

THE TRUE INVENTOR OF THE MAGIC LANTERN

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Wiesel

1. Coat-of-arms of Johann Wiesel
(Staats- und Stadtbibliothek,
Augsburg)

THE FACTS ARE CLEAR: the earliest known references to the magic lantern appear in the correspondence of Christiaan Huygens (1629–95). All modern historians accept Huygens as the probable inventor of the magic lantern, *pace* Athanasius Kircher and his acolytes. Through his connections to most of the early reports of the lantern in the 17th century – including those of Pierre Petit (1664), Balthasar de Monconys (1663), Richard or John Reeve (1663–4) Robert Hooke (1668) and Thomas Rasmussen Walgensten (1665) – Huygens seems to have been at the centre of lantern activity throughout Europe. Nonetheless, I would like to offer some ideas about other possible inventors – offerings of sheer, if logical, speculation! – because the story of Huygens as the inventor of the magic lantern, or even as its main progenitor and the focus of its spread across Europe, sits uneasily in the mind.

The awkwardness that Huygens felt for the lantern is the fragile part of the story. As is well known, Huygens resisted attempts by his father, then Dutch Ambassador to the French court, to get him to make a lantern he could use to amuse his colleagues in Paris. And he conveniently 'forgot' how to position the lenses when asked by Pierre Petit. Huygens was clearly not proud about this 'invention'. The usual explanation quotes his letters to his brother, then secretary to his father, where he says of such optical trifles that 'People are obliging enough to make it appear that they admire them, but afterwards they make fun of them and not without reason.'² The assumption is that Huygens, 'ashamed' to be associated with the lantern, thought it would damage his reputation as a scientist. But could this really be so?

Christiaan Huygens was a figure 'whose importance to 17th-century science is second only to that of Newton.'³ When the lantern appeared in his notebooks and letters between 1659 and 1664, Huygens had already discovered one of Saturn's moons, properly described the planet's rings, commissioned his first pendulum clock, and published several mathematical works. In 1663 he was elected to the Royal Society in London, and in 1664 received his first gratuity from Louis XIV of France; he was a leading experimentalist, widely travelled, and in close touch with the best minds throughout Europe. Apart from the inherent contradiction of suggesting that information about the lantern spread from Huygens to Walgensten, Hooke, de Monconys, Reeve and others even though Huygens kept his knowledge secret, it seems far-fetched to assume that knowledge of the lantern would have inhibited Huygens' scientific work in any way. But there are further contradictions.

As the inventor of the magic lantern, Huygens should have been able to establish how it was first used. Especially in the earliest days, there were respectable uses for the lantern as well as superstitious and entertaining ones: surviving early slides have images of archbishops and heraldry,⁴ and scenes from the Bible.⁵ The lantern show that Johann Franz Griendel presented for Charles Patin in July 1672 included images of Roman gods, a stately palace, and a flight of birds painted 'almost after the same manner as they are usually painted round about Orpheus'.⁶ Two students of Johann Conrad Creiling suggested the preparation of slides on biblical history, geography, natural history and even mathematics in 1705.⁷ Why was Huygens so convinced that people would 'make fun' of the lantern?

One inference that can be drawn from Huygens' embarrassment is that he was not the lantern's inventor, that it had an existence before he took some notes about it and, possibly, refined its optical system. As a modern scientist, who advocated only mechanical solutions to unexplained phenomena and fought for a new experimental model of science whose results could be repeated, Huygens made notes on everything he saw and studied. What if someone had brought him a lantern, or he had seen a lantern show, perhaps with satirical or superstitious slides that influenced his view of the instrument, and he had then just made some notes on its construction, on how he might adapt it for a favourite image (the

Dance of Death), and on how he might alter its optical arrangement? If this could have been so, we need to look at literature before 1659 to see if there is any evidence of the lantern before Huygens.

I want to propose a few other candidates for 'the inventor of the lantern', even without evidence prior to 1659, who could have shown Huygens such an instrument. I have no insights into the obscure 'lanterns' of Jean Prevost, Giovanni da Fontana, or others, and will not repeat the suggestion that Walgensten was the inventor, since his activity cannot be dated before 1664. Rather, I would like to introduce some new characters, in the hope of encouraging further research.

CANDIDATE 1: JOHANN WIESEL (1583–1662)

A producer of fine optical instruments in Augsburg from about 1622 until his death, Johann Wiesel established an international clientele for his microscopes, telescopes, spectacles and other optical devices.⁸ He worked for the German Emperors Ferdinand II and III, plus noble patrons across Germany, Austro-Hungary, Sweden, Denmark and Italy, and probably built the first microscope with a field lens about 1650. Richard Reeve was specifically trying to surpass the quality of Wiesel's lenses under the patronage of Sir Paul Neile in the late 1640s. Neile examined a Wiesel telescope bought by Benjamin Worsley in 1649, and Wiesel's three-lens microscopes arrived in England in 1651; Reeve made the same improvement in his own instruments in 1652. Samuel Hartlib, Wiesel's principal contact in England, circulated his list of instruments to (among others) John Pell, Johannes Helvius in Danzig, and Marin Mersenne in Paris. Most of the sales of Wiesel's instruments in England and the Netherlands were handled by an agent in Amsterdam, Johann Moriaen, who sold a Wiesel telescope to Huygens' father in 1655. When Huygens and his brother became interested in grinding lenses in 1652, they examined a Wiesel telescope in the collection of James Edelheer in Antwerp, and Huygens obtained another Wiesel telescope and microscope in 1654, carefully measuring the focal length of the lenses and sketching their positions.

Although partial lists of Wiesel's offerings in 1630, 1646 and 1650 survive, containing brief descriptions of seven or eight items, these do not mention anything that could be construed as a magic lantern; this first appears in a list of his son-in-law Daniel Depiere, from 1674. Depiere continued the production of Wiesel's instruments after 1662 until his own death 20 years later. Depiere's 1674 list was printed: it is the oldest surviving printed catalogue of a European instrument maker (see 2). Item 25 in this list is 'An

Verzeichnuß/
aller

Instrumenten und Optischen
Kunstwerken / so wohl Bekandten als
Ungemein / welche umb billichen Preiß zu
kauffen seyn.

bey

Daniel Depiere / gebürtig von Danzig/ Bur-
gen und Opticum in Augspurg.

1 6 7 4.

2. Title page of Daniel Depiere's instrument catalogue of 1674, which included the magic lantern (Staats- und Stadtbibliothek, Augsburg).

optical lantern, which presents as one wishes any kind of image or writing with all of its colours on a white wall in a darkened room, over life-sized, at 12, 24, 30, and more Thaler.¹⁹

Availability in a variety of sizes implies an established production of the lantern for various clients, begun sometime before this list was printed. Did Depiere add the lantern to his range of optical instruments between 1662 and 1674, or did he continue to produce a model made by Wiesel, as with most of the instruments on the list? Certainly the optical lantern interested Wiesel, for in a letter of 22 September 1628 he wrote: 'I have found a method to reflect and represent a landscape very large in a room' (most likely a room-sized camera obscura). In the same letter he mentions 'a large proportional-mirror ... with which I can throw the large inverted rays of the landscape mirror completely amusingly and exactly on a white wall opposite, or on a large sheet of paper for cutting or painting ...'¹⁰

CANDIDATE 2: JOHANN VAN DER WIJCK

Active in the middle of the 17th century, Johann van der Wijck of Delft is perhaps the most tenuous candidate. He is included because he was working not far from Huygens and because (according to the correspondence of Herzog August in Wolfenbüttel) amongst his telescopes and microscopes he also offered a camera obscura. In a letter written in January 1655 by August's agent in The Hague, van der Wijck is mentioned as offering various sizes of telescopes, microscopes and camera obscuras, with a further note that van der Wijck's list should be translated from Dutch into High German and sent on to Wiesel in Augsburg.¹¹ The inclusion of a camera obscura in van der Wijck's range is particularly interesting. Little further information is at hand, and van der Wijck probably serves only as a representative of many other candidates whose possible connections to lantern production have never been examined.

CANDIDATE 3: JOHANN FRANZ GRIENDEL (AKA GRÜNDEL)

Since Griendel was active in Nuremberg as a lantern manufacturer from at least 1671 (the year he arrived in the city), it seems likely that his involvement with the lantern pre-dates this time. His optical activity – making not only lanterns, but also telescopes, microscopes, polemoscopes (periscopes), reflex camera obscuras, spectacles, and other instruments – commenced soon after his arrival in Nuremberg, so he could not have acquired all his knowledge and skills in the six or eight months before his instruments were offered for sale there. Griendel arrived in Nuremberg after leaving the Capucine order and converting to the Lutheran confession; it appears that he was able to make a rapid start in commercial activity thanks to knowledge gained while a monk, sometime before 1670. In these early years Griendel became a good friend of the Premonstratense monk Johann Zahn, probably while both were at monasteries in Würzburg. Later publications by both men recommended each other's works (see 3), and at one point Zahn calls Griendel 'my former teacher of practical teledioptrics'.¹²

So there is some evidence that knowledge of the lantern was circulating amongst optical enthusiasts in the monasteries of central Germany in the 1660s. Was this awareness separate from that of Huygens or Walgensten? Walgensten seems not to have exhibited

his lantern in Germany, and Huygens was primarily linked with Paris and London. There is no known connection between Griendel and Huygens, but at the same time, in his important book *Micrographia nova*,¹³ Griendel mentions that he owns a microscope built by Robert Hooke. This indicates that (at least by 1687) he was aware of developments in the west of Europe and there may have been some exchange of instruments in either direction. More work needs to be done on Griendel's monastic life in Würzburg, Munich, Salzburg and Kitzingen before 1670.

CANDIDATES 4 TO ... ?

Among the many other figures who might have seen or demonstrated the lantern before 1659 is Nicolas Claude Fabri de Pieresc (1580–1637). Widely travelled and particularly interested in astronomy and optical instruments, this clerical lawyer from Aix-en-Provence was one of the first to see a demonstration of Cornelius Drebbel's microscope, of which he wrote a long account in 1622. Pieresc was a correspondent of Marin Mersenne and Ismael Boulliau in Paris, and of Samuel Hartlib and Henry Oldenburg in London (Hartlib was at the centre of a scientific information network that extended across northern Europe). Another candidate is Johann Moriaen (1591–c.1668). This instrument maker and assiduous correspondent of new information spent the early part of his career in Cologne, Nuremberg and elsewhere as a Reformed pastor before settling in Amsterdam and becoming an agent for south German instrument makers. Also part of Hartlib's circle, Moriaen was in touch with John Dolland and Richard Reeve, knew Drebbel's family from Cologne (before 1638), and befriended John Pell, René Descartes and others.

The list of possible candidates without clear evidence of involvement with the lantern is endless. But one thing is certain: the account of the relationship of the lantern to Christiaan Huygens, the first person from whom we have any decisive evidence of its existence in a proper form, is an uneasy and awkward one. It would be worthwhile looking a little further, a little earlier, to see whether a more sensible account of the origins of the lantern is waiting to be found.

3. Johann Franz Griendel's recommendation of his friend Johann Zahn's *Oculus artificialis*, from the last page of his book *Micrographia nova* (private collection).

Hochgeehrter Leser / ich recommendire allen und jedem der Optic, und Glässer: Kunst Liebhabern / das edle Werk Reverendissimi Patris Joannis Zahn, Ordinis Præmonstratensis und Profelsi in Ober-Zell bey Würzburg in Francken gelegen / und zwar den dritten Theil Oculi artificialis, welcher allen Kunst, Verständigen in der Welt grosse Satisfaction geben wird.

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NOTES

1. As a specialist in the invention of moving pictures in the 1890s, I am well aware of the dangers of putting speculation into print, and the time wasted by later historians in tracking down and discarding myths which seem to have eternal life. But bear with me, there is method in this madness.
2. Christiaan Huygens, letter to Lodewijk Huygens, 5 April 1662. Published in *Christiaan Huygens, Correspondence* (The Hague: Société Hollandaise des Sciences, 1888), Vol. IV, p. 102; cited in Laurent Mannoni, *The Great Art of Light and Shadow*, ed. and trans. Richard Crangle (Exeter: University of Exeter Press, 2000), p. 42.
3. John Daintith and Derek Gjertsen (eds), *A Dictionary of Scientists* (Oxford and New York: Oxford University Press, 1999), p. 277.
4. See the illustration at p. 36 of Detlev Hoffmann and Almut Junker, *Laterna Magica: Lichtbilder aus Menschenwelt und Götterwelt* (Berlin: Frölich & Kaufmann, 1982). The lantern is also illustrated, with another slide, in Ernst Hrabalek, *Laterna Magica: Zauberwelt und Faszination des optischen Spielzeugs* (Munich: Keyser, 1985), p. 47.
5. Over 130 scenes copied from Krausse's famous picture Bible were commissioned by Johann Conrad Beuther in Augsburg in the 1740s.
6. Charles Patin, *Quatre Relations Historiques* (Basel, 1673), pp. 238–9.

7. Quoted here from Charles Patin, *Travels thro' Germany, Swisserland, Bohemia, Holland; and other parts of Europe ...* (London, 1696), p. 235.
8. Samuel Ursperger and Georgius Ericus Remmelinus, *Phænomena laternæ magicæ at stateram expensæ dissertatione academica ... Praeside Johanne Cunrado Creilingio* (Tübingen, 1705), Kap. III, p. 59.
9. On Wiesel, see Inge Keil, *Augustanus Opticus: Johann Wiesel (1583–1662) und 200 Jahre optisches Handwerk in Augsburg* (Berlin: Akademie Verlag, 2000). This exceptional book contains much information on optical craftsmanship in southern Germany and its transfer across Europe; there is a brief English summary at pp. 371–88.
10. Keil, op. cit., 367 and 431. The entire catalogue is reproduced at pp. 429–33. The sole copy of the catalogue is in the Staats- und Stadtbibliothek, Augsburg.
11. Keil, op. cit., p. 212.
12. Johann Zahn, *Oculus artificialis teledioptricus sive telescopium* (Würzburg, 1785–6), Vol. 3, p. 234.
13. Johann Franz Griendel, *Micrographia nova* (Nuremberg, 1687).