

# The Magic Lantern

## THE GANZ LANTERNS

Jean-Daniel Gerber

### Introduction

In the publications of the Magic Lantern Society (MLS), the lanterns of Johannes Ganz (1821–1886) lead a modest existence. This is surprising as they were the most powerful lanterns of the time, using a petroleum burner and high-quality materials such as sheet brass metal bodies and bronze or nickel-coated focussing lenses. Only in *Servants of Light* (p. 79)<sup>1</sup> does Deac Rossell give a brief account of the Ganz lantern. This article is intended to fill at least part of the gap in the history of Johannes Ganz and his lanterns.

### JOHANNES GANZ – HIS LIFE AND THE DEVELOPMENT OF HIS LANTERN

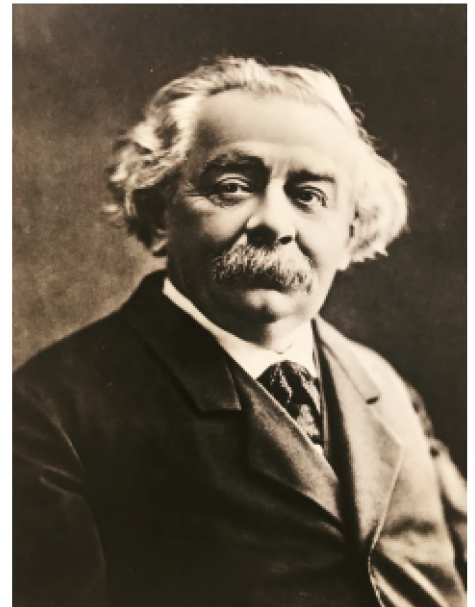
Johannes Ganz (Fig. 1) was born in Buelach near Zürich on 26 February 1821. He showed artistic inclinations from an early age and produced numerous drawings, mostly on slate, which were admired by his teachers. They encouraged his talent for graphic art, especially lithography. At the age of 17, Johannes Ganz decided to train as a lithographer.

In 1843 he opened a lithography studio in Zürich where he produced and sold his work. However, Ganz recognised the potential of the increasingly popular medium of photography at an early stage and continued to develop his skills in this field in Munich and Paris. In 1859 Ganz opened his own photographic studio. The success that followed enabled him to open a daylight portrait shop on Zurich's prominent Bahnhofstrasse in 1867. Ganz wrote: "The most fateful period of my life began with these experiments. I had no idea that all my energies would be so exhaustively utilised, that I would have to struggle with so many difficulties."<sup>2</sup>

The Ganz lantern was not ready for the market until the late 1870s, when it was on a par with, if not superior to, the competition, namely the Sciopticon developed 10 to 15 years earlier by Lorenzo J. Marcy in the USA.

Professor Sigmund Theodor Stein, author of an encyclopaedic work on the properties of light and the use of projection apparatus, commented that the Ganz Pinacoscop was "undoubtedly the best apparatus for petroleum illumination."<sup>3</sup> Stein estimated that a Sciopticon lamp with two burners produced the equivalent of 30 foot-candles, while the Ganz Pinacoscop produced 50 foot-candles. Ganz won numerous prizes for his Pinacoscop and for the excellent pictures he produced, including in Paris (1878) and in Brussels and Melbourne in the following years. Ganz lanterns sold well in many countries in Europe, as well as the USA and Australia, especially in schools and universities but also for home use.

Johannes Ganz died of pneumonia on 16 April 1886.



1. Johannes Ganz (courtesy of C. Ganz)

2. Pinacoscop System I (former collection of Thomas Ganz)



3. Pinacoscop System III (J.D. Gerber collection)



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### THE PINACOSCOPE

#### Basic model of the Pinacoscop

According to the Ganz catalogue,<sup>4</sup> there were four basic models of the Pinacoscop: two lanterns for large audiences, one for use in schools and one for home use.

- *Pinacoscop System I*, condenser with three lenses, 110 mm diameter, achromatic lens with short focal length, for an auditorium of 300 people (Fig. 2)

(continued on page 3)



4. *Pinacoscop System IV*  
(B. Scholze collection)



(continued from page 1)

- *Pinacoscop System II*, condenser with two lenses, 102 mm diameter, achromatic lens with long focal length, for an auditorium of 200 people (similar to Fig. 2)
- *Pinacoscop System III* (school model), condenser with two lenses, 100 mm diameter, achromatic lens with long focal length, for an auditorium of 150 people (Fig. 3 on p. 1)
- *Pinacoscop System IV* (family model), simple design, with two lenses, achromatic lens (Fig. 4).<sup>5</sup>

All four basic models can be identified by the typical 'Ganz' shape. In addition, they bear the initials 'JG' (Fig. 5) on the lens mount and/or a plaque with the inscription 'Pinacoscop by J. Ganz Zürich'. This also applies to lantern variations which can be found within the four basic models.

## OTHER FIXTURES AND ACCESSORIES

Ganz also produced four different projection lanterns for cross-fade effects and a range of accessories such as projection microscopes, devices for horizontal projection and an opaque projector called the Wonder Viewer, which could be used to project image documents or medical specimens.

Thanks to the 4,000 high-quality projection slides (known as glass photograms) that Ganz produced himself, the Pinacoscop was popular in schools and in scientific fields such as astronomy, zoology, botany, geology, physics, macrophotography and meteorology. In the family circle, of course, slides of local and distant landscapes were also particularly popular.

## THE GANZ BURNER

The burner consists of a lower and an upper part – the lamp and the flame box (Fig. 6).

During Johannes Ganz's lifetime, the electric arc lamp and the Drummond light (limelight) were already known for projection. They made it possible to project images of hitherto unknown brightness, brilliance and clarity. This allowed the presentation of slide shows to very large audiences.

However, these light sources were unsuitable for smaller audiences. The petroleum lamp was still the most practical light source. Not only was it easy to use and less dangerous, but it was also cheaper and easier to transport. However, the light was weak and unsuitable for larger projection rooms such as meeting rooms in town halls and schools.

Johannes Ganz developed the petroleum-powered Sciopticon lamp and other features for use in his Pinacoscop. Ganz gave the lamp such an exquisite design and arranged the airflow so well that, even after several hours of use, the apparatus did not heat up noticeably, and smoke and unpleasant odours were virtually eliminated. More



5. The initials 'JG' on the lantern  
(J.D. Gerber collection)

importantly, the light was so intense that the transparent glass slides could be shown in perfect focus to an audience of 200 to 300 people on a screen 2 to 3 metres in diameter.

As improved by Ganz, the Sciopticon lamp, consisted of a petroleum container with a horizontal refill funnel on the outside. This allowed the oil to be refilled without having to remove the burner. Thanks to special adaptations (exhaust pipe, reinforced bottom of the lamp), Ganz made the Sciopticon lamp virtually explosion-proof. The excellent draught drew the heat away from the petroleum container and concentrated it towards the chimney. In the more sophisticated

Pinacoscop (Systems I and II), the lamp itself consists of two wedge-shaped wicks arranged opposite each other so that the two flames form one when they emerge from the lamp. By combining the two flames, the luminosity is greatly increased and a bright light is projected onto the entire screen. The simpler Pinacoscop (Systems III and IV) have only one wick. As with the Sciopticon, a free-standing protective glass is fitted in front of the burner to keep the heat away from the illumination lenses (condensers) and prevent them from cracking.

The flame box (or heat chamber) is placed on top of the lamp. An oval opening in the top of the box leads directly to the chimney. The front and back of the box are sealed with square, tempered glass plates, known as safety glasses, to prevent air from entering. This device ensures that outside air can only enter between the two flames of the lamp, resulting in perfect combustion and the intense white light mentioned above. As with the Sciopticon, the Pinacoscop does not require a cylindrical glass tube on top of the burner, as is usually the case with magic lanterns.

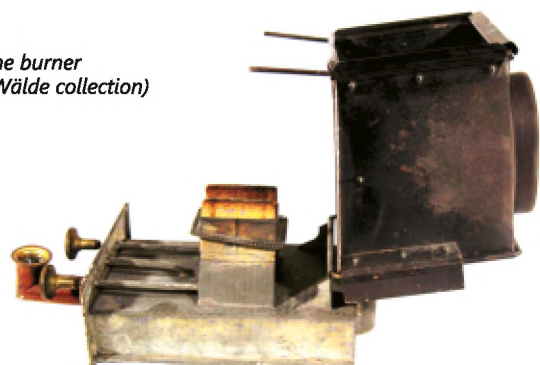
The optical part of the Pinacoscop consists of the reflector, condenser (the illumination lenses) and the objective. The reflector is attached to the rear of the lamp housing. The condenser consists of two or three lenses, depending on the model. The objective is an achromatic double objective consisting of four lenses, two biconvex, one planoconcave and one convex-concave lens (a so-called 'meniscus lens'), the combination of which ensures images that are as colourless and sharp as possible. The entire lens system can be moved back and forth by means of a rack and pinion mechanism at the base of the lantern, which enables the image to be precisely adjusted.

To be able to use slides of different formats, Ganz also developed a universal carrier made of brass with a double frame.

## THE GANZ COMPANY AFTER THE DEATH OF JOHANNES GANZ

Before Johannes Ganz's death in 1886, he handed over the Zürich business to his son Rudolf (1848–1928), who continued the sale of projectors and equipment and expanded the photographic business.

6. The burner  
(H. Wälde collection)



In 1902, Rudolf's son Emil Ganz (1879–1962), the third generation, took over the company and introduced cinematography – both professional and amateur – to the business. In 1914 he took over the Swiss agency for Carl Zeiss, Jena, for optical instruments (microscopes, binoculars and telescopes) and in 1934 the representation of Zeiss-Ikon Ernemann cinema projectors and sound films.

Thomas Ganz (1920–2018),<sup>6</sup> son of Emil Ganz and the fourth generation, joined the company and became a partner with unlimited liability in March 1958. In 1963/64 Thomas founded the company 'Audiovisual Ganz', which developed its own large slide projectors and other speciality projection equipment. Thomas founded other companies and took over numerous general agencies. Ganz also manufactures language teaching equipment and language laboratories. In 1994 Thomas Ganz published a book entitled *The World in a Box: From the Camera Obscura to Audiovision (Die Welt im Kasten, von der Camera obscura zur Audiovision)*.<sup>7</sup> In 2007, he sold his collection of optical objects at Christie's.<sup>8</sup>

The fifth generation had to bow to the large retail chains and the accompanying development of electronics and digitalisation. At the beginning of the 21st century, all the Ganz family companies were sold. However, it is more than amazing that a family business could survive for five generations in the fast-moving business of visual media and equipment.

## The Magic Lantern Society

Thomas Ganz was a long-standing member of the MLS until his death. His daughter Catherine, great-great-granddaughter of Johannes Ganz, is still an MLS member.

*The author wishes to thank Catherine Ganz, Bernd Scholze and Helmut Wälde for their valuable comments and images.*

## NOTES AND REFERENCES

1. Dennis Crompton, Richard Franklin and Stephen Herbert (eds), *Servants of Light: The Book of the Lantern*, MLS, London, 1997
2. Unpublished biography of Johannes Ganz
3. Sigmund Theodor Stein, *Die optische Projektionskunst im Dienste der exakten Wissenschaften*, Knapp, Halle, 1887, p. 11 (translation from German to English)
4. *Preis-Courant der Kunstanstalt für Projection*, von J. Ganz & Co. – Atelier für Kunst und Wissenschaft, Spezial-Geschäft, c.1883 (translation from German to English)
5. Whether the lantern has two or three lenses has of course no influence on the size of the projected image, only on the brightness of the projection
6. 'Obituary: Thomas Ganz (1920–2018)' in *The Magic Lantern*, No.18, March 2019, p.14
7. *The World in a Box: From the Camera Obscura to Audiovision (Die Welt im Kasten, von der Camera obscura zur Audiovision)*
8. *The Ganz Collection: Magic Lanterns, Optical Toys and Pre-Cinema*, Christie's, London, 22 January 2007