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‘...TO NOT ONLY TELL, BUT ALSO TO SHOW, TO SHOW PLENTY...’ THE MAGIC LANTERN AS A TEACHING TOOL IN ART HISTORY AROUND 1900

*‘... no solo para contar, sino también para mostrar, para mostrar mucho ...’
La linterna mágica como herramienta de enseñanza en la historia del arte
alrededor de 1900*

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ABSTRACT

The emergence of the magic lantern as a tool for art historical teaching in the second half of the nineteenth century occurs within a larger context of pedagogical reform efforts that promoted visual education. This contribution looks at the infrastructural prerequisites for the large-scale dissemination of magic lantern slides at the time, which made possible the introduction of art historical slides as teaching aids. Subsequently, it presents the larger context of pedagogical debates within the field of art education at the time in Germany, which were at the basis of reform initiatives. In the final part, this article looks at the performance practice of art historical lectures with projected images, and the way they transformed the relationship between the teacher, the artwork as object of the teacher’s discourse, and the students.

Key words: magic lantern, art history teaching, illustrated lecture, visual education.

RESUMEN

La emergencia de la linterna mágica como herramienta para la enseñanza de la Historia del Arte en la segunda mitad del siglo XIX se produjo en un contexto más amplio de profundas reformas pedagógicas que promovieron la educación visual. La presente contribución analiza los requisitos de las infraestructuras previas para la diseminación a gran escala de las placas de linterna mágica en este periodo, las cuales hicieron posible la introducción de las placas de historia del arte como material didáctico. Posteriormente, se presenta un contexto más amplio de los debates pedagógicos dentro del campo de la educación artística de este momento en Alemania, las cuales fueron las bases de las iniciativas de la reforma. Al final de este artículo se muestra la parte práctica en las clases de historia del arte, en conexión con las imágenes proyectadas, y la manera en que ellas transformaron la relación entre los profesores, la obra de arte como objeto del discurso de los maestros, y los estudiantes.

Palabras clave: linterna mágica, didáctica de la historia del arte, clases ilustradas, educación visual.

In their 1912 catalogue, the Dutch «Lichtbeeldenvereniging. Centraal Bureau voor lantaarnplaten» declared that «in all branches of teaching there is the need to not only tell, but also to show, to show plenty (...)» (Lichtbeeldenvereniging s.a, p. III)¹. The association offered their extensive collection of magic lantern slide series for public and private projections to their members all over the Netherlands. The sets listed in the catalogue covered a large array of domains and disciplines: geography, geology, history, social sciences, religion, medicine, hygiene, technology and applied sciences, natural history, and also art history. Many commercial and non-commercial distributors in Europe and North America proposed a similar repertoire, turning the magic lantern into a visual mass medium used not only for entertainment, but also to inform and to instruct. By the end of the nineteenth century, the projection of mass-produced still images had become a major didactic tool in most European countries and other parts of the world, and it continued to be used throughout the first half of the twentieth century in schools, universities and public lectures.

Art historians, too, adopted the medium in the last decades of the nineteenth century, and the slide projector became a central element in academic teaching for almost a century, until digital projection started to take over. Heinrich Dilly has described this process for Germany in a seminal article published already in 1975, and for Britain, Trevor Fawcett provided in 1983 a historical overview on visual aids used in art lectures, both texts being referred to regularly, also in more recent studies (Dilly 1975, 1995, 2002, Fawcett 1983). Although the use of the magic lantern in art historical teaching has not been the object of very many studies, it is not quite the case that slide projection is an «invisible medium» in art history, as Ingeborg Reichle (2005) claimed. Aside from Dilly, Fawcett and Reichle herself, several authors have addressed this phenomenon and discussed the role of projected reproductions of paintings in art historical knowledge transfer, as well as their impact on art historical arguments (Nelson 2000, Matyssek 2005, Hiller-Norouzi 2009, Despoix 2014). In our contribution, we would like to focus on three aspects that we think can deepen our understanding of the role of the lantern in the field of art history: first, we will briefly sketch the infrastructural conditions that made the introduction of slide projection in art historical teaching possible. Second, we will look at the broader field of education and pedagogy and the debates on new ways of teaching and learning, where visual aids played an important part. Third, we will look at the specific performative context and constellation of illustrated art historical lectures and how this shaped knowledge transfer.

But prior to this, a brief note on terminology. The term «magic lantern» is nowadays used rather generically in media history and media archaeology to designate a projection device that was conceived and developed in the seventeenth and eighteenth century for various purposes, from home entertainment provided by traveling showmen to scientific research, including phantasmagorias presented to both frighten and enlighten audiences in the aftermath of the French Revolution. In the course of the nineteenth century, more efficient and stronger light sources became available, slides were increasingly mass-produced, and with the possibility to project photographic images, the lantern had its heyday in the final decades of the nineteenth century (see Mannoni, 1994, p. 15-185, Brunetta 1997, p. 175-228, Crangle, Head & van Dooren 2005, Rossell 2008). At that time, however, the term «magic lantern» was rejected by at least part of the practitioners, because it evoked connotations of the supernatural, and other names were used to designate the device. In the United States, «stereopticon» seems to have been the most common one, in Britain «optical lantern»². In France one can find «appareil de projection» or «lanterne de projection». Many contemporary German sources use «Skiopticon» (also spelled

¹ All translations from non-English sources are ours.

² See Charles Musser’s observations based on a word search sample analysis in Musser 2016, p. 52-79.

«Skioptikon», in English language texts «sciopticon»). All these devices are based on the same projection technology, and these names do not refer to fundamental differences, but rather to commercial or ideological choices. In our text we will continue to use «magic lantern» or simply «lantern».

1. EDUCATION AND THE PROJECTED IMAGE: INFRASTRUCTURES

The Dutch Lichtbeeldenvereniging, similar to institutions in other countries, engaged in knowledge dissemination by distributing positive glass-plates (slides) for projection. The «Vereniging tot het houden van Voordrachten met Lichtbeelden» (association for lectures with projected images) had started 18 years earlier to «send their lantern slides all around the country» (Lichtbeeldenvereniging, s.a., p. III). Their aim was to acquaint the Dutch with «foreign countries and nations; the life of the past as it manifests itself in art, home and clothing» and to give an overview of «(...) industries, technical works and applied social sciences; of farming and horticulture, of architecture, astronomy; of live and development of animals and plants; of the history of culture in the broadest sense of the word» (Lichtbeeldenvereniging s. a., p. III).

The Lichtbeeldenvereniging's focus lay on teaching, which links their aims and intentions to their potential clients: schools, advanced technical colleges, universities, teacher's associations and other learned circles³. The association had plenty to show: the catalogue published around 1911-1912 offered 10 sections of which section C «Kunst» (art) comprised 22 series of 9 to 167 slides.

What the catalogue listed was not essentially different from other distributors and producers of slides in Germany (e.g. Ed. Liesegang, Carl Simon & Co., Projection für Alle, Unger & Hoffmann A.G.), the United Kingdom (e.g. Newton & Co., E.G. Wood, Young & Son) or France (e.g. Clément & Co., A. Molteni, E. Mazo), respectively rental organisations such as the Lichtbilderei M.-Gladbach (München-Gladbach) and Maison de la Bonne Presse (Paris), the latter two being both associated with the Catholic Church. Their choices reflected what was popular with their clients for entertainment (e.g. popular stories), in schools (subjects belonging to the curriculum) or universities (e.g. microbiology and -zoology, anatomy), in scientific, artistic or religious circles and organisations (e.g. astronomy, Greek statues, biblical subjects) as well as guilds and professional associations (e.g. agriculture, electricity, coal mining). Production companies in many cases acquired material from photographers and mass-reproduced them as slides. Some photographic studios specialised in reproducing artworks and traded with museums and other collecting institutions, among which Dr. Franz Stoedtner, Institut für wissenschaftliche Projektionsphotographie in Berlin, Braun & Co. in Mulhouse, Radiguet et Massiot (formerly Molteni) in Paris, Seemann in Leipzig or Fratelli Allinari, Istituto di Edizioni Artistiche, in Florence. In most cases, it is not possible to identify the actual creator of a slide, as names of photographers are rarely given in distribution catalogues. The only authors that are named sometimes are those of lantern readings. The Lichtbeeldenvereniging offered for instance a lecture written by the well-known architect H. P. Berlage with their set on Dutch architecture (Lichtbeeldenvereniging s. a., p. 63). This might indicate a higher status of the scholarly discourse, but could also result from an attitude that did not grant authorship to commercial or professional photography, as Gisèle Freund (1980, p. 51) called this kind of activity.

The choice of photography as a reproduction medium was closely connected with the «objectivity» ascribed to it. The emergence of daguerreotypes had made it possible to faithfully record architect-

³ Such as the Geologisch Instituut of Amsterdam University that once owned the copy of the catalogue that we consulted, available at the Magic Lantern Section of the Media History Digital Library. The list of members of the Lichtbeeldenvereniging's advisory board indicates the types of institutions that the association catered to. See Lichtbeeldenvereniging, s. a., p. IV.

ture, and John Ruskin famously declared that he preferred a photograph of a Venetian palace to a Canaletto painting of the same building (Gernsheim, 1986, p. 36). As Gisèle Freund (1980, p. 96) relates, in 1860 André Adolphe Eugène Disderi proposed to the French government to photograph the paintings in the Louvre, and in 1862, the French photographer Adolphe Braun started to systematically reproduce drawings owned by museums in England, France, Germany, Italy, Spain and Switzerland which he then edited⁴. The large-scale photographic reproduction of artworks in museums, a pre-condition for their distribution on a slide, was possible once the technical requirements were created and accessible for mass-production: the dry glass plate process with its higher sensitivity than the wet plate, or collodion on glass process was widely available from about 1879/80 (Stenger 1938, p. 35, 43-44). A sensitive emulsion for the entire spectrum of colours (panchromatic emulsion) for black and white photography became available in 1906 (Gernsheim, 1986, p. 27). Electricity as a strong and steady artificial light source became more common since the early 1880s (Stenger, 1938, p. 75). Mass-produced slides were mostly distributed on a glass-format of 8,5 x 10cm, corresponding in size to the daguerreotype quarter plate. Another source for slides were illustrations in books, even though these were of a lesser quality, being reproductions of reproductions⁵. These are frequently found in extant collections in art historical institutions, sometimes produced in-house (Napp, 2017, 24).

As for the users (not necessarily identical with the clients, i. e. the institutions buying the slides), it is not easy to identify them individually. Scientific institutions and university departments bought slide sets for their teaching staff. In surviving collections such as the one at Université de Lausanne, one can observe that slides often carry more than one number on the frame, which indicates that different lecturers used them, or one and the same person for different lectures. It seems that often teachers, using slides acquired or commissioned by their institution extensively, considered them ‘their own’. Nathalie Blancardi (2015, p. 46, 49) mentions the Swiss Aloys de Molin (user), professor at Université de Lausanne, who kept the collection at his home. In 1905, he was asked to return the slides to the doyen or the librarian of the faculty as they belonged to the university and the Société académique vaudoise (client), but did not do so. After his death in 1914 it turned out that he had mixed them up with his own. Blancardi states that once they were back at the university, one of his colleagues «was eager to take them to his own home (...)» (Blancardi, 2015, p. 49).

A point needing further exploration concerns the question whether the demands formulated by the clients and users shaped the offer in the distribution catalogues, or whether the offer determined art historical teaching practice. The Lichtbeeldenvereeniging seems to have followed the canon: clients could rent slides sets on Michelangelo, Rembrandt, seventeenth century Dutch art and representations of the Madonna by various artists. For some of them, lecture readings were provided (Lichtbeeldenvereeniging s. a., p. 63-88). Mazo, a French distributor, equally proposed series with lectures, among others on the Louvre masterpieces (Mazo, 1912/13).

Conversely, Liesegang offered a much broader range of artists in their catalogue, listing about 150 names and for some of them a considerable number of paintings. They distributed slides produced by specialised firms such as Braun, Clément & Co. The oeuvres of several painters such as Dürer, van Dyck, Hals, Murillo, Rembrandt, Rubens, Tizian or Velazquez were represented by several dozens, sometimes more than a hundred slides (Liesegang, 1907). Clients could acquire entire corpora or select individual works for their collections, which the users then recombined according to their needs.

⁴ The firm later became Braun, Clément & Co., a major producer and seller of slides made from artworks, distributed in Germany by Ed. Liesegang. See Napp 2017, p. 20.

⁵ The Lichtbeeldenvereeniging did offer series for which it is stated that they are taken from a book. See Lichtbeeldenvereeniging s. a., p. 80.

Some art historical institutes ordered or even commissioned slides directly from specialised firms (Blancardi, 2015, p. 48, Napp, 2017, p. 25-26). Further ways of acquiring material were donations, or swapping doublets with other institutes. The art historian Herman Grimm, who pioneered the use of the lantern in his lectures in Munich, declared that the sciopticon enabled him to show his audience a better selection of Dürer’s works than the collections of museums in Munich and Berlin combined (Grimm, 1897, p. 339).

Consequently, the relation between offer and demand was a complex one. Nathalie Blancardi studied the course programmes of Université de Lausanne and the specialisms of the teaching staff. This helped her analyse the collection, attribute parts of it to specific classes and thus identify possible periods of their acquisition, which was largely demand-driven. Lecturers outside academia may have rather made use of slide sets and readings offered by rental organisations such as Lichtbeeldenvereniging or commercial companies such as Mazo. It is difficult to say how frequently such lectures for a general audience were given, but they certainly occurred regularly from the mid-1890s onward⁶.

When the lantern started to be used in art historical knowledge transfer both inside and outside academia, this happened within a broader context of pedagogical reform efforts, which were theorised and discussed particularly in Germany, where the *Kunsterziehungsbewegung* promoted new ways of teaching art in schools, universities and to the general public, the ‘people’ (*Volk*). This context, we argue, has also to be considered when exploring the role of the magic lantern as an art historical teaching tool.

2. THE LANTERN AND THE PEDAGOGICAL REFORM EFFORTS: LEARNING TO DISCERN AND APPRECIATE BEAUTY

The large-scale availability of photographic reproductions and the ‘truthfulness’ ascribed to the medium in combination with the possibility to project the images provided the technological basis for a generalised use of photography as a visual aid in education (Stenger, 1938, p. 73, 107, 177). As for theoretical and conceptual influences on the *Kunsterziehungsbewegung*, the British Arts and Craft Movement with its combination of cultural and social criticism was undoubtedly an important source (Beckers & Richter 1979, p. 250-251). John Ruskin’s attacks on the division of labour and mass-produced goods, his call for a ‘(...) determined sacrifice of such convenience, or beauty, or cheapness as is to be got only by a degradation of the workman and equally determined demand for the products of healthy and ennobling labour’ (Ruskin 1886, p. 165) inspired some of the *Kunsterziehungsbewegung*’s intellectual leaders such as Justus Brinkmanns, founder of the *Hamburger Kunstgewerbemuseum*, and his disciple, Alfred Lichtwark, founder of the *Kunsthalle Hamburg* and one of the first to use the optical lantern to teach art (Beckers & Richter 1979, p. 251). Hamburg, the second city in Germany at the time, became one of the centres of the movement, which not only promoted aesthetic education in the fine arts, but also in literature, music and sports, topics that were discussed during three ‘*Kunsterziehungstage*’ in Dresden (1901), Weimar (1903) and Hamburg (1905), where the re-

⁶ A preliminary search in July 2017 on Delpher, a website making available digitised Dutch newspapers, produced 380 hits for the search terms ‘*lichtbeelden*’ plus ‘*kunst*’ for the period 1900-1920, the majority between 1910 and 1920. This suggests that such lectures were quite common and increasingly announced, advertised or reviewed in newspapers. However, there were other ways of advertising, e. g. handbills, posters etc. Looking at selected newspapers in BelgicaPress, a website of the Koninklijke Bibliotheek in Brussels, Kristien Van Damme and Heleen Haest traced 45 lectures on art and architecture in Belgium for the period 1893-1914 in their self-built lantern-database. In both countries, most lectures concerned canonical artists such as Michelangelo, Rembrandt or Rubens, but some were also on modern art.

formers exchanged ideas. The papers and discussion minutes reflect the state of the art of the movement's conceptions.

In Dresden, principles of aesthetic education for the entire population, including teachers themselves, were presented. The reformers wanted to open especially the ‘eyes and hearts of the young for true, healthy, German art’ (without neglecting the Greek, Roman, Italian or Flemish classics), to awake the children’s «sense of beauty» and form their taste by confronting them from their earliest age with carefully chosen art objects, as a teacher named R. Ross explained in a contribution on how a nursery should be arranged (Anonymous, 1902, p. 66-75). Influenced by anti-intellectuals such as Paul de Lagarde, and above all August Julius Langbehn's widely read book from 1890 *Rembrandt als Erzieher* (Von den Driesche & Esterhues, 1925, p. 407-409, 413), the reformers opposed teaching art history at school as too systematic, theoretical and conceptual; pupils were to learn how to feel, and thus to sense what the artist wanted to express («dem Künstler nachempfinden»). This experiential principle formed one focus of the reform, as German art theorist Konrad Lange proclaimed, asking to educate the child's «capacity to aesthetically enjoy» («Erziehung des Kindes zur ästhetischen Genußfähigkeit») (Lange in Anonymous, 1902, p. 34, see also Lange 1893).

To achieve this, children had to be educated to see, as the eye was considered an organ that was trained less than the ear. Lange wanted pupils to contemplate and intuit an artwork, not to think and even less “babble» about it (Lange in Anonymous 1902, p. 29). Training the eye was the second central idea. The influence of Lichtwark's educational programme at the Kunsthalle in Hamburg transpires in book titles such as *Wie ich mit meinen Jungens Kunstwerke betrachte* (W. Geisel, 1904), *Durch Kunst zum Sehen* (Lothar von Kunowski, 1901) or *Erziehung des Auges. Erziehung zur Kunst* (Albert Mollberg, 1905) all of which are concerned with exposing pupils to works of art so that they exercise their aesthetic faculties.

The Volksschullehrer (elementary teachers) were considered most apt to achieve this goal (Anonymous 1902, p. 17, 23). They taught the largest group of pupils, as compulsory schooling made it mandatory for every child to attend at least elementary school. Besides, Volksschullehrer were more open to new didactic methods than teachers from other school forms. In Hamburg, numerous pedagogues were trained in studying pictures, when Lichtwark introduced «Werkbetrachtung»-courses at the Kunsthalle in 1888 (Praechauer 1925, p. 15-18) These activities were probably the nucleus stimulating teachers in Hamburg to form an association to foster art education in 1896, the «Lehrervereinigung zur Pflege und künstlerischen Bildung in der Schule» (Reble 1980, p. 282, Scheibe 1971, p. 147). Later, Hamburg teachers were also at the forefront of promoting a cinema reform to safeguard the educational value of moving pictures (Kessler & Lenk, 2014). When the First World War started, Hamburg had become avant-garde in questions of art education and aesthetics.

Given these goals, the optical lantern appeared to be a perfect tool. It brought the artworks into the schools, the pupils did not have to be taken to a museum. Lichtwark had already used the lantern for his lectures, and the Dürerbund, founded by another reform protagonist, Ferdinand Avenarius, not only disseminated reform ideas thanks to its activities and its journal *Der Kunstwart*, but in 1907 also started to produce slides (Kratsch, 1969, p. 349). These could be acquired by Dürerbund members only, but commercial companies such as Liesegang supplied teachers with reproductions of artworks on an even larger scale. The 1907 supplement to their main catalogue alone listed more than 1600 slides (Liesegang, 1907). Liesegang must have been aware of the reformers' efforts, as in their 1911 catalogue's foreword, a certain Dr. Howe, used the same vocabulary, pronouncing ideas such as «art must be felt» or «youth [...] must see with its own eyes, not with those of others» (Liesegang 1911, p. 3). The company even proposed a formula for schools with a small budget, offering a selec-

tion of 200 slides presenting «only the absolutely necessary and (...) indispensable» for 160 Mark (Liesegang, 1911, p. 4).

Some art teachers were bothered by the photographic reproductions’ lack of colour and therefore considered them «just an auxiliary device in a time of transition» (Anonymous, 1902, p. 99). But in their majority, they accepted that slides were the result of «mechanical» photography, of a copying process incapable of originality, otherwise so important to them⁷. In the proceedings of the first *Kunsterziehungstag* attended by about 250 participants (Anonymous 1902, p. 8), no criticism can be found of slides, except for their lacking colour. Lichtwark, however, noted: «Photographs are only to be used for lectures and classes on art history, not for the exercise of contemplating artworks» (Lichtwark in Anonymous, 1902, p. 187). This is an important distinction: art education, aiming at enhancing the pupils’ aesthetic sensibility, required the contact with the original, while the scholarly discipline of art history could be taught largely through photographs.

Projection as a means of teaching art was hardly mentioned at all in Dresden, except by von Seidlitz and Lange. The latter declared: «In highly frequented lectures, demonstrations are to be held with a sciopticon or epidiascope. Each art historical institute should therefore own such an instrument» (Lange in Anonymous, 1902, p. 215. Had using slides become so common that the participants no longer felt it necessary to discuss them? Historian of photography Erich Stenger stated that from 1871 German schools used the optical lantern as a teaching tool⁸. An 1884 obituary in the journal *Laterna magica* for a former director of the *Realschule* in Cologne ran: «Dr. H. Schellen (...) was fond of visual instruction, and we owe it to him that projections are practised in many secondary modern schools»⁹. Had the reformers succeeded after 15 years to overcome the «old-fogyish ways of teaching art» as Lange claimed (Lange in Anonymous, 1902, p. 30)? Were slide projections part and parcel of progressive art education around 1900? To answer this question satisfactorily, more research is needed.

3. THE ART HISTORICAL LECTURE AS PERFORMANCE PRACTICE

In series such as «Michelangelo’s kunst en karakter», distributed by the *Lichtbeeldenvereniging* with a lantern reading written by P. H. Hugenholtz¹⁰, one can presume that the slides mainly served to illustrate the lecturer’s discourse. The lecturer did not have to be an expert on the subject, as he or she could rely on the text provided by the distributor. This could occur in certain types of educational public presentations addressing a general audience. In other lectures, in particular when an art historian wanted to demonstrate a point, the role of the pictures could be different. Rather than illustrate a

⁷ «Geist nur erzeuget den Geist!» (only the mind generates spirit) from the poem «Kunst und Daguerrotyp» by the Swiss poet C. Pestalozzi expressed the reformers’ attitude preferring the artist to the photograph(er). See also other testimonies from 1838 to 1900 in Stenger 1938, p. 207-214, the Pestalozzi quote is on p. 210. Yet, the reformers accepted the photographic reproduction of artworks practised by many museums, publishers and their own journal *Der Kunstwart*, which sold inexpensive photographic reproductions in ‘portfolios’ (*Kunstwart-Mappen*). Apparently, the advantages outweighed photography’s shortcomings: the «(...) strength of photography laying in the absolute truth and correctness of the reproduction. No human eye can see as sharply, no artist’s hand can draw as securely as the photographic apparatus», as the painter Konrad Dielitz declared. See Stenger 1938, p. 213.

⁸ Stenger 1938, 195.

⁹ Section ‘Mosaik’, in *Laterna magica. Vierteljahresschrift für alle Zweige der Projections-Kunst*, 24 (1884), p. 64. The journal regularly presented examples for this teaching method.

¹⁰ Hugenholtz gave this slide lecture himself, see *Algemeen Handelsblad*, 19 January 1898. He probably used the series on representations of the Madonna distributed by the *Lichtbeeldenvereniging* in another lecture. See *De Graafschap-bode*, 11 November 1905.

statement, they served to argue a point, demonstrate a hypothesis, or even provide proof for a theory. The communicational intention, accordingly, determined the status of the visual material with respect to the discourse a lecturer aimed to proffer.

Pictures and discourse, however, were not the only elements in an illustrated art historical lecture. Robert Nelson speaks of a «(...) performative triangle consisting of speaker, audience, and image» (Nelson, 2000, p. 415). While these are undoubtedly central aspects of such a lecture, one should add the way the medium shapes the speaker’s discourse, the projection apparatus and its affordances, as well as the relation between the screen or projection surface and the speaker, the audience and the lantern, i. e. the general set-up. The performative context is indeed rather complex, as we shall try to demonstrate by looking at its various aspects. An important source is Herman Grimm, who in the early 1890s not only pioneered the use of slide projections in his lectures, but also wrote extensively about this experience and the medium’s impact on his teaching (Dilly, 1975, 1995). He published in 1892 two reports in the *Nationalzeitung* and later included an extended version of his reflections on «Die Umgestaltung der Universitätsvorlesungen über Neuere Kunstgeschichte durch die Anwendung des Skioptikons» in a collection of essays (Grimm, 1897, p. 276-395).

3.1. The Impact on the Lecture

Grimm listed several advantages of using projected slides to illustrate his lectures: on the practical side, the sciopticon allowed him to show a large number of views in a short period of time to an audience of more than a hundred students, who all could see them equally well, whereas passing around illustrations would have limited his audience to no more than 20 students and would have taken much more time (Grimm, 1897, p. 284-285). More importantly, he explained how the sciopticon transformed the didactic concept of his lecture series on Raphael. In the past, he declared, his teaching had been mainly based on existing literature and the controversies around certain aspects of Raphael’s life and work. The goal was to prepare the students for an encounter with the actual paintings, and to enable them to position themselves with regard to the controversies. Thanks to the lantern, he now could begin his lecture series by confronting his audience directly with one of Raphael’s masterpieces and let it speak for itself, adding only some explanations (Grimm, 1897, p. 309-317). For Grimm, in other words, the projected image introduced the contemplation of artworks into art historical teaching, while for Lichtwark contemplation was only possible when looking at an original.

3.2. The Projection Device and Its Affordances

Grimm much appreciated the possibility to project a series of images successively and thus show, for instance, a sculpture from different angles and in different settings, or demonstrate an artist’s development (Grimm, 1897, p. 282-286). It now became also possible to document an artwork’s condition before and after restoration (Grimm, 1897, p. 289). Maybe more importantly, projection allowed to show two paintings simultaneously by putting two reproductions on one slide (Grimm, 1897, p. 282), a practice that Bruno Meyer had introduced about a decade earlier already to allow a comparative approach (Dilly, 1995)¹¹. Dilly (1995, p. 41) argues that an art historical method such as *vergleichendes Sehen* (comparative viewing) would not have been possible without slide projection.

As for Grimm, most of all and rather than perceiving it as a problem, he valued the fact that projection enlarged the artworks, while earlier reproductions, including photographs had generally been

¹¹ Another possibility was to use two projectors. The art historian Adolph Goldschmidt, teaching at the university of Halle, claimed in his memoirs that he had commissioned a sciopticon capable to project two slides side by side and change them independently. On Goldschmidt see Nelson 2000, p. 429-430.

considerably smaller than the originals. Not only did this allow to study details of a painting (which was important for comparative approaches), according to Grimm, enlargement actually revealed the work’s true artistic value. He saw projection as something of a litmus test, because, as he claimed, the original could give a wrong impression of its «interior value» when external factors made it appear «(...) more important than it is: the sciopticon does not admit this. Only artworks of the highest rank pass this test» (Grimm, 1897, p. 282).

3.3. The Projected Image

Obviously, a slide projected on the wall of a lecture hall or a screen could not be mistaken for an original. Yet, as Grimm proclaimed: «We are overcome with the feeling that we are in the presence of a great work of art» (Grimm, 1897, p. 315). According to Nelson, this is anything but uncommon in slide lectures, even today: «The projected image is thus less a sign and more a simulacrum of the art object, an entity that in some way is that object itself (...)» (Nelson, 2000, p. 418). Nelson observes that lecturers habitually address the projected image as being «the artwork», and Grimm’s remark shows that this was the case from very early on.

This appears all the more astonishing given that the photographic reproductions were in black and white. When projected, the works not only lacked their original dimensions and material texture, but also colour. This, however, as Anke Napp (2017, p. 14) observes, applied to all the other types of reproductions that art historians were used to work with at that time. Which may explain why Grimm never mentions colourlessness. Dilly (1995, p. 41) even argues that Wölfflin’s system of binary concepts reflected the absence of colour in photographic slides, as colour remained unaddressed. As Napp explains, the existing colourisation techniques at the time were largely inadequate and rather connoted popular imagery. However, the French company Mazo (1912/13, p. 212-218) did offer reproductions of paintings, among others from the Louvre, obtained by a photographic trichrome process. However, it is possible that these were rather used by lecturers outside academia.

In other words, the focus on formal and compositional aspects, as well as the possibility to study details, which became dominant in art history at that time, were facilitated by the specific qualities of the projected image. This in turn had methodological consequences, in particular when the reproduction was seen as the «object itself», which verified, as it were, by its very presence the art historian’s discourse.

3.4. The Speaker’s Position

In traditional illustrated lectures, the lecturer would stand next to the screen, often with a pointer, while an assistant was in charge of the projection (Vogl-Bienek, 2016, p. 39-43). This set-up may have been dominant in most public lectures on art, especially if the speakers used the lantern readings provided by the distributor. Hermann Häfker, who was part of the German cinema reform movement and organised screenings combining the projection of slides and films, preferred using a half-transparent screen allowing rear-projection, so that the apparatus was not visible to the audience, to enhance the immersive effect of the images. In a university lecture hall, the projection would of course depend on the local circumstances. An eye-witness account of Wölfflin’s lectures by one of his students, Franz Landsberger, merits to be quoted extensively:

Wölfflin, the master of extemporaneous speaking, places himself in the dark and together with his students at their side. His eyes like theirs are directed at the picture. He thus unites all concerned

and becomes the ideal beholder, his words distilling the experiences common to everyone. Wölfflin considers the work in silence (...) waiting for the art to speak to him. (...) Wölfflin's speech never gives the impression of being prepared, something completed that is projected onto the artwork. Rather it seems to be produced on the spot by the picture itself. The work thus retains its preeminent status throughout. His words do not overwhelm the art but embellish it like pearls (Landsberger, 1924, p. 93-94).

This description suggests a rather conscious and calculated performance on Wölfflin's part, a seemingly improvised exploration of the artwork (which Landsberger, too, describes as if it were present), sharing his audience's point of view, with his voice coming out of the dark. An authoritative voice, to be sure, but one that does not impose itself as such. Thus the position of the lecturer, the style as well as character of the speech participated in the performative context that shaped both the form and the method of art historical knowledge transfer.

3.5. The Audience

Last but not least, the audience, too, is part of this performative situation. Being students or interested guest auditors, they were addressed as «learners» (contrary to, for instance, the peers that an art historian addressed at a scholarly conference). The projection demands a certain degree of darkness in the lecture hall, so their presence was rather felt than perceived by the speaker. Yet, according to Grimm, compared to a traditional lecture, the audience was in a somewhat different position now:

Before the intervention of the sciopticon, the words of the teacher were authoritative. Now, by looking at the works themselves, a personal encounter between the audience and the artist takes place. The young people's faculty of judgement is called upon. Before, it was not possible to bring about such participation of their own judgement, the success of my lectures depended solely on the opinions that I expressed (Grimm, 1897, p. 307-308).

Grimm thus perceived an important shift also in the role of his auditors, who became activated to a certain point at least and could form a judgement of their own. The discourse of the teacher, on the other hand, had to prove itself in view of both the evidence given by the picture and each student's individual experience of the artwork.

4. CONCLUSION

The introduction of magic lantern slides into art historical lectures depended on the technological and infrastructural conditions that became available during the final decades of the nineteenth century, but it occurred also in the context of wider discussions in the realm of pedagogy that made visual instruction a common form of teaching. In Germany, in particular, a movement of art educators used the medium to spread and thus democratise access to knowledge about art. While for the art educators

the projected reproduction was rather an auxiliary and could not replace the encounter with an original (an encounter depending entirely on the local art collections), art historians such as Grimm or Wölfflin tended to see the projected image as more than just a photographic reproduction of a painting. As an object of exploration and analysis, it literally could take the place of the artwork, which thus was «present» to the audience as well. The projection technology not only opened new possibilities for art historical demonstrations and both methodological and didactic innovation, but also altered the relation between lecturer and students. In parallel, outside academia, popular lectures on art reached a broader audience and thus even further democratised access to art historical knowledge.

Once electrical light had become available more or less everywhere, there were no more technical barriers for the widest general use of the lantern. By the 1920s, slide projection had become the standard for art history teaching, up to the 1950s, when the smaller celluloid slides replaced the glass plates. Art historical institutes had built enormous collections by then, which now are considered made obsolete by digital media. Part of the Hamburg collection studied by Anke Napp, has been thrown away already, and one can only hope that the rest will be preserved. Such collections constitute an invaluable source for studying how and what many generations of art history students were taught.

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