

TOY GHOST MACHINES MADE IN NUREMBERG

PART 1: SOME DATES AND SOURCES

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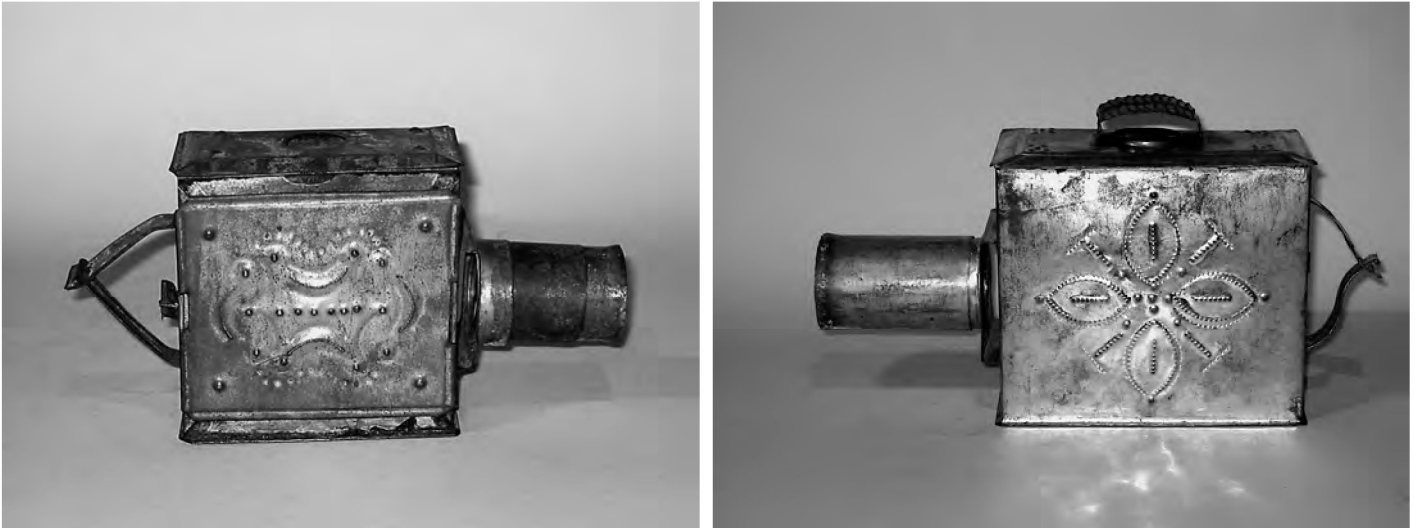


Fig. 1 Two examples of German tinplate toy lanterns from the mid-19th century.

OVER MY YEARS OF COLLECTING optical toys, my interest in early German toy magic lanterns and their slides grew stronger and stronger. In particular I came to concentrate on the period between 1800 and the 1860s. Nearly all the surviving toy lanterns from that period that I have discovered are made from tinplate, like the two examples in Fig. 1.

I have come across one special variant of these toy lanterns named the 'Geister-Maschine' (ghost machine) or 'Geister-Erscheinung' ('ghost appearance'). This looks like the usual tinplate toy lantern, but it has a vertical aperture for the slides rather than the usual horizontal one. It appears that it could be especially used for the projection of figures onto smoke.

While reading Mervyn Heard's wonderful book *Phantasmagoria*¹ I began to think about these toy ghost machines as an interesting part of the history of ghost raising and phantasmagoria. I started examining all sources I could easily reach, and found that until now this subject has hardly been mentioned at all. Only Deac Rossell has commented on toy ghost machines, in his contribution to the Society's 1997 book *Servants of Light*.² There he refers to the 1803 catalogue of Georg Hieronimus Bestelmeier of Nuremberg,³ pointing out particularly catalogue items 449 (which in my opinion does not include a magic lantern and might work with a kind of 'Dance of Witches' effect) and 682, which I will mention again below.

From this starting point I began to look for other relevant information. What I found shows that important novelties in the use of the magic lantern – like ghost raising and the phantasmagoria – made a strong and long-lasting impression in the society of their times, and as a result toy versions and educational books were created to allow people to learn and repeat the effects at home. These sources may also give a clue as to how much time passed between the 'invention' of the original effect or device and its appearance as a toy or means of instruction for young people.

In the 1803 Bestelmeier catalogue, eight catalogues which had been issued as single variants since 1793 were updated, bound together and reissued as Parts 1–8. Every part was illustrated by copperplate engravings, each showing a number of different items. All items from Parts 1–8 were also arranged with a short description in a 'Systematic Catalogue' divided into twelve sections, which was bound together with the eight parts.

The first item of interest is listed in Part 4 and has Bestelmeier's number 528:

Das Zaubergrab ['the Magic Grave'], or necromancy

This is a new machine for 'ghost-appearance' in every room, in the dark at life-size. The ghost rises up freely out of the grave, which is placed in the middle of the room, and remains present as long as you want, in addition he moves some steps forward and finally sinks down into nothing. You can also show well-known dead persons quite recognisable, if they are well painted. This experiment can be executed without special preparation immediately in every room, hall, garden &c. The grave which includes the machine is 18" long, 8" wide and 7" high, beautifully lacquered, and costs with 6 figures 7 fl. 30 kr., box 30 kr.⁴

NOTES

1. Mervyn Heard, *Phantasmagoria: The Secret Life of the Magic Lantern* (Hastings: The Projection Box, 2006).
2. Deac Rossell, 'Some German Professional Magic Lanterns' in Dennis Crompton, Richard Franklin and Stephen Herbert (eds), *Servants of Light: the Book of the Lantern* (London: Magic Lantern Society, 1997), 70–7.
3. Rossell, 70–1. The title of this catalogue translates as 'Magazine of different art- and other useful things for instructive and pleasant amusement for young people, as well for amateurs of art and science, which things are mostly in stock at Georg Hieronimus Bestelmeier in Nuremberg – New improved edition 1803'.
4. To give some context to the prices in the Bestelmeier catalogue, which are given in Florins, consider that at the same period a miner in the ore mountains of Saxony would earn 1 Florin per week. See *Auto, Lok & Dampfmaschine: technische Spielware des 19. und 20. Jahrhunderts* (Kassel: Boxan Verlag, 1984), 12.

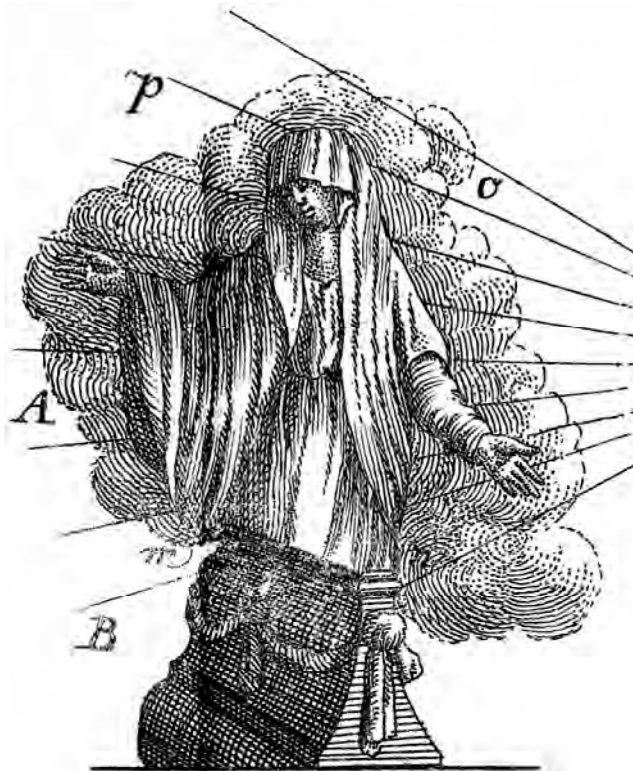


Fig. 2 (left) *The Zaubergrab*: item 528 in Bestelmeier catalogue.
 Fig. 3 (right) Ghost illustration from Krünitz's Encyclopaedia, plate 3943.

A copperplate illustration (Fig. 2) is shown on Plate 6 of Part 4, and the Zaubergrab is listed in Section 10 (Optics) of the 'Systematic Catalogue', with the description 'A magic grave, for letting ghosts appear in every place you like, 8 fl.' One remarkable feature is that the ghost who appears in Bestelmeier's illustration is almost identical to the ghost in the illustration of Plate 3943 of Johann Georg Krünitz's *Encyclopaedia* of 1794, only reversed (Fig. 3).⁵ It seems that Bestelmeier or his printer copied the ghost figure from Krünitz.

Although the words 'magic lantern' do not appear in the description, I think we have to understand the 'machine' as being a lantern. If we take the description 'The grave which includes the machine ...' at face value, it seems possible that it was constructed like the type shown in the Krünitz Encyclopaedia (vol. 65, pages 514–16, plate 3942). Considering the measurements in the description I think it is unlikely that the 'magic grave' was constructed like the type Krünitz describes in Plates 3943–4. How the illusion of the ghost moving 'some steps forward' was created remains a mystery to me, because there was limited space in the 'grave' to move the lantern forwards or backwards to create such an effect in the phantasmagoria manner.

There is another ghost appearance listed in the 'Systematic Catalogue', in Section 10 between items 663 and 682, with the description 'A ghost appearance in which the ghost appears above an altar with many changes, 14 fl.' Unfortunately there is no full description or illustration given in the catalogue. Considering the price of 14 florins it must have been a luxury model.

The second interesting item in Bestelmeier's catalogue is in Part 6, item number 682. Because this is a very important item I shall repeat the description in Deac Rossell's translation from *Servants of Light*:

Eine Geistermaschine ['a Ghost Machine']

A ghost machine made just like a magic lantern, but it is so arranged that the ghosts appear below as if out of the Earth. Included is a box with twelve glass slides, on which forty different figures are beautifully painted, including skeletons. Only the figures are transparent; the background of the glass is black and opaque, through which the figures appear exceptionally clearly, and in which the circle of light which surrounds most glass slides is absent. All of the slides for my other magic lanterns have this improvement. The above ghost machine costs 6 fl.⁶

In Section 10 of Bestelmeier's 'Systematic Catalogue' the short description given of this device is 'A ghost machine with 12 slides and 40 figures, the lantern is like a magic lantern, costs 6 fl., a similar smaller one 4 fl.'

Unfortunately the Bestelmeier catalogue only shows an illustration (Plate 2 of Part 6; see Fig. 4) of the boxes containing the ghost machine and its slides, rather than the machine itself. By looking very carefully and with some goodwill, it is possible to

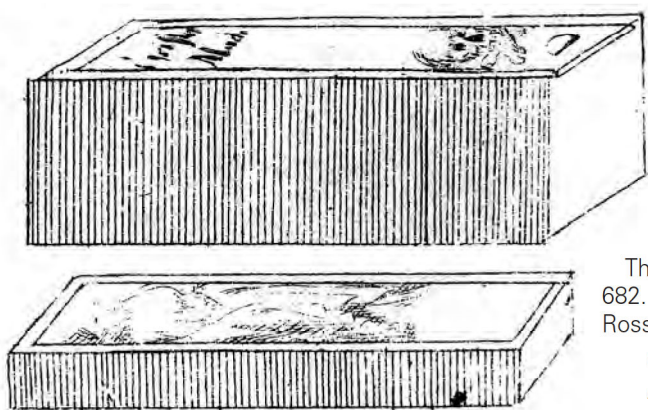


Fig. 4 Box containing Geistermaschine: item 682 in Bestelmeier catalogue.

5. Johann Georg Krünitz, *Oekonomisch-technologische Encyclopädie* (Brünn: 1794), Vol 65 Plate 18. For more on Krünitz and his Encyclopaedia, see David Robinson, Stephen Herbert and Richard Crangle (eds), *Encyclopaedia of the Magic Lantern* (London: Magic Lantern Society, 2001), 156.

6. Rossell, 70.

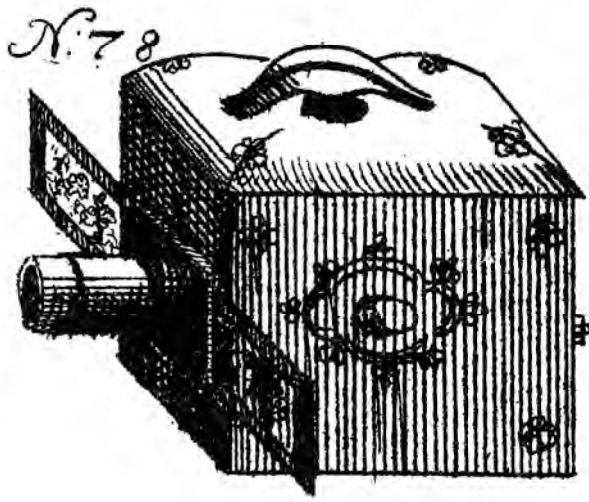


Fig. 5 Magic lantern with slide: item 78 in Bestelmeier catalogue.

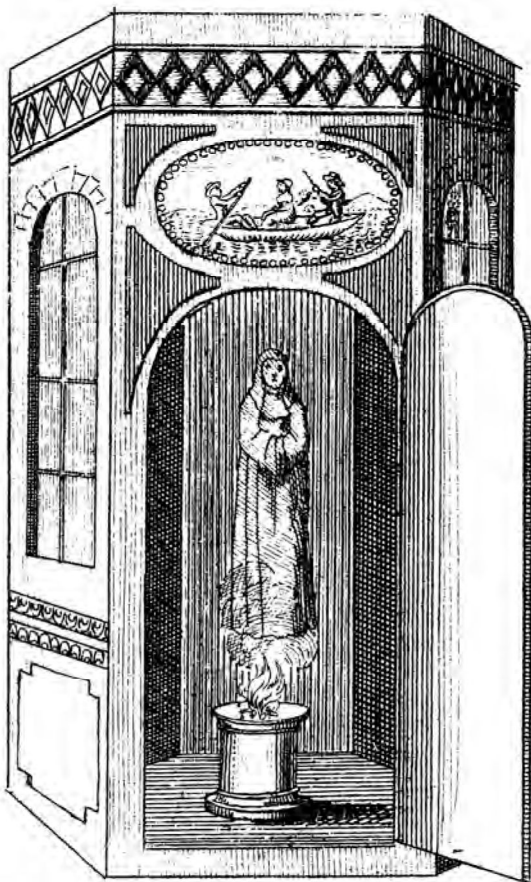


Fig. 6 The Zaubertempel: item 1018 in Bestelmeier catalogue.

identify parts of the title 'Geister-Maschine' and a skull with crossed bones on the lid of the larger box, and a ghost on the smaller box for the slides. It's not clear if the Geistermaschine works by projection onto smoke or by back-projection on a transparent screen.

There is a further reason for mentioning item 682, namely the remark by Bestelmeier that the slides for his other magic lanterns had the improvement of a black opaque background. Among all the horizontally-painted slides with the typical red patterned paper binding I have seen, there is only one set of seven slides with a black opaque background. Since the images on those slides include a very early steam train they can be dated around the 1840s. I have found only one other slide for an early tinplate toy lantern that is mounted in a wooden frame with such a black background (see below). It would be of great interest to learn if there are any more such early slides of assumed Nuremberg origin in any collection. By the way, the only illustration of a magic lantern with a slide in the 1803 edition of the Bestelmeier catalogue (Plate 7 of Part 1, item 78; see Fig. 5) shows that this slide does not yet have a black background.

The third Bestelmeier item of interest is an exciting variant of a 'ghost appearance', which at first sight seems as though it might function by projection on smoke. This is found in Part 8, item 1018:

Ein Zaubertempel ['a magic temple']

A magic temple, inside in the middle is an altar, on which one pours and sets light to a little spiritus vini [i.e. alcoholic spirit], the back wall is transparent, on which it is possible by using a magic lantern, to cause to appear a great many ghosts in different characters. For packing up the temple conveniently, it can be folded up completely, costs with the lantern 7 fl. 30 kr.

This device is also listed in the Systematic Catalogue, Part 10 (optics), with the description 'A magic temple with a magic lantern', and a copperplate illustration is shown in Plate 2 of Part 8 (see Fig. 6).

Evidently the ghost effect was created by back-projection with a magic lantern and not by projection on smoke after all. If I understand it correctly, this might be the earliest source for the use of back-projection with a toy lantern on a transparent screen. The aim of producing smoke by burning the *spiritus vini* was perhaps to create a bit of additional mystery.

The next source I came across has a strong connection to Bestelmeier's item 528, and is an extract from a book with the title *Physikalischer Kinderfreund* ('Physical friend for children') written by Gerhard Ulrich Anton Vieth in 1804:

If you wish to use a magic lantern to produce a ghost-appearance, you have, to strengthen the illusion, to make some special preparations. First of all the picture that should be shown has to be projected on smoke. My young readers, who would try to imitate this, could be probably trying unsuccessfully for a long time, producing a lot of smoke in the room without seeing any picture. I therefore give you a short description, how to create a column or a wall of smoke, on which it is possible to project a picture.

Take a box, that, if you plan an illusion, must be higher than the eye of the spectator, and that you might give the shape of an altar to make the joke imposing. In the box has to be made a slot in the cover which could be two feet long or even longer. The altar has a container inside, which is wide below, so that it can hold a long and narrow coal-pan made specially for that use; the walls of the container run together at the slot in the lid. If you put a few pieces of pitch wax the size of hazelnuts on the coals, a thick vapour will rise up through the slot. Due to the shape of the walls of the coal-container the vapour is kept together to build a wall. To hide the magic lantern from the spectator it can be placed on the table behind the altar, so that the rays fall on an upwardly angled mirror and are reflected from it onto the wall of smoke.

If the room allows, the altar can also be placed at the wall of the room and the lantern can be placed in the next room, if the wall between both rooms has an adequate opening to let the rays through, which should create the picture, which presents no difficulties if the wall is made of planks. Otherwise the area behind the altar can be hidden by a curtain. The upwardly angled mirror is not even really necessary; you can set up the lantern with the lens at an angle upwards towards the smoke. But you have always to prevent the picture from shining through the smoke on the opposite wall, or the spectator has to be placed in such a way that he cannot take notice of it. The advantage regarding the illusion that the presentation of pictures on a column of smoke has, in contrast with pictures on a solid wall, is that the picture appears floating in the air, that it looks more physical, because the smoke occupies some space in its depth, and that the movement of the smoke gives some movement to the raising ghost. It is understandable that in the room where the spectators are, it has

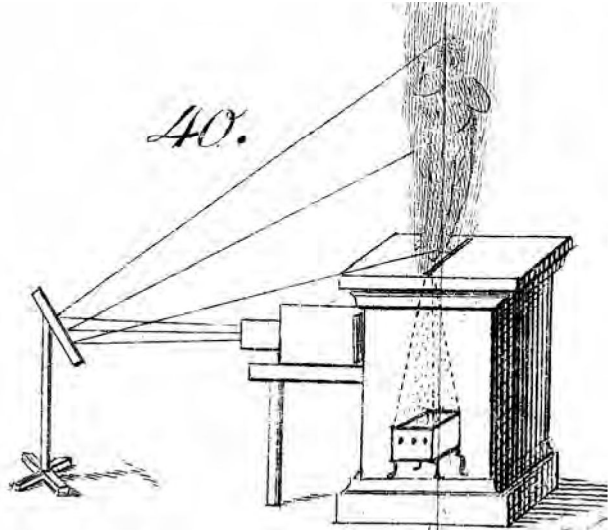


Fig. 7 Ghost projection onto smoke, illustrated in *Physikalischer Kinderfreund* of 1804.

to be dark, and also the glass, on which the figure is painted, has to have a black background.⁷

The effect is illustrated by an engraving (Fig. 7).

Possibly the second earliest source relating to the 'ghost appearance' as a toy is mentioned briefly by Hermann Hecht in a reference to Johann Konrad Gütle's *Sammlung Optischer Spielwerke und Zauberkünste für Junge und Alte Hexenmeister* ('Collection of optical toys and magic arts for young and old wizards'), published at Nuremberg and Leipzig in 1805: 'plate ... showing a magic lantern ... another lantern used to raise a ghost.'⁸ Unfortunately I have not yet been able to examine the original of this source.

There is very little other supporting information about this subject, and sources of the time are extremely rare. One small reference is in Walter Stengel's book *Guckkasten* ('Peepshows') of 1962, saying that the toy company of the Brothers Kirchmayer offered 'ghost appearances' for the magic lantern in their Christmas catalogue of 1813.⁹ Unfortunately no source for the reference or the Kirchmayers' location is given by the author, and we don't know if the effect used projection on smoke or back-projection on a transparent screen. But this does suggest that there must have been continuous knowledge of and demand for such toys by the educated (and solvent) public at this very early stage.

The earliest clear description of the Phantasmagoria with the aim of educating young people that I have discovered is published as Part 3 of a book with the title *Der Physikalische Jugendfreund* ('The young person's physical friend') by D.J.H.M. Poppe, published in Vienna in 1815:

Mr W. opened a door between two rooms very wide. He fixed a piece of transparent linen over the whole opening. Ferdinand had to sit in the dark room and Mr W. remained in the other completely dark room. Suddenly from the direction of the door Ferdinand saw a small white ghost-like figure, seemingly far away. This figure floated nearer and nearer, growing bigger and bigger, and finally seemed to touch his body. Then it retreated again, getting smaller and smaller, and finally vanishing in a small point. Other figures followed, sometimes rising out of the earth, sometimes moving down from the sky. Soon Mr W. carried in the device he used to produce the ghost appearance to Ferdinand. This device was a magic lantern which was a little different from the usual ones. The figures creating the ghosts were etched in a black lacquered glass slide. Therefore they had to look white on the screen. Because the screen was transparent the pictures could be seen from both sides of the screen, consequently Ferdinand could see them in his room as well as Mr W. in the other. In the usual magic lantern the slides are put in from the side (horizontally). In the magic lantern for ghost appearance the

slides are put in from above or from beneath (vertically); by this way it can be managed to make the ghosts rise from the earth or let them float down from the sky. If Mr W. retreated with the lantern from the screen, a figure appeared which grew bigger the further Mr W. retreated with his lantern. In his dark room Ferdinand only saw the white figure; first he saw it very small and then getting bigger and bigger. Consequently the illusion of the figure approaching was created. As it was as big as a human being, in his imagination it was very close to him. The effect was the same when the ghost receded and vanished. Mr W. managed this by approaching with the lantern to the screen. This is the character of those ghost appearances one can watch for money at fairs and other occasions.¹⁰

A clear early description of the Phantasmagoria as a children's play is published as a chapter in a book entitled *Beschäftigungen für die Jugend Aller Stände zur Belehrung und Unterhaltung Insbesondere zur Anregung des Kunst- und Gewerbesinnes* ('Activities for young people of all classes for instruction and amusement in particular to stimulate the sense of art and trade'). This was published by 'a society of scholars and educators' at Stuttgart in 1834. Although I have only translated an extract on the ghost appearance, this is still quite a lengthy account, since the authors used the story to give a detailed description of the magic lantern and its use to their young readers.

Magic lanterns and ghost appearances

One evening in autumn a strange artist arrived in G. announcing a ghost-raising. Henriette and Fritz, the ten- and thirteen-year old children of Herr Müller, rushed home showing a playbill on which the artist announced his shows pompously, as such people commonly do to call in spectators. The ghosts of Frederick the Great, Napoleon and Schiller would appear. The ghosts would arise out of the grave, then they would step down from the clouds. Then angels would appear, then devils etc. 'Oh mother, we should see that,' Fritz called, 'we have never seen such a ghost-raising!' Herr Müller promised to take his children to the show. [...]

Soon the evening arrived. The show would take place in the large room of a restaurant. The large room was separated into two parts by a big curtain that reached from one wall to the opposite wall. In the front part, which could be entered through the main door, were benches for the spectators. Herr Müller, who had chosen a good place directly in front of the curtain, placed one of his children on each side. Soon the room was filled with spectators and the beginning of the show arrived. The lights were extinguished and a deep silence fell. Suddenly one could see far away a great bright light and a human figure was created, coming nearer and getting bigger, and soon there was clearly shown the figure of Frederick the Great. He had the full size of a grown-up human being, and seemed to be just a few steps away from the spectators. Finally he moved up so close that the spectators believed he would walk through them. But soon he was leaving the audience, getting smaller and smaller, and finally dissolved into a white luminous point which at last disappeared too. Napoleon, Schiller and some more so-called ghosts appeared. Some minutes later the ground seemed to break open, a ghost appeared out of it, coming nearer to the spectators, then moved back and disappeared back into the earth. Angels stepped down from the sky and a lot of other appearances took place, surprising the spectators very much. 'How does this happen? How is it done?' the children asked their father. He told his children to be patient until later when he would show them how to make ghosts appear as the artist had done. [...]

On the next evening Herr Müller came home with two boxes under his arms. He opened the bigger box first, taking out a sort of lantern. 'Look, with this lantern, called

7. Gerhard Ulrich Anton Vieth, *Physikalischer Kinderfreund* (Leipzig: Johann Ambrosius Barth, 1804), 115ff. This book is listed in Hermann Hecht, *Pre-Cinema History: an Encyclopaedia and Annotated Bibliography of the Moving Image Before 1896* (London: Bowker Saur, 1993), item 107C, but without reference to the ghost appearance.

8. Johann Konrad Gütle, *Sammlung Optischer Spielwerke und*

Zauberkünste für Junge und Alte Hexenmeister (Nuremberg and Leipzig: Campe, 1805); included in Hecht, op. cit., as item 117A.

9. Walter Stengel, *Guckkasten* (Berlin: Verlag de Gruyter, 1962).

10. D.J.H.M. Poppe, *Der Physikalische Jugendfreund* (Vienna: Katharine Gräffer und Härter, 1815), 163ff.

a magic lantern, the artist created the ghosts, except his was bigger and more perfect, and by use of this lantern we will make ghosts appear.' Then he opened the second box and took out a lot of wooden framed glass slides which were about one and a half feet long and three inches wide and decorated with different pictures. Some of the glass slides bore figures painted in bright transparent colours; others were completely black and the figures were etched in the black down to the surface of the glass. The last ones therefore looked white and were really the ones that created the ghosts. Frederick the Great and Napoleon were amongst them too. 'And these small figures can get as big as we have seen them at the artist's?' Henriette asked. 'How does this happen?' 'Be patient, dear children, first I will explain the parts of the lantern and how to use it and after that we will make use of it like the artist did.'

Here follows an explanation of the standard magic lantern, and then a more specialised description of the technique used for ghost raising:

If the aperture [for the glass slides] is vertical it is easier to let the ghosts come down from the heights or rise up out of the earth. [...] At the back the lantern has to have a strong handle to hold it during use. [...] The projection surface can be a sheet of thin fine linen or muslin or an oiled paper so you can watch the pictures from both sides of the screen with the same quality. The white screen used for ghost appearances is like this.

Herr Müller removed the door between two of his rooms and fixed a sheet of muslin, which was a little bigger than the door opening. He took care that the muslin was tightly fastened. In one room his wife and children remained as spectators, he himself went with the lantern into the other room. The lantern was lighted and all other lights were put out. Soon the spectators recognised a large white luminous point on the screen from which in a moment the figure of Frederick the Great appeared, getting bigger and seeming to approach towards our spectators. In the same way the figure then receded, getting smaller and smaller and finally disappearing into a luminous point.

The same happened with some other ghosts. During one of the experiments Herr Müller called attention to the following spoken explanation (while the white luminous point was formed):

'Now I'm holding the lantern near to the screen. I am receding with the lantern a little bit and only now there is a little picture; if I recede further with the lantern, the picture is bigger etc. In reverse, it gets smaller the more I approach with the lantern towards the screen. If the lantern is very close to the screen, the picture of the figure dissolves into the luminous point. So the picture stays permanently on the screen, therefore always at the same distance from your eyes. It just seems to come nearer when it's getting bigger, and to recede when it's getting smaller. It is what is called an optical illusion. Our brain by virtue of our eyes takes as a result: what is slowly getting bigger and clearer must be coming nearer to us; and what is slowly getting smaller and indistinct must be receding from us, because it is so in normal human life.'

Our spectators were in great expectations again in their dark room. Suddenly a ghost rose up from the earth and after that sank back into it. Soon one could see ghosts coming down from heaven and then ghosts flying up and disappearing into the heights.

Herr Müller continued his explanations as follows:

'If the ghost has to rise up from the earth I hold the lantern down to the bottom of the room before I start my trick and move the lantern upwards with the lens pointing at the

*screen, so that the picture rises up on the screen. In the spectators' view it looks as if the ghosts are rising from the earth. If in the opposite way the ghosts move down from the heavens I just have to hold the lantern at an angle with the lens pointing upwards so that the pictures fall onto the ceiling. From there I lower it again in such a way that the pictures move down the screen. But it is always better if the lantern for ghost raising has a vertical aperture instead of a horizontal one for inserting the glass slides. In that case you don't need to use the up-and-down movement of the lantern itself, but just insert the slide with the figures into the aperture either from beneath or from the top and then move it up or downwards, depending whether the ghosts have to come out of the earth or from the heavens. Holding the magic lantern for a long period in one hand might cause some trouble to the artist, especially if the lantern is large. Therefore it is better if there is a long table in the artist's room and the lantern is placed on a small carriage with which it can be pulled forwards and backwards on the table in front of the screen. To exclude every noise the wheels have to be covered with cloth. Thus you can bring the lantern near the screen or remove it from it comfortably and silently to let the pictures get smaller or bigger.'*¹¹

What conclusions can we draw from the accounts mentioned on the question of how long it took from the 'invention' of ghost raising with a magic lantern (either projection on smoke or using the phantasmagoria approach) until both techniques were used in the children's world?

Reflecting on the history of (back-)projection onto smoke for ghost raising, it seems that Johann Georg Schröpfer (1739–74) was the first person we know to have used this technique more or less professionally before an audience, around 1770. At the same time Edmé-Gilles Guyot published his *Nouvelles récréations physiques et mathématiques* which includes a description of ghost raising on smoke with a magic lantern. The earliest source of ghost raising on smoke using a toy magic lantern as a plaything might be the 'Magic Grave' in the Bestelmeier catalogue of 1803. But it may be possible that a toy ghost machine was available in an earlier issue of the Bestelmeier catalogue, which had been expanded year by year since 1793.

As for the history of back-projection on a transparent screen for ghost raising (that is, the Phantasmagoria), it seems that Paul de Philipsthal (a.k.a. Philidor; died 1829) was probably the first artist using this technique in professional shows, around 1790. If we interpret the above-mentioned 'Magic Temple' of 1803 as a sort of phantasmagoria in the way Philidor used it, this might be the earliest source for that toy variant of ghost raising. The next clear reference to the phantasmagoria as an amusement for young people is – as far as I know – the description in *Der physikalische Jugendfreund* of 1815.

If we consider these earliest known written references to projection on smoke for ghost raising, there is an interval of thirty-three years between Guyot/Schröpfer and the first Bestelmeier toy version. The interval between the first known phantasmagoria by Philidor and the first reference to a toy version in 1803 is thirteen years, or twenty-five years if we consider the clear reference in 1815. Of course, maybe the process of spreading knowledge of the techniques its commercial exploitation by toy-makers or distributors like Bestelmeier in Nuremberg was much quicker, and we just don't yet have the sources to prove it. It would be of great interest to learn if there are any more early sources that refer to ghost raising in the children's world.

Helmut WÄLDE is a civil servant working for the German government. He has been collecting optical toys, daguerreotypes, stanhopés and stereo photography for about twenty-five years, and has been an MLS member for fifteen years. He is especially interested in the history of early German toy magic lanterns and slides.

Part 2 of this article, in our next issue, will present an illustrated survey of some surviving examples of these toy ghost machines and their slides.

11. *Beschäftigungen für die Jugend aller Stände zur Gewöhnung an zweckmäßige Thätigkeit zur erheitenden Unterhaltung so wie zur Anregung des Kunst- und Gewerbsinnes. Von einer Gesellschaft*

Gelehrter und Erzieher (Stuttgart, Verlag der P. Balz'schen Buchhandlung, 1834–5), 61ff.