

Vision in Motion

Streams of Sensation and Configurations of Time

Edited by

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Tobias Teutenberg

### Objects at a Distance

Karl Schnaase's description of the Antwerp Cathedral (1834)  
and the Pedagogic Conditioning of the Eye During the  
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#### Learning by Seeing

A glance at the introductory woodcut (fig. 1) is certainly sufficient to understand the basic intention of John Amos Comenius's *Orbis Sensualium Pictus*<sup>1</sup>—a textbook first published in 1653 and, since 1658, available in an illustrated and multilingual edition, with the addition of 150 pictographic entries.

Depicted is Comenius himself, equipped with a fur cap, a cape, and a cane, who has led one of his students outside the gates of a fictional city in order to offer him insights into the secrets of the *Book of Nature*. As a result, the pupil achieves an understanding of God by studying his creations, strengthening his faith and illuminating his mind like bright sunlight piercing a cloudy sky. The ancient Roman church, Santo Stefano Rotondo, and its Gothic counterpart in the background of the scene make reference to the focus of the Protestant theologian's teachings, by indicating that the primary goal of the *Orbis Pictus* lay in the mediation of the Latin and German languages. Furthermore, the way in which this scene is depicted by the artist—an anonymous wood carver from Nuremberg<sup>2</sup>—allows the viewer to discern the method by which this teaching is performed. Comenius's opened mouth and uplifted index finger refer to his two basic principles of education: showing and naming, that is, the transfer of knowledge through the visualization of all subject matter.

1 For general information about the *Orbis Pictus*, see Svetlana Alpers, *The Art of Describing: Dutch Art in the Seventeenth Century* (London: Murray, 1983), 91–99; Robert Alt, *Herkunft und Bedeutung des Orbis Pictus. Ein Beitrag zur Geschichte des Lehrbuchs* (Berlin: AkademieVerlag, 1970); on Comenius's use of images, see Jozif Antochi, "Bild und Bildung bei Jan Amos Comenius," in *Bild und Bildung. Beiträge zur Grundlegung einer pädagogischen Ikonologie und Ikonographie*, ed. Franz Pöggler (Frankfurt/Main et al.: Lang, 1992), 95–111.

2 In the research text, it is suggested that the illustrator Paul Creutzberger from Nuremberg is responsible for the illustrations in the *Orbis Pictus*; see Hellmut Rosenfeld, "Der Probedruck von Comenius' *Orbis Pictus* '1653' (1657?) und der Verlag Endter in Nürnberg," *Archiv für Geschichte des Buchwesens* 41 (1964): 1943–53.



1 Invitation, in John Amos Comenius, *Orbis Sensualium Pictus*, 1698.

However, this method of teaching was not unique to Comenius. Even in ancient times it was well known that this approach was extremely effective.<sup>3</sup> Hence, by the time Comenius came to write his *Orbis Pictus*, he would have been very familiar with previous texts on the topic such as Francis Bacon's work on the empirical philosophy of nature, as well as Juan Luis Vives's writings on the fundamental role of the senses within the development of knowledge and skills.<sup>4</sup> But contrary to what one might expect, nobody had ever put the pedagogic principle of "learning by seeing" consistently into practice. Cost considerations and pragmatism were certainly a predominant reason for this, but some teachers may well have been reminded of the words of Aristotle (*Politics* 1336b) when he warned against the suggestive potential of images and the danger of stimulating the fantasy of the young beholder to immoral thoughts.<sup>5</sup> However, Comenius seems to have been very aware of this problem and so incorporated a canon of rules in his previous work, *Didactica Magna* (written 1627–1638; published 1657), in order to secure the responsible use of the new medium:

3 The educational literature before Comenius was in no way as disinclined toward imagery as the research on the history of pedagogy sometimes indicates; see Ulrich Pfisterer, "Kunst im Curriculum des 15. und 16. Jahrhunderts oder: Eine Nürnberger Erziehungsallegorie der Reformation," in *Anfänge und Grundlegungen moderner Pädagogik im 16. und 17. Jahrhundert*, eds. Anja-Silvia Göing and Hans-Ulrich Musolff (Cologne et al.: Böhlau, 2003), 213–41; Rudolf W. Keck, "Bild und Bildung in der Vormoderne," in *Bildungsgeschichte(n) in Quellen. Hanno Schmitt zum 65. Geburtstag*, ed. Jörg-Werner Link (Bad Heilbrunn: Klinkhardt, 2007), 227–33.

4 Siegbert Merkle, *Die historische Dimension des Prinzips der Anschauung. Historische Fundierung und Klärung terminologischer Tendenzen des didaktischen Prinzips der Anschauung von Aristoteles bis Pestalozzi* (Frankfurt/Main et al.: Lang, 1983), 50f.

5 Pfisterer, "Kunst im Curriculum," 224.

If the object is to be clearly seen, it is necessary: (1) that it be placed before the eyes; (2) not far off, but at a reasonable distance; (3) not on one side, but straight before the eyes; (4) and so that the front of the object be not turned away from, but directed towards, the observer; (5) that the eyes first take in the object as a whole; (6) and then proceed to distinguish the parts; (7) inspecting these in order from the beginning to the end; (8) that attention be paid to each and every part; (9) until they are all grasped by means of their essential attributes. If these requisites be properly observed, vision takes place successfully; but if one be neglected, its success is only partial.<sup>6</sup>

This extract makes clear that even at the very beginning of the *Anschauungspädagogik* (object pedagogy), attempts were made to control the eye of the student by instilling visual techniques. And, as we will shortly see, German education of the nineteenth century was particularly keen on constructing a canon of rules and practices to master the gaze of the beholder, as well as creating a new institutional framework in which visual perception throughout the generations would be systematically defined from the ground up: the *Anschauungsunterricht* (object lesson). In this essay, I will detail the visual practices established in this "school of vision" and subsequently demonstrate how the associated standard mode of reception—that is, the fixing of every object in the mind's eye and, in complete stillness, the reduction of its basic form and proportions—gained more and more ground throughout the entire German school system in the first half of the nineteenth century. An architectural description by art historian Karl Schnaase implies that this formal-analytic way of seeing was increasingly applied in predominantly visual disciplines like post-romantic art historiography. The essay ends with an outlook for the early twentieth century, in which it is explained how many art historians, including Kurt Gerstenberg—himself a student of Wölfflin—had already succumbed to other paradigms of perception and practiced an alternative method of architectural observation that aimed to perceive both the observer and the observed architecture in a state of motion. The aim of the essay is to identify the methods with which observers during the nineteenth and early twentieth centuries practiced observation, and to what extent factors of the discourse determined not only what was seen, but also how it was seen.

6 John A. Comenius, *The Great Didactic: Setting Forth the Whole Art of Teaching All Things to All Men*, ed. M. W. Keatinge (London: Adam and Charles Black, 1907), pt. 2, 188.



## Learning to See

It is well known that Comenius's *Orbis Pictus* was successful in Europe well into the nineteenth century,<sup>7</sup> though this was likely not because of its progressive didactic approach but rather due to its encyclopedic qualities. However, its success and use specifically in schools was limited, as can be shown by the repeatedly voiced criticism by educators throughout the seventeenth and eighteenth centuries, which lamented the mediocre quality of its wood carvings and Latin commentaries.<sup>8</sup> But that's not to say that this lack of success in the educational sphere was unique to Comenius's book: until the end of the eighteenth century, similarly structured schoolbooks were likewise held in low regard,<sup>9</sup> resulting in an almost non-prevalence of teaching with the aid of visual devices in the German educational system.

Things only changed after Rousseau published his educational treatise *Émile* in 1762. Influenced by the empirical epistemology of John Locke,<sup>10</sup> the author emphasizes the relevance of childhood, both in general and for the development of the senses. According to Rousseau, the then-prevalent method of teaching, that is, a predominantly verbal approach, was no longer satisfactory. In his opinion, every teacher should provide students with a sensory way of learning: "Things! things! I cannot repeat often enough that we attach too much importance to words. Our babbling education produces nothing but babblers."<sup>11</sup>

However, of much greater importance for our topic were the writings of the Swiss educational reformer Johann Heinrich Pestalozzi, because he not only emphasized the importance of the visualization of the subject matter, like Comenius and Rousseau before him, but also tried to codify the process of beholding objects as well as images in order to use this educational tool more effectively.<sup>12</sup> It was in his program-text *Wie*

7 On the publishing history of the *Orbis Pictus*, see Kurt Pilz, *Johann Amos Comenius. Die Ausgaben des Orbis Sensualium Pictus. Eine Bibliographie* (Nuremberg: Stadtbibliothek, 1967).

8 See Pilz, *Comenius*, 43–50.

9 Christine Pressler, *Schöne alte Kinderbücher. Eine illustrierte Geschichte des deutschen Kinderbuches aus fünf Jahrhunderten* (Munich: Bruckmann, 1980), 34–46. Even Gerhard Michel can name only a few successors until the rebirth of the *Anschauungslehre* as part of Rousseau's educational treatise and the movement of philanthropy: Gerhard Michel, "Die Bedeutung des *Orbis Sensualium Pictus* für Schulbücher im Kontext der Geschichte der Schule," *Paedagogica Historica* 38, no. 2 (1992): 235–51; Gerhard Michel, *Schulbuch und Curriculum. Comenius im 18. Jahrhundert* (Ratingen: Henn 1973), pt. 3.

10 See Notker Hammerstein and Ulrich Herrmann, eds., *Handbuch der deutschen Bildungsgeschichte*, vol. 2 (Munich: Beck, 2005), 102–05.

11 Jean-Jacques Rousseau, *Émile: or, concerning education. Extracts containing the principle elements of pedagogy found in the first three books*, ed. Jules Steeg (Boston et al.: Heath, 1891), 144.

12 On the origins of Pestalozzi's method, see Jürgen Oelkers, Daniel Tröhler, and Simone Zurbuchen, eds., *Der historische Kontext zu Pestalozzi's "Methode". Konzepte und Erwartungen im 18. Jahrhundert* (Bern: Haupt, 2002).

*Gertrud ihre Kinder lehrt* (*How Gertrud Teaches Her Children*) of 1803 that Pestalozzi first expressed in detail his educational beliefs and methods, which he had developed during this period. In the introduction it is made clear that Pestalozzi was driven by the general idea that psychology and methodology should play a greater role in education; that is, he aimed to find a generic method of teaching that could be applied in all subject areas, as it would obey "physical-mechanical laws, through which our mind records and stores all external influences either with great ease or with difficulty."<sup>13</sup> Generally Pestalozzi understood *Anschauung* to mean the spontaneous, direct observation of objects through a subject. He believed that the capability to undertake such action is given to every human at birth and that this enables each of us to perfect our mental capabilities when viewing nature. The problem, however, is that nature shows its objects only from unfavorable perspectives and indeed in an unsystematic way with an ordering that is didactically disadvantageous. Pestalozzi reacts to both of these drawbacks by attempting to teach his students a technique of *Anschauung* with which they are better able to unlock the essential characteristics of all real-world phenomena: the *Anschauungskunst*.

The starting point of this visual technique is the declaration that all real-world objects can be reduced to three primary characteristics: the elements of form, number, and language.<sup>14</sup> In that respect it must be the primary aim of every observer to ignore an object's further qualities and to focus attention purely on these elementary characteristics of all things, "when he wishes to properly dissect an object visually that initially confuses him and appears dark before his eyes."<sup>15</sup> From that, it follows that the job of the teacher is

- 1) to teach the children to look closely at each object that is brought into their consciousness as a single unit, taking into account both its unique and its connective qualities;
- 2) to instruct them to recognize the form of each object, its size, shape, and proportions; and

13 Johann H. Pestalozzi, *Ausgewählte Schriften*, vol. 6, ed. Fritz Ostenwalder (Zurich: Pestalozzianum, 2008), 81.

14 Hager attempts on behalf of many of his colleagues to ascribe the origin of these elementary characteristics to the sensationalist philosophy of the Enlightenment and to the epistemology of Kant. Neither is entirely successful, however, as Pestalozzi himself at many points argues quite unclearly. See Fritz-Peter Hager, "Pestalozzi zwischen Aufklärung und platonisch christlicher Denktradition," in *Pestalozzi. Wirkungsgeschichtliche Aspekte. Dokumentationsband zum Pestalozzi Symposium*, eds. Fritz-Peter Hager and Daniel Tröhler (Bern et al.: Haupt, 1996), 165–205.

15 Pestalozzi, *Schriften*, vol. 6, 132.

3) to make them familiar with those words and names that are associated with the objects in question, and indeed from as early an age as possible.<sup>16</sup>

Pestalozzi's course of instruction would begin with the characteristics and possible orientations of straight lines (vertical, horizontal, ascending, descending). The students would learn, on the one hand, through repetition of those passages read aloud by their teacher from Pestalozzi's textbook, the *ABC der Anschauung* (1803), and, on the other hand, by internalizing various example pictures through exacting observation and drawing. Subsequently, Pestalozzi would begin to teach the children about the different ways in which two lines can interact with each other (parallel, of equal or different lengths, angled). The next step covered the defining of "proportional dimensions"<sup>17</sup> of straight lines.

A table printed in the *ABC der Anschauung* helps the teacher to demonstrate this idea (fig. 2): it depicts thirty-six figures, grouped into eight blocks, each of which consists of two long, parallel lines of equal length. In the first block, these lines are divided into twenty sections by small markings, challenging the children to compare their sizes. Although these exercises are in principle always the same, they encourage an elemental awareness of fractional arithmetic while instilling the purely visual competence to identify the inner dimensions of objects without the assistance of measuring using cubits or inches, thus enabling the comparison with other objects. Furthermore, this work on lines and their respective relationships prepares the children for their first contact with geometric shapes in two dimensions—in particular, the square, which, in addition to the study of lines, forms the very center of Pestalozzi's teachings on form. This is because squares not only consist of all the previously mentioned shapes (lines, parallels, corners), but they also contain further shapes such as triangles, circles, and arches. Pestalozzi therefore demanded a thorough graphical study of these elementary forms and forbade any aid in the form of rulers or compasses. Through this study, the children should obtain "perfection in the imitation of these squares and their lines as well as their divisions through continuous repetition"<sup>18</sup> and are not permitted to draw anything else until they are able to master their precise reproduction.

16 "1) Die Kinder zu lehren, jeden Gegenstand, der ihnen zum Bewußtseyn gebracht ist, als Einheit, d.i. von denen gesondert, mit denen er verbunden scheint, ins Aug zu fassen. 2) Sie die Form eines jeden Gegenstandes, d.i. sein Maass und sein Verhältniss, kennen zu lehren. 3) Sie, so früh als möglich, mit dem ganzen Umfange der Worte und Namen aller von ihnen erkannten Gegenstände bekannt zu machen." Ibid., 133.

17 Johann H. Pestalozzi, *ABC der Anschauung oder Anschauungs-Lehre der Maßverhältnisse* (Zurich and Bern: Hermann Geßner, 1803), vol. 2, V: "Maßverhältnisse."

18 Pestalozzi, *ABC*, vol. 1, IX.



2 Lines, in Johann H. Pestalozzi, *ABC der Anschauung oder Anschauungs-Lehre der Maßverhältnisse*, 1803.

As such, the attempt is also made here at the very beginning to teach the students the characteristics of basic forms and to enable them to speak precisely about the mathematical proportions of the figure at hand. Exercises such as these fill almost 150 pages of the *ABC der Anschauung*. The children should carry out the same exercises again and again using lines and squares until their ability to visually abstract and their sense of proportion are completely trained. In Pestalozzi's eyes, only then were the students ready to successfully observe objects in their natural surroundings. The children's gaze would have been trained by all of these exercises to be able to see past the often chaotic plurality of objects and therefore reduce their properties to their basic forms and proportions in order to extract their essential characteristics.



### The Form Within

However, while this method is undoubtedly to be admired for all the proposed educational advantages it provides, it is hard to come to any other conclusion than that these lessons of visual education must have been painfully boring. In fact, many later critics complained at length about the pedantry of Pestalozzi and his concept of *Anschauungsunterricht*, in which his pupils sometimes didn't do much more than to describe a hole in the wall for several hours.<sup>19</sup> Nevertheless, his didactic approach was very popular in Germany in the early nineteenth century for many reasons. First of all, the cultural background of the time gave rise to the popular belief that the German educational system should be reformed after the demoralizing occupation at the hands of the French in order to rebuild a society that could someday return to its former glory. Pestalozzi was the only one who offered a method sufficient for this purpose.<sup>20</sup> The second reason for the popularity of Pestalozzi's approach was the commentary of Johann Friedrich Herbart, who shared Pestalozzi's interest in training the formal-analytic eye of his students and in developing a "real, determined, undistracted, sharply focused way of seeing,"<sup>21</sup> which the psychologist believed to be the primary condition for the development of strong mnemonic associations. Due to these factors, Pestalozzi's visual technique of geometric abstraction—publicized as the most effective learning method—was able to gain more and more ground in many parts of the German school system.

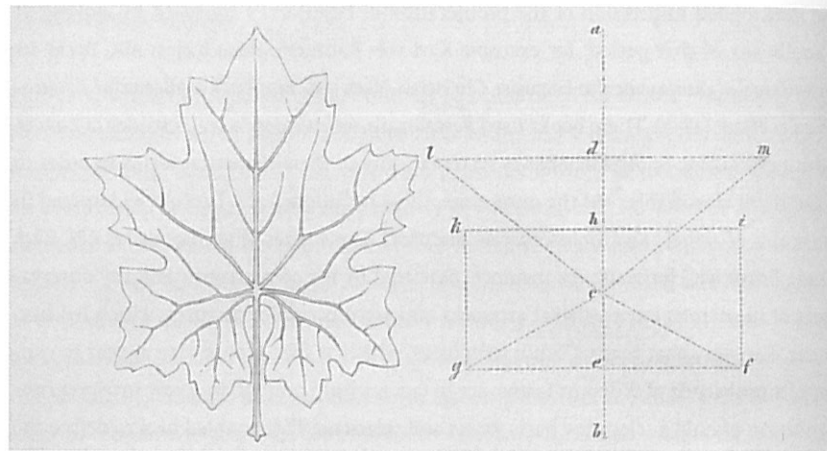
Paradoxically enough, the clearest evidence for the success of the *Anschauungslehre* can be found in the restoration decrees enacted by the secretary for Prussian primary schools, Anton W. F. Stiehl, in 1854, which eliminated the *Anschauungsunterricht* as an independent subject from the schools of the kingdom since exercises in visual abstraction were practiced in most of the school subjects at that time anyway. In addition,

- 19 R. Friemel, "Der Anschauungsunterricht im Lichte neuzeitlicher Anforderungen," *Pädagogisches Magazin* 517 (1913): 1–29, 9.
- 20 See also Rebekka Horlacher, "'Methode' als Zauberwort für Schulentwicklung. Die Wahrnehmung Pestalozzis im philosophischen, schulpädagogischen und bildungspolitischen Diskurs des beginnenden 19. Jahrhunderts, aufgearbeitet anhand dreier ausgewählter Beispiele," *Paedagogica Historica* 42, no. 6 (2006): 751–68; on German educational history and Germany's school system during that era in general, see Hans-Georg Herrlitz, *Deutsche Schulgeschichte von 1800 bis zur Gegenwart. Eine Einführung* (Weinheim and Munich: Juventa, 2009), ch. 3; Karl-Ernst Jeismann and Peter Lundgreen, eds., *Handbuch der deutschen Bildungsgeschichte*, vol. 3 (Munich: Beck, 1987).
- 21 Johann F. Herbart, *Pestalozzi's Idee eines ABC der Anschauung als ein Cyklus von Vorübungen im Auffassen der Gestalten* (Göttingen: Johann F. Röwer, 1806), 10.  
On Herbart's mathematic psychology: Stefan Rieger, "Johann Friedrich Herbart's mathematische Differenzierung des Menschen," *Herbart's Kultursystem. Perspektiven der Transdisziplinarität im 19. Jahrhunderts*, ed. Andreas Hoeschen (Würzburg: Königshausen & Neumann, 2001), p. 187–201.

one gets a good impression of the proliferation of Pestalozzi's approach by looking at schoolbooks of that period, for example Karl von Raumer's *Versuch eines ABC Buchs der Kristallkunde* (1820/21) or the botanist Christian Nees von Esenbeck's *Allgemeine Formenlehre der Natur* (1852). These books used Pestalozzi's techniques to teach students how to reduce crystalline or organic objects systematically to their elemental forms in order to make them classifiable.<sup>22</sup> At the same time, these techniques also became widespread in the realm of artistic and architectural education. The author of the *Gothisches ABC Buch* (1840), Friedrich Hoffstadt, for instance, practiced by his own account lengthy observations of numerous late medieval artworks and architectural structures, which led him to the discovery that many Gothic structures, which at first glance may appear to consist of a multitude of different forms, are in fact nothing more than a very intricate configuration of only a select few basic forms and relations. This enabled him to define the quintessential essence of Gothic style, leading to the reawakening of its inner workings through the nineteenth century neo-Gothic period.<sup>23</sup>

But by far the most powerful force for the stimulation of formal-analytic education was the literature on drawing, which accompanied the ongoing introduction of drawing as a subject in the German school systems of the nineteenth century.<sup>24</sup> Many of the drawing manuals published in Germany in that period depended primarily on Pestalozzi's didactic approach, that is to say they no longer tended toward an artistic representation of reality, but rather toward the development of hand-eye coordination and the education of the pupil's power of visual abstraction.<sup>25</sup> An early protagonist of such a doctrine of drawing was Johannes Ramsauer, who published several exercises on

- 22 Both teachers refer to Pestalozzi's doctrine of *Anschauung*: Pestalozzi's influence on von Raumer is implied in the title of his educational book. Nees von Esenbeck refers in the preface of his publication to the educational methods at the philanthropic institutions and especially to the attempt of a "vernünftig-anschaulichen Erweckung," practiced in the kindergarten run by Friedrich Fröbel, one of Pestalozzi's most important students (XII).
- 23 Friedrich Hoffstadt, *Gothisches A.B.C. Buch. Das ist: Grundregeln des gothischen Styls für Künstler und Werkleute* (Frankfurt/Main: Schmerber, 1840), pt. 1, preface.
- 24 On the subject of drawing education and the drawing manuals of the nineteenth century, see Maria Heilmann et al., eds., *Punkt, Punkt, Komma, Strich. Zeichenbücher in Europa ca. 1525–1925*, exhibition catalog, April 24 to June 29, 2014, Zentralinstitut für Kunstgeschichte, Munich (Passau: Klinger, 2014); Helene Skladny, *Ästhetische Bildung und Erziehung in der Schule. Eine ideengeschichtliche Untersuchung von Pestalozzi bis zur Kunsterziehungsbewegung* (Munich: Kopaed, 2012); Wolfgang Legler, *Einführung in die Geschichte des Zeichen- und Kunstunterrichts von der Renaissance bis zum Ende des 20. Jahrhunderts* (Oberhausen: Athena, 2011); Clive Ashwin, *Drawing and Education in German-Speaking Europe 1800–1900*, (Ann Arbor: Umi Research Press, 1980); Wolfgang Kemp, "... einen wahrhaft bildenden Zeichenunterricht überall einzuführen." *Zeichnen und Zeichenunterricht der Laien 1500–1870* (Frankfurt/Main: Syndikat, 1979).
- 25 For several other examples of drawing manuals containing this pedagogic approach, see Tobias Teutenberg, "Freies Zeichnen," in Heilmann, Punkt, Punkt, Komma, Strich, 167–73.



3 Leaf, in Fedor Flinzer, *Lehrbuch des Zeichenunterrichts wissenschaftlich entwickelt und methodisch begründet*, 1896.

*Anschauungsunterricht*,<sup>26</sup> and whose *Zeichnungslehre* (1821) was designed in close imitation of Pestalozzi. Within this work, Ramsauer states right at the beginning that “the most important aspect of any elementary theory of drawing is that it provides the student with the basic form of nature,” because “to see correctly is a precondition to realizing beauty [...] and to representing it accurately.”<sup>27</sup> Through this systematic teaching of the formal-analytic gaze, Ramsauer saw the potential to develop a general sense of “harmony, ordinance, and beauty,” on the basis of which every human being could “embellish and create something of his own.”<sup>28</sup> This education of seeing remained popular among its advocates well into the beginning of the twentieth century. Publications such as Fedor Flinzer’s *Lehrbuch*, which ran through six editions, the last of which appeared in 1903, show the extent to which Pestalozzi’s theories held sway. “The first goal of drawing education,” states Flinzer in the preface, “is the development of the mental eye, to promote a visual perception, consciously enacted.” His book was used in every school in Saxony from the 1870s onward and dedicates extensive portions to teaching pupils to see “the elementary within every appearance”<sup>29</sup> (fig. 3), thus enabling them to create something new using a logical path.

26 Johannes Ramsauer, *Die Formen-, Maß- und Körperlehre, oder die Elemente der Geometrie* (Stuttgart and Tübingen: Cotta, 1826).

27 Johannes Ramsauer, *Zeichnungslehre* (Stuttgart and Tübingen: Cotta, 1821), vol. 1, I and 7.

28 Ibid., vol. 1, VI f.

29 Fedor Flinzer, *Lehrbuch des Zeichenunterrichts wissenschaftlich entwickelt und methodisch begründet* (Bielefeld and Leipzig: Belhagen and Klasing, 1896), V, 13.

### The Space of Antwerp

From this, we can understand that, during the nineteenth century at least, *Anschauung* was a very prevalent visual practice taught in various scenarios that aimed to enable “a precise perception of sensual objects, an easy overview, a fast and precise identification of the essential features of their totality [and] a definitive segmentation of their appearance.”<sup>30</sup> This rationalization of the world and its objects through seeing is very close to what Lorraine Daston and Peter Gallison teach about the techniques of observing that were developed and used in botany, anatomy, and zoology in the seventeenth and eighteenth centuries. As part of this practice, “astute observers”<sup>31</sup> systematically identified all the characteristics of their objects in order to define their structure. Given this strong tradition of scientific observation, the *Anschauungskunst* failed to make any major inroad into the world of science, but rather had its greatest impact on post-romantic art historiography—a discipline that had only begun to work on predominantly analyzing the visual qualities of objects from within in the early nineteenth century. Much documentation within the world of art history of this period acts as evidence for the influence exerted by the theory of *Anschauung* on the gaze of historians. To mention but one example, the German art historian Karl Schnaase describes in the eighth of his *Niederländische Briefe* (1834) his thoughts on his educational journey to the newly-unified Netherlands. The central subject of this text is the Brabantian late-Gothic-style *Onze-Lieve-Vrouwekathedraal* (Cathedral of Our Lady) in Antwerp, in particular its interior, which at the beginning of the nineteenth century had undergone substantial architectural changes (figs. 4 and 5).<sup>32</sup>

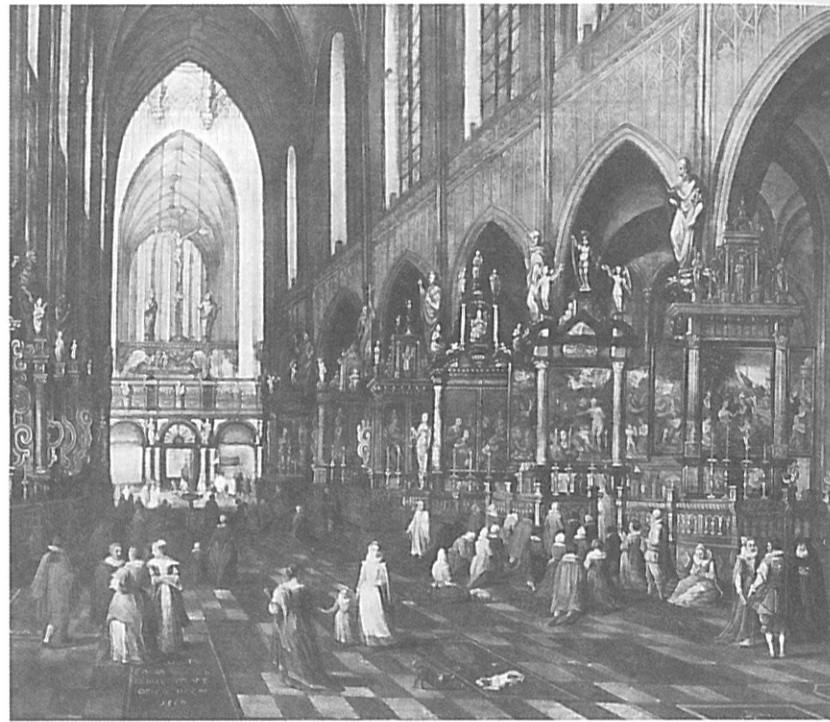
These changes came about for many reasons, including the occupation of the city by the French, who removed most of the circa forty high altars from their original positions. These had traditionally been donated and worshiped at by several brotherhoods and guilds of the city in the seventeenth and eighteenth centuries; however, during their removal by the occupying power of the time to the new *Musée central des arts* in Paris, much damage was caused—not only to the artworks themselves, but also to the cathedral from which they were plundered. Therefore, city architect Jan Blom had

30 Theodor Waitz, *Allgemeine Pädagogik* (Braunschweig: Friedrich Bieweg und Sohn, 1852), 93.

31 Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007), 69. See also Lorraine Daston and Elizabeth Lunbeck, eds., *Histories of Scientific Observation* (Chicago and London: University of Chicago Press, 2011).

32 See Madeleine Manderyck, “The Cathedral of Our Lady in Antwerp, a Gothic Interior? Recreating a Medieval Church Interior in the 19th and 20th Centuries,” in *From Quinten Metsijs to Peter Paul Rubens: Masterpieces from the Royal Museum Reunited in the Cathedral*, exhibition catalog, June 5 to November 15, 2009, Cathedral of Our Lady, Antwerp, eds. Ria Fabri und Nico van Hout (Antwerp: De Kathedraal VZW, 2009), 55–65.



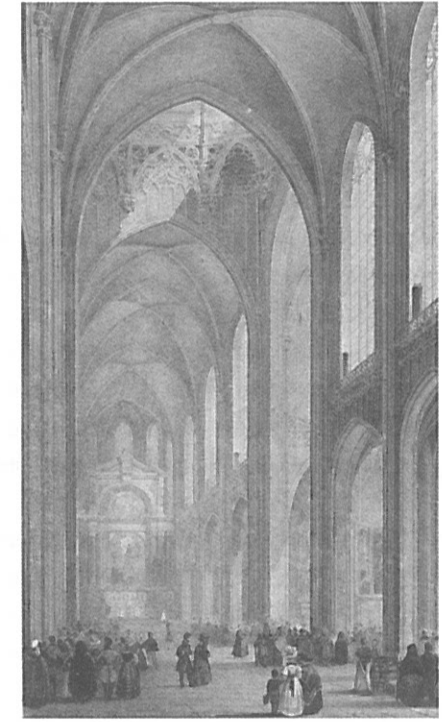


4 Interior View of the Antwerp Cathedral of Our Lady, ca. 1631.

to renovate the building in the first decades of the nineteenth century. In the course of this, many architectural elements, such as the massively destroyed pillars, were repaired, as was the paintwork on the walls, which was given a white coating. In the process, the multitude of different objects and forms, or what Michel Foucault refers to as the “intersection of places that constituted what could very roughly be called medieval space,”<sup>33</sup> was replaced by a neo-classical interpretation quite unique for this period. It was probably this uniqueness that inspired Schnaase to undertake a visual analysis of the interior of the building in the spring of 1830, more than seventeen years before any other architectural historian associated with *Einfühlungstheorie* (the theory of empathy) thought of doing so,<sup>34</sup> so much so that researchers sometimes attribute “the defining

<sup>33</sup> Michel Foucault, “Of Other Spaces, Heterotopias,” *Architecture, Mouvement, Continuité* 5 (1984): 46–49, 46.

<sup>34</sup> See Rainer Schützeichel, “Architecture as Bodily and Spatial Art: The Idea of *Einfühlung* in Early Theoretical Contributions by Heinrich Wölfflin and August Schmarsow,” *Architectural Theory Review* 18, no. 3 (2013): 292–309. For an overview of the tradition of space analyses in art historiography, see Wolfgang Kemp, *Architektur analysieren. Eine Einführung in acht Kapiteln* (Munich: Schirmer Mosel, 2009), ch. 3.



5 Interior View of the Antwerp Cathedral of Our Lady, ca. 1830.

of space as a feature of architecture” to Schnaase’s letter.<sup>35</sup> The originality of this action is reflected by Schnaase’s introductory text, which states that the biggest problem in dealing with architectural beauty lay in the fact that the prevailing belief of the time did not permit *mimesis* as a method of evaluation, unlike within the fields of painting or sculpture. Furthermore, in his opinion, many of his contemporaries were too willing either to fall back on emotional rhetoric by focusing on the dignity or beauty of the overall impression, or to focus fully on the individual elements without considering the collective whole. However, Schnaase tried to synthesize both approaches by emphasizing the bond between the individual architectural elements in order to understand the principles underlying the unity of the space within the cathedral. In doing so, one does not perceive only “the single parts or limbs of the architectural body, but beholds them

<sup>35</sup> Karl Schnaase, *Niederländische Briefe*, ed. Henrik Karge (Hildesheim et al.: Olms-Weidmann, 2010), XLIII; see also Paul Frankl, *The Gothic: Literary Sources and Interpretations through Eight Centuries* (Princeton: Princeton University Press, 1960).

separately as well, in order to comprehend their relevance and to determine their relation to the whole. Only then will one recognize that these elements are not just objects standing in relative proportion to each other, but are bodies that are related aesthetically and in a sense ethically."<sup>36</sup>

Schnaase tries in his architectural analysis to apply Kant's famous definition of the beauty of art, introduced in his *Kritik der Urteilkraft* (1791)—purposiveness without purpose—and to present the architectural space of the Cathedral of Our Lady as an autonomous being and therefore, by definition, beautiful.<sup>37</sup> In order to prove this hypothesis, the art historian uses exactly those visual practices Pestalozzi had already introduced, by taking a calm position in the center of the building, near the entrance, and adjusting his gaze in the direction of the choir to get an overall impression of the interior. In doing so, he observes not only the perspective along the midline and thus the elementary form of the cathedral, but also those vertical elements that work constantly to obstruct this sense of depth. This ultimately results in a power struggle, out of which a more beautiful sense of perspective emerges.<sup>38</sup> Following this initial observation, Schnaase undertakes what he describes as a "detailed analysis of the single forms and elements within the context of the building as a whole."<sup>39</sup> He begins his observation with the pillars, which, after individual inspection, he reduces down to nothing more than a row of dots, forming what he later describes as "a perfect mathematical line."<sup>40</sup> Moreover, the pillars serve an additional purpose, namely as corner points for rectangular surfaces both horizontally as well as vertically within the cathedral. In conjunction with the triangular ribs on the cross vaults, the "so-called space" of the cathedral is then finally seen in its totality:

The whole structure permits itself to be recognized as a connected whole [...] sitting not in peaceful perfection but rather in a constant process of evolution, where

<sup>36</sup> Schnaase, *Niederländische Briefe*, 190. In the subtext of his description, Schnaase constantly tries to compare the arrangement of the architectural elements of the cathedral with the organization of the moral state, which his teacher Hegel had theorized previously in the *Elements of the Philosophy of Right* (1820). Schnaase's reference to the "ethical relations" between the architectural elements foreshadows his interpretation of the interior, which he discusses later in further detail.

<sup>37</sup> Schnaase seems to react to the consistently negative evaluation of purpose-built architecture within the aesthetic systems of idealism. For a review of the most important philosophical positions, see Eberhard Drücke, "Maximilianstil". *Zum Stilbegriff der Architektur im 19. Jahrhundert* (Mittenwald: Mäander, 1981), 45–67.

<sup>38</sup> Schnaase, *Niederländische Briefe*, 193.

<sup>39</sup> *Ibid.*, 89f.

<sup>40</sup> *Ibid.*, 197.

individual elements constantly appear, disappear, and reappear, merging into an architectural whole.<sup>41</sup>

### Prospect: The Rhythm of the Gaze

When one considers the many possible ways of analyzing a particular architectural space, there is no need to argue whether or not Schnaase's method is sufficient. His letter is relevant purely from the perspective of visual-culture studies because his mode of observation is deeply related to those visual techniques that had been invented and proclaimed since the early nineteenth century. This certainly shows just how influential Pestalozzi and his successors were in the realm of teaching seeing in an analytic fashion during that period. This situation becomes even clearer when one bears in mind the way that architectural historians of the early twentieth century described buildings while heavily under the influence of Hermann von Helmholtz and Wilhelm Wundt's theories of observation—in particular the way that, for Helmholtz and Wundt, spatial looking appeared to be a product of successively acquired sequences of visual, motional, and tactile sensations, synthesized by consciousness. Kurt Gerstenberg's PhD thesis, *Deutsche Sondergotik* (German Special Gothic) (1913), is an excellent example: an attempt to reevaluate German architectural history of the fifteenth century and to free the late Gothic style from the notion of decline, which his colleagues Franz Kugler and Georg Dehio had previously ascribed to it. Furthermore, he was about to refute the disrespectful thesis of Émile Mâle: that German art of this epoch was nothing more than an imitation of the French and lacked the ability to create something on its own. Gerstenberg clearly didn't share this opinion. From his perspective, the German *Kunstwollen* (artistic will) in the fifteenth century had transformed French influences into a unique unity of style, characterized not by the creation of new forms but by the modification of the connection of forms, resulting in the invention of new "special Gothic" spaces. According to him, the hall church, the predominant type of sacred architecture in the German late Gothic, makes this very obvious, and in the church of St. Anne at Annaberg (1499–1520; fig. 6) this genuine Germanic *Kunstwollen* reached nothing less than its entelechy. In essence, there are two characteristic phenomena in "special Gothic" architecture, summed up by Gerstenberg under the untranslatable German term *Verschleifung*: the

<sup>41</sup> "Das Ganze gibt sich als in sich verbundener Körper zu erkennen [...] nicht in ruhiger Vollendung, sondern nur im beständigen Proceß der Ausbildung einzelner selbstständiger Theile und des Uebergehens derselben in das Ganze." *Ibid.*, p. 200.





6 Church of St. Anne at Annaberg, 1499–1520, in *Deutsche Sondergotik. Eine Untersuchung über das Wesen der deutschen Baukunst im späten Mittelalter*, 1913.

unification of architectural space by all-encompassing forms and the deceleration of the optical drive into depth and height by the manifold accentuation of the broadness and branching of ornamentation. Due to this, and in comparison to French cathedrals, Gerstenberg noticed a different evolvment of rhythm in the “special Gothic” churches:

If it was typically Gothic to drive expansion in regular bays right up to the choir, the German special Gothic gives the impression of an arhythmically advancing movement due to the rather loose attitude of the broadened travées.<sup>42</sup>

On the one hand, we have the hasty and unrelenting French rhythm of space; on the other hand, there is simultaneously a much slower, aimlessly waving pulse in these German buildings, an “elusive polyrhythm,”<sup>43</sup> which the art historian detects in the ramified ornaments of contemporary paintings, in the creases of late-Gothic sculptures, and in the trochaic tact of the German phonetic as well—everywhere the same

<sup>42</sup> “Wenn es der Charakter des gotischen Bewegungszuges war, daß er im selben Rhythmus der Schmaljoche vordrang bis in den Chor, so wird durch die gelöster Haltung der erweiterten Traveen in der Sondergotik der Eindruck einer ohne bestimmtes Ziel arhythmisch fortschreitenden Bewegung bedingt.” Kurt Gerstenberg, *Deutsche Sondergotik. Eine Untersuchung über das Wesen der deutschen Baukunst im späten Mittelalter* (Munich: Delphin, 1913), 26.

<sup>43</sup> Ibid., 105.

restrained “style of movement” that the art historian, like Wilhelm Wundt in his *Völkerpsychologie* (1900–1909), thought to be representative for the German way of thinking and feeling in general.

So what the examples of Schnaase and Gerstenberg tell us is that, as recognized before by Michael Baxandall, Jonathan Crary, and Whitney Davis, among others, different methods of seeing have been used throughout history, driven in large part by the cultural and epistemological background. Gerstenberg advocates the temporality of visual observation, as postulated by modern theories of observation, and to set both the observer and the inanimate object being observed in motion. By contrast, Schnaase follows Pestalozzi in his endeavors to hold the object of his eye still and to reduce it to its essential form and proportions. Within this article on the blossoming of interest in static and geometric-oriented techniques of seeing, I mainly tried to reconstruct the conditions for the latter phenomenon. By contrast, I am attempting within my PhD thesis to present a more in-depth history of seeing during the nineteenth and early twentieth centuries using source texts and images from the history of pedagogy, psychology, hygiene, art, and art history.