of the spectrum there's more. Printing and publishing is so easy, and more people are doing it. We don't know if it's being distributed and getting to the right pole at the end of the channel. But that are more books being published. The way I see it and notice it in our field, especially in elite publishing, as books are getting cheaper, they are also getting more expensive. People are using more digital. They are reading, more content online, using maps, social media and those kinds of things. But there's a lot of really cheap pricing, and print on demand. On the high end, elite publishing, what designers like Joost are doing, these are things that don't trickle down and don't get disseminated into general public, but they stay as publishing for the elite. In this world there are a lot of changes going on. There's a new catalog at Rijksmuseum in Amsterdam. Marcel Wanders designed it with 3 tiers. At the lowest tier it costs maybe 150 – 200 euros, a decadent book. And there's a middle tier in the thousands, with gold leaf, and there's top tier handmade made to order, hand-printed, gold gilded for like \$100,000.

Much like the original atlases were made.

[TC] We're going back to Medieval times where only the Medicis are able to afford books.

Like the super-car model, instead of being like Toyota and selling millions of car a year, you're a Lamborghini and you sell 20 cars a year. You have the same amount of profits, but it's the opposite ends of the spectrum. I don't like this side of publishing. But it does show that people are trying different things,

You showed samples of your work previously that were in a sense on the low-end of publishing for a print-on-demand event.

[TC] We appropriate a lot of ideas from Marxist ideas. When you own your own means of production, you basically have a decentralized system that nobody owns, so you give the power back to the people. That's what I believe in. Whether it's the code that we have that no body owns because it's open source, to the means of distribution. So not putting all your information on Google, to try to use distributed networks or decentralized networks to host your stuff, owning your own tools for production and printing, using InDesign and storing on the Cloud, or design using code. A lot of the pages we are making are designed using code. This is like a Communist-based approach to information.

It will be interesting to speak to Joost tomorrow, as it seems he is on the opposite end of this type of thinking. In the United States it is written that he is “redefining the atlas for the modern world.” And I ask myself, “why?” What qualified this?

[TC] He is a colleague, and I appreciate his work a lot, and that's the nice thing about working in Holland, is that all these things can sit beside each other. It seems in America we can't have a political discussion without it devolving into some sort of shouting match. In the European approach, everybody has their own standpoint, and let's discuss things at a high level.

[TC] In America we are so binary these days, and the world isn't binary. Mentioning Marx, people say, “oh Thomas is a Marxist.” You can write that, why not? You can use parts of Marxist theory or Ayn Rand. Just because you are appropriating these things doesn't make you one or the other. There's a more neo-liberal attitude. In your thesis, if I was to coach your thesis, I would say don't only zoom in on what's going on in terms of our work, but look at what's feeding our work. There's a lot of stuff going on in society and technology and the way we use networks, the way info is being processed and the way our work is using information.

[TC] Basically everything is being decentralized. A super-simplistic example is how Airbnb is decentralizing the hotel industry. Uber and Lyft are decentralizing the transportation industry. In Holland there's the NS (public transportation), and they are rethinking how to do group travel through group discount and creating virtual groups. They are using social networks to work together to form sort of a "ride share" idea. It's a virtual group. So now NS wants to redefine "group." But if you want to encourage people, to use the service, why limit it? There's so much going on in terms of how old forms of post-industrial modernism is being broken down. The physical structures that we've always used is being broken down into digital or abstract structures. People who understand how these things work, they are the ones who are interesting to look at because they are changing up typologies and how we are looking at things like atlases or printing or publishing.

This is a much more expanded conversation that my initial zeroed-in version of the atlas. I needed to hear what others had to say about the topic.

[TC] You need to spend a couple of chapters on the conditions that can lead to and develop this kind of thinking. What does it even mean to have a masters these days? We are thinking of a new type of Master's at the Arno Academy (where he teaches). We are trying to look at how to discombobulate the idea of what a master's is. Does it have to be place-based? Or a node-based approach to learning where you go out and get info, disseminate it and go back out into field, do it again. And how important is the accreditation? Or is it better to have a course certificate from LUST as school with course certificate, or others from Moniker or Metahaven.

[TC] You should go for your PhD. You can do it part-time.

[TC] There are no more templates. We don't have to work with set template anymore. Look at the idea of a "salable" profession. When you think about where problems are stemming

from in the world, in terms of infrastructure, politics, social problems, a lot of it is old political structures that are trying to harness us. In a decentralized society where communication isn't going through government channels anymore, money isn't flowing through official banks. The old structure, nation states for example, can't keep up with how people are migrating and immigrating. There are huge problems of people being corralled by old ways but ways, but things are becoming more open. Then you get a clash. There's a huge social revolution going on, and the power structures can't contain it because they don't understand how it's working.

I feel reawakened by this philosophical conversation.

I really appreciate your time.

[TC] I hope to read your thesis.

[END OF INTERVIEW]

Appendix C

**Bijzondere Collecties, Amsterdam University
Peter van der Krogt
Reinder Storm
Amsterdam, The Netherlands**

Recorded interview with Dr. Reinder Storm and Dr. Peter van der Krogt, 14 March 2017.

Dr. Peter Van der Krogt is a leading expert on Dutch atlases. He is the Jansonius Curator and Senior Researcher of the Explokart Research Program for the History of Cartography of the Special Collections at the University of Amsterdam and Researcher at the Faculty of Geographical Sciences at the University of Utrecht.

Dr. Reinder Storm is the curator of Cartography, Geography and Travel for the Special Collections at the University of Amsterdam.

[Lisa Jayne Willard] Thank you for meeting with me.

[Reinder Storm] (Gave overview of how Amsterdam University works with the Explokart program, Utrecht University and Peter van der Krogt.)

[Peter van der Krogt] Since 1992 I have worked on a compiling a bibliography of atlases published in the Netherlands. I have not yet seen all the atlases in the collection here [Amsterdam University.] There were about 500 atlases were published before 1800. Most of them Dutch, and most of those were published here in Amsterdam. Blaeu publishers was across the street. It's as if they have found their final resting place back home.

I visited here previously and met with Mathieu Lommen in the Special Collections to view design books, but I was unaware of the maps and atlases division.

[PK] For us, the maps and atlases collection is the most important. Mathieu is not here now, so we can say that. (laughter)

[RS] There's some sort of competition, of course, between the curators, but it's a friendly competition, as long as everyone acknowledges the fact that maps and atlases always gain very large interest from the audience. Because they are nice to look at, it's more than black letters on white paper, it often has coloring, it always is recognizable at once as firstly it's a map. Secondly, you want to know 'Is it a part of the world that I know? Do I recognize it? Is it a place where I come from?' Exclaims, "Oh, look here is the place where I come from." And everybody is happy. This is magic, and it works just perfectly. That is not the case with many other special collections that we have here. With all due respect to my colleagues, but this is just facts. (laughter)

This is funny, but actually really interesting in terms of my thesis writing. What the interest in an atlas that holds everyone's attention?

[RS] I have learned a lot from him (points to Peter). For me, I'm relatively new in this map business. I worked at the National Library for more than 20 years. There is a strange coincidence that me, not being a map specialist, has more easily realized 'what is this magic about maps?' Because the people that work with them for more than 20 years, they are not aware of this sense of why the audience is so captured by maps.

Is that because they are interested in the scholarly side of research and knowing?

[PK] In the early days, when we would have an exhibition in our map room, when people come to see the map exhibitions they always want to see the map of the region and the town

where they were born. Same with VIP or ambassadors or other important people would visit the library, they always got a short excursion to the map room to show some beautiful maps. In the map room we always check to see a map where they were born. So if the Ambassador from Italy comes, you don't want to show a map of Scandinavia.

[RS] The richness of the collection, of course, is a big advantage. We can make everybody happy. It's true.

I think no one else can say that. (laughter)

[RS] We have a collection here that is for exhibits, but the way the map collection is collected is not very good. There was an important map dealer, late 19th century, Frederick Muller here in Amsterdam, and he butchered atlases...

He cut them apart?

[PK] He cut them apart and sold the maps separately. But we, the Royal Geographical Society, got about 9000 of his stock. Separate, atlas maps, 9000 of all regions of the world, sometimes from different editions. It is ideal to show people atlas maps because when you show an atlas, what do you show? The binding? The title page? Or one of the maps? So separate maps are easier to view. It's not a very pleasant way that the collection was made by Frederick Muller, but that was over 100 years ago.

[RS] He died in 1880, and his collection was acquired in 1910.

[PK] 30 years after his death the collection came here. It's only been in recent years, the last 20 or 30 years, that the importance of that collection has been recognized.

You don't try to reassemble the maps into their original books?

[PK] No, but maybe we can do that when we have them all digitized. Sometimes you can recognize that maps are from the same atlas, but there are no complete atlases, no title pages, no bindings, no text so there is no sense to physically bind the books together. So we may be able to make digital versions.

Have you digitized the collection yet?

[PK] For the Muller collection, most of the maps are digitized.

[RS] There is quite a problematic topic that is on the table now because we have lots of images, but not all available online yet. I'm very sorry. What we have available online is nice, but only a very very small part of the whole vast amount of maps. We are working on it.

[PK] With a small collection, it is easy to have it all online.

It was disappointing to visit the British Library and realize I could not view any real atlases, but only facsimiles and a digitized online version of the original Mercator atlas.

[PK] One of the best libraries that has digitized a lot of atlases is the Biblioteca Nacional de Espana in Madrid. There are quite a lot of atlases, but the size of the files and image downloads are very large. It's too much for normal use, but for me it is useful to have access to the high-resolution images to use in my publications.

I love maps and wanted to find a topic so I could write about them in an interesting way. On my visits to the Netherlands I became fascinated with the word *atlas* that I heard used by Joost Grootens and LUST Studio.

[PK] Yes, they call it atlases, but the definition of what the atlas is has of course been much changed by the use of digital. They call it an atlas, but what originally is an atlas... (gave me his printed article that he wrote, *From Atlas to Atlas*.) In my introduction, "What is an atlas?"

For making a bibliography of Dutch atlases, it was important that I define two things first: ‘What is an atlas?’ and secondly ‘What is the Netherlands?’ But this definition was only for old atlases. In Arlington (Texas) there is a professor for the history of cartography, University of Texas, Imre Demhardt. He is from Germany.

[RS] He is closer to you in Arlington, but it is more fun to come to Amsterdam.

[PK] The New York Public Library is quite good and the Library of Congress.

[RS] A Dutch 1685 atlas was sold to America, to the Library of Congress in 1936. They should bring it back, but I don’t think they will. Can you go pick it up? (laughter)

[PK] I have a contact at the Boston Library. The problem in the United States is that you have quite a lot of important collections, but they are so far apart. Here in Amsterdam, we have three or four important collections, but some are one and a half hours away.

In the United States sometimes we drive one and a half hours to get to work. One way.

[PK] There is a small town in the east of the country and the city library there has two atlases by Frederick de Metiers who was a 17th-century atlas-maker. So you’ll find quite a lot of old city libraries that have old atlases. Sometimes they are even quite unique. In Delft, in the municipal city archives, there are two atlases from the 1660s.

That’s incredible.

I have asked about the use of this word *atlas*.

[PK] What is an atlas? That’s the definition I made for this book. For my purpose, I work only with atlases that are published, commercial atlases. They must be printed books with maps and if there is text in the book, then the text has to be an explanation of the map.

[PK] There are also books that are text with a lot of maps, but the maps illustrate the text, but then this is not an atlas.

I am meeting with Joost Grootens tomorrow. One of his atlases is the *Vinex Atlas*. Are you familiar with that?

[PK] Since the 1960s the atlas has changed very much. Before the 1960s I think you can even use my definition that it is a book with maps, and the text applies to the visual information. So the atlas adhered to the definition of a book of maps with text. That works until about the 1960s, because then you will get textbooks with a lot of maps and they call it an atlas.

[RS] There was also a lot of illustration.

In the United States a very common form of the atlas is the roadmap, the *Rand McNally Road Atlas*. Another common form of the atlas is medical textbooks.

[PK] The history of the atlas, it was originally a book, the book by Mercator, was meant as a cosmography, not what we now call an atlas. The atlas became a book of maps made by Mercator.

Others were making atlases before Mercator's, but they weren't yet called the atlas.

[PK] Yes, but the first atlas published is from 1570. The word atlas didn't exist before that (as applied to books.) By the mid-17th century, the word atlas went from the book of maps by Mercator to a further application to a book of maps. Later, since collections of maps by private collectors were usually bound into bindings, these were also called the atlas. A very famous is the *Blaeu Atlas*. But when a collector was collecting maps to be bound into a volume, as long as his collection was not complete, they were not yet bound. So the word atlas was transferred from the bound copy to the collection of loose maps meant to be bound into a book. The name stayed as a word for collections that were not meant to be bound. Later collections of prints and drawings also became an atlas. And later the geographical aspect was lost and it

became just print collection. That's how you get to an "atlas of the human body." There are many collections of maps and prints that were meant to be bound, but never were. And they are called atlases.

[RS] In usual everyday speech, atlas in our language means a book of geographical maps.

A second meaning could be a book with images within a certain topic, like *Atlas of the Human Body*. In the third meaning, atlas as a collection of prints.

There seems to be a common use of everyone calling everything atlases.

[PK] No. An atlas is a book with maps. Any book with maps is an atlas. Publishers try to use the word. An example is the *Beer Atlas*. That's an illustrated book with some maps of the regions and geographical plates.

So is that an atlas?

There is a disparity of usage of the word atlas. I am trying to find a cohesive meaning.

[PK] The meaning of the word atlas has changed since its introduction in 1594 by Mercator. His cosmography book in five volumes where maps were only a part. Nowadays the atlas is almost anything that has to do with images, digital or printed, with or without text.

[RS] There you have something. It (an atlas) has to contain images. You will not find an atlas without images.

But I do find that. As an example, LUST Studio takes information and makes data visualizations that are not maps, but are called an atlas.

[PK] A single map is never called an atlas, but multiple images in any form are called atlas.

We have an atlas, I have seen it, called the New Atlas or Little Atlas, I'm not sure, that is only text, not a single map.

[RS] Well, there is always an exception. But still I think there is also there is something in the meaning of the word atlas, and the meaning contains something of an overview, it's thorough, it's complete. That's the nice thing about an atlas, if you have a geographical atlas, you have images of all the countries, and then you are complete. There might be an image of the moon or the sun or the universe, but it is complete. But if you call your product an atlas, then you pretend that it's finished in a way, and this pretension is an important attraction to the use of the word atlas.

That's very interesting.

[PK] But to note, Mercator never finished his atlas! He planned 5 volumes. Volume 1 was left as a manuscript when he died. The second volume was never published. The third volume was to be in three parts and only two parts are published, the third part was never published. And the fifth volume was published. So 2-½ of his 5 volumes were published, but some of the maps were not completed. In 1594 – 1595 was published by Mercator's son, and that he gave the title *Atlas*, but his father had chosen that name in 1569. But he (Mercator) never finished, and yet the term atlas applies to something that is finished.

Thank you for this history and background of the atlas. Do you have thoughts on what is the American perspective on the atlas? What is the difference of use in the US?

[PK] Is it so different?

Yesterday I met with Thomas Castro at LUST, and he said the use of the atlas in the U.S. it was different by “feeling.”

[PK] What is different is the American tradition of mapmaking or designing maps is a completely different from the European style. There is a completely different cartography there. The maps in the US look different from the maps in Europe. They look different,

but the use is exactly the same. The Rand McNally atlas is used the same way as all road maps, but American tradition of the atlas is so different than the European.

[RS] (Showed a Rand McNally Baseball Atlas.) This is an atlas. It contains many maps.

[PK] This is a book on baseball, not an atlas.

So does the idea of the way it “feels” have to do with the Dutch design sensibility?

[RS] This is something you should discuss with Mathieu. Design sensibility is his specialty.

[PK] Perhaps there is not a difference in use, but in the design of the atlas. An atlas like this (baseball atlas) would not be produced in the Netherlands.

[RS] (Reinder shows van Gogh atlas.) This is a story of van Gogh’s life that concentrates on the places where he worked. There are quite a few maps, although I would not call this actually an atlas. The van Gogh market is really very dense, and there are many possible books, but there wasn’t an atlas yet.

[PK] So they tried to differentiate themselves by the title and use of the word atlas. We provided maps to the publisher. This tradition of calling books atlases began in the 60s.

This is all quite fascinating, but in a way, the definition of the atlas is still vague. Old original atlases are atlases, but these books are too.

[RS] How relevant for you is this definition issue?

At first, it wasn’t that relevant, until I realized the varied implications of use. I want to define it by its original definition, then I want to give it a new definition for future use. I feel less clear now. I have to rethink some parts.

[RS] The answer could be that there is no strict such thing as a strict definition for this word.

There is some pretension of completion.

What are the future implications for digital vs print and how the name atlas is applied?

[PK] The name is now used in the digital way, but again, atlas should apply to a group of images belonging together.

So is Google Maps an atlas?

[PK] Google Maps is in fact a single map, a single map of the whole world. It is not a group of maps, it is one map. It is a complete map of the world, but at this moment, an atlas must be a group of images belonging together, not a single map.

The printed books, atlases, they aren't going to go away?

[PK] No. There are more books made now than 20 years ago when the computer was invented. The paper books are not going away.

So many books are on a diverse bell-curve of very expensive to the very cheaply printed. Are there any beautiful atlases being made?

[PK] Yes, but they are very expensive. A few years ago we made a book with productions of a town atlas from the late 17th century. The original atlas was in the Royal Library that was online. You could see every plate available online. You could magnify, and see details.

[PK] So it was published as a book with all the plates, 8000 copies, and it was sold out within a few weeks. People still want to have a book.

[RS] The publisher saw there was interest and value in the production of a book. They were 100 euros and the publisher sold thousands of them. And why was this? He saw this digital product on the website of the Royal Library and he instantly knew that people want to own a book with such a pretty image of their own hometown. And there are many hometowns in this book!

[PK] It was sold in Dutch and French and English.

[RS] The publisher was so smart to see the opportunities of this book. But it also proves that the digital product does not compete with the analog. On the contrary, in this case, the digital product was on the website of the Royal Library and it inspired the publisher to make a book. The popularity of maps is also a part of the success of a book like this. If it had been only print, it would have never sold so many.

[PK] The facsimile of the Gutenberg Bible, only specialists would buy it because it's not beautiful. The facsimile has not sold so many copies. When you see an actual Gutenberg Bible, you have seen them all.

[RS] And with all due respect, the text is known.

[PK] This is interesting from the philosophical part. Peter mentions coincidentally this "bible." Bible, of course, is a word also means something complete, it has a standing. I think bible would be too profane, too 'blasphemous' to use bible for the Beer Bible.

But you do see that though. Maybe the word atlas has become generic in its use.

[PK] It's not offensive like the word bible, and not academic like encyclopedia.

Do you know of beautifully-designed atlases like this one (Peter's book in front of us) being produced in the US?

[PK] Talk to Mathieu. This is the *Phantom Atlas*, a textbook with maps in it.

What about the *Bosatlas*? Is that an 'atlas'?

[PK] Yes, the school atlas. *Bosatlas* is an atlas. Bos mean boot in Dutch, but P. R. Bos was the name of the publisher in the 19th century. Ferjan Ormeling's father was the editor of the *Bosatlas*

for quite a long time (Ormeling is a historian and scholar of the atlas at Utrecht University.)
Ferjan never had a position with the publisher, but he wrote the history of the *Bosatlas*.

[RS] We use these as school children in grade school and high school.

[PK] *Bosatlas* is almost now a generic term, much as atlas through commercial applications.

[PK] Would you like to see some old atlases?

(Here we viewed multiple original bound and unbound atlases from the 15th – 17th centuries.)

[RS] So, I wonder if this suits your needs?

Fantastic. I learned so much today.

I can't thank you enough for your time.

(Exchange of business cards.)

[PK] It was my pleasure.

[RS] Thank you.

[END OF INTERVIEW]

Appendix D

Joost Grootens
Studio Joost Grootens
Amsterdam, The Netherlands

[Lisa Jayne Willard]: Thank you for seeing me.

[Joost Grootens]: Yes, no problem, it's just a very busy time.

I imagine that's all the time.

[JG] No, not every day, it's a busy period.

I sent you a few questions. You were the inspiration for my thesis topic. After seeing your *Metropolitan World Atlas*, the idea of atlas had a brand new meaning to me. So then I developed this idea to compare the usage of the atlas between the Netherlands and the United States, because we [in the U.S.] don't seem to use it in the same way that you do. It feels more generic.

[JG] Well, it's also more generic here too. In Germany they have a broader use of the atlas, perhaps Claudia can tell you more about that. When I first encountered the atlas, well, to contextualize it a bit more, I like maps, making maps and I thought they have interesting formats. Also it's graphically interesting, it's a very visual format. And I like typologies—whether book or catalog, the atlas or the novel and trying to play with that if I design a book. At one point I was asked to design a book with a series of maps, then called it an atlas. That opened up the thinking for me, and saw that the essence of an atlas is making everything visual, and then relating everything to a kind of information system. This was before the *Metropolitan World Atlas*. The experience, and what I liked about it, was that it was not just a narrative, which most books are, but it is actually a tool, and information tool. For it to be an information tool, it has to be about letting the reader in, so he or she can start on every

page and “get it,” and all the pages can relate. That’s why I use a similar kind of logic or color scheme or literary cancellations and page numbers. So again for me the atlas became almost a different way of approaching the reader. Not approaching them as a reader, but as user. That’s what I see as beneficial in design in general, that we approach it not as kind of passive consumers but also as users, and they we are empowered by thing that we make. So then the atlas got a new meaning for me, as a kind of information tool to empower the reader.

I think that’s what hit me when Claudia first showed me your book, I immediately said, “oh, I understand every page.” Just by flipping to any page, I understood the information and what was happening in a really clear, beautiful, concise way. I’ve read interviews where you say you don’t call yourself a designer, but your books are very beautifully designed for user experience. That’s why I was so drawn to it. I sent you an e-mail and asked for some things I could look at, and you specifically mentioned LUST, who I met with earlier this week. They have a very different take on what they call the atlas.

[JG] Yeah, they are very different.

And then I met with the scholars at the University of Amsterdam, and they also had a very different idea of the atlas. They almost wouldn’t consider what LUST creates to be an atlas, and your work was borderline in acceptance. So it’s been very interesting to hear the various takes on what is an atlas. When I came here I thought I had a very clear idea of what I was writing about, and now I don’t.

[JG] That’s the logical order of every research process.

Yes, I thought I was basically finished, and I would come here and chat, and just fill in the blanks, but now I am rethinking what it means. It’s really interesting when talk about user experience, which is really what Thomas (Castro) at LUST was saying as well. The way it presented doesn’t have to be in a bound book. It can be shown in various ways. He said it didn’t necessarily need to have a map, but could rather be a sort of “mapping.”

[JG] Not any book that relates information is an atlas. It has to have a visual side that translates into graphics, that’s essential.

Does it have to have a map?

[JG] A map is a visual record or a description of a location or of a moment in time. Also a timeline could be a map.

Why is the term atlas used to represent books of information with or without maps?

[JG] An atlas is an information system of visual information and can be in any form.

A map is the typical form, but not the only form. It doesn't have to be only maps.

This is exactly why I have to rethink what I am writing about.

[JG] Then maybe you should open up your idea of what a map is...

Yes, I was asked the same thing at University of Amsterdam, "What is a map to you?" So that's an interesting challenge to reevaluate what I think about the definition of a map. And they asked, "What is an atlas?" I thought it was a book of maps.

[JG] But not any book of maps is an atlas. It has to have a relationship between the maps.

They showed me what I thought were terrible examples of what are called an atlas, such as a beer atlas and a baseball atlas. So now there are all these forms of the atlas that I hadn't considered. When I was in the Netherlands last year I was exposed to these unique forms of atlases that I had never experienced before, and I only had a preconceived idea of that they were in the United States, so it seemed like a good comparison, but it's not that simple. I want the thesis to be relevant, so I need to see where this idea goes.

Do you know any designers in America who are designing any atlases similar to what you do?

[JG] Yes, Richard Saul Wurman, but he was in the 1960s. Also Stamen, a design studio.

So there is a big crossover into digital, which is what Stamen is doing. Is that an atlas? Does it have to be printed?

[JG] I'm a guy from print and paper, so that's my natural medium, but I don't think we should limit it to that. Look at the work of Nicholas Felton, who makes a yearlong report of his own

life. He is a U.S. atlas maker, who makes a personal timeline and calls it life-logging. It's an atlas, it printed, it's paper. I've never seen one, but it's a personal annual report. feltron.com

Is this an atlas?

[JG] Yes, I think so.

I find a lot of information design, but i need to make my own definition of what I think an atlas is now. The historical part is a matter of presenting the invention and how it was used. But understanding how the use has changed, specifically in the past 20 years, 10 years, 5 years?

[JG] I would say the past, since Google GPS information and Google Earth, 2006? Around turn of century people started making their own maps and mapping themselves. There's a whole field of critical cartography, I don't know if you've looked into it, but it's a vast field so I think at some point you have to limit yourself.

It's difficult to focus and not make the topic too narrow. Perhaps there is enough for further research for a PhD. Overall I find a different vibe toward the atlas in general in the Netherlands.

[JG] Personally, I'm more interested in that atlas than the maps, because I think the map by itself is nothing, just an image, but as soon as they become related and become an information system then it becomes interesting, then it's more interesting for the user to interact with.

It's interesting to hear you say that because everyone wants to talk about the map aspect, but I am focused on the atlas. People have written some really nice things about you, and that you've reinvented the old-fashioned atlas to make it useful and relevant. Is that true, do you believe you have reinvented the atlas?

[JG] Hmmm, it was very kind of them to say, but I don't think so entirely. In my work I try to play with aesthetics, so I don't have an engineering approach to design, so you could think that's the danger of the field of information design that uses a very logical engineering-like

approach and that outcome fits all steps that work according to a methodology—then it works and it is okay is somehow successful. I try to play with beauty, and also try to seduce the reader.

That’s beautiful. Are you working on an atlas now?

[JG] Yes, we are working on a Copenhagen atlas. It is very inspired by Wurman.

I love your books. They are so inspirational to me as a designer. I’m new to book design, but my love of maps and new admiration of books has led me down this path. So I’m on a journey to blend the two.

[He showed me many atlases he has collected, including a 1963 scientific atlas, the *Geo-Graphic Atlas of the World* and many others.]

I am particularly intrigued by your vision of color as a design element in your books, and how it’s so important to you and your process and the work.

[JG] I think if you make a map or an atlas you’re making—and I became more aware of it with these older atlases—so you’re making a physical object, and I want to emphasize the physicality, so the choice of paper, the choice of ink, it’s really important.

When I asked you for examples of other people designing the atlas, you gave me two digital designers. So you think of the atlas as printed, but you are accepting of this other medium, and that the digital world of design is important.

[JG] I don’t want to be a nostalgic designer who is always referring to the past. I’m learning from this, and finding what I don’t like about it, but I also feel that one of the important things is that I try to keep in mind what the reader, what kind of other information experiences he or she has, and it’s mostly this [holds up mobile phone.]

I don't see maps or atlases this beautifully produced anymore. Is it because of the change in print techniques? The colors are so bold and vibrant.

[JG] It has everything to do with how they were printed and the economic propositions.

In the United States we have a of atlases in the form of the road map. Rand McNally is the well known type. If I ask people in the U.S., "What is an atlas?" They said it is the road atlas they carry in their car. Also our medical textbooks are called atlases. Maybe you and I have a different perspective on what an atlas is because we are designers.

[Brought out Herbert Bayer *Geo-Graphic Atlas*.]

[JG] It's a beautiful atlas, but the maps are very disappointing because he bought them. He got them from different publishers. The information graphic pages are more special, they are really fantastic.

Do you collect atlases?

[JG] Yes, up there [gestures to bookshelves], but I have a lot of really cheap ones, but that doesn't matter, I think they are interesting.

[Showed Wim Crouwel's *Bos Atlas*.]

[We viewed several old and varying types of travel, school and geographical atlases.]

In the United States we don't really learn that much about other countries. We learn about the United States, so even the whole idea of maps is not as much a part of our culture. We talk about ourselves.

[JG] We are so small that we have to (learn about the rest of the world).

Why is it still relevant to design books in the digital age?

[JG] I can expand on that a bit. I think that everything is changing so fast and is in flux, and it makes sense, and is almost like a luxury to be able to step outside of the flow of information and to be able to look at it in a compact concentrated form. That's the luxury of a book.

And should we continue to print? I don't know.

In your own production of the atlas, you have created almost a niche market.

[JG] Yes, it's very niche.

And your books are very hard to find because they are all sold.

[JG] We have very small print runs, and the books are all developed for specific readership interested in the content. Most of them are bought by people interested in the graphics, which is the irony of it.

The printed books aren't going away anytime soon.

[JG] I'm more optimistic about it than I was a few years ago, but I see them as more of a luxury kind of thing, which is kind of sad in a way.

Thomas Castro talked about the same idea of books being a consumer luxury item that has a wide arc of price and availability. On the high end are designer books that are expensive and on the low end are mass consumed road atlases. There is not as much in the middle, but heavily weighted on each end.

[JG] I'm going to show you something.

[Goes to get atlases.]

[JG] This is a (vintage) road atlas from China, which is also quite fascinating because of the typography, but also because of the density of information that is almost impossible that you can have so much on the page. Every city I visit I go to the bookshops and secondhand bookstores.

These are from the late 19th century, early 20th century, travel guides, 1907, with the fold-out maps. They are really beautiful. These are the first travel guides, really nice, beautifully printed. (Hachette Travel Guides) This one is typical American, and what I like about it there's a kind of relationship between the species and location and different kinds of typologies. We should also call it an atlas because it is there just to empower the reader. A travel guide.

This was fascinating and I appreciate your time!

[JG] It was my pleasure. Good luck.

[END OF INTERVIEW]

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