**MALware Technical Report**

Magic Lantern GIF creation

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**Abstract**

The author describes the process and value behind the re-creation of modern short-form visual entertainment, in this case a GIF of 2007 Internet phenomenon Keyboard Cat, using a magic lantern from 1910. In the context of the MAL's mission of living the past to see the present, this venture has power. GIF creation and dissemination is a momentary process in a digital sphere, but when slowed down to account for the practical demands of physical productions, the considerations of what constitutes worth, optimization, and fidelity are changed.

**About the Author**

A. Grace Wilson is an undergraduate student in the Technology, Arts, and Media (TAM) program at the University of Colorado at Boulder. Her areas of interest include finding joy in imperfection, seeking value in failure, and equalizing the technological landscape.
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**A Brief History of the Lantern**

The magic lantern is a valuable in-between point within image creation, dissemination, and use as entertainment. It was first recorded as a principle in the 1660s by various scientists studying optics, with Dutch physicist Christiaan Huygens having the first known sketch of the optical principle in a December, 1664 letter to Pierre Petit, a French engineer.

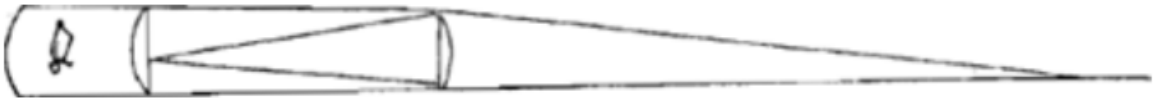

**Figure 1**: Christiaan Huygens' Lantern, Dec. 11 1664 letter to Pierre Petit[1]

Over the centuries, the lantern, and the slides put in it, vastly increased in complexity. Through the magic lantern we have a microcosm of the codifying and expanding of scientific knowledge through the centuries. Compare Huygens' sketched description to the illustration provided in a children's encyclopedia in 1912:

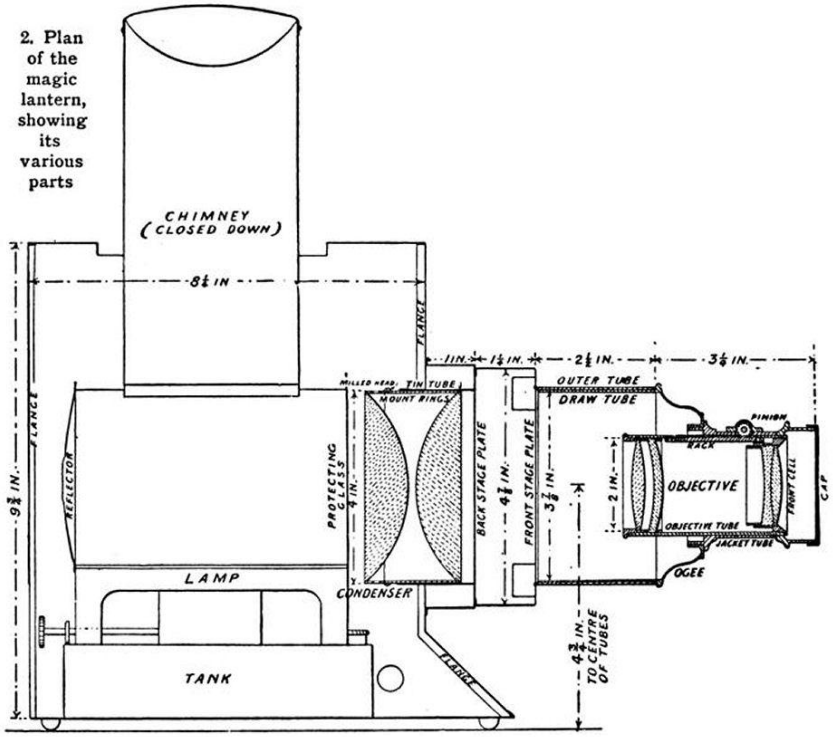


**Figure 2**: A magic lantern, The Book of Knowledge (1912) v. 12, pg. 2767[2]

[1] Figure 1: Huygen's Lantern
http://emlo.bodleian.ox.ac.uk/profile/work/155b6ea5-406d-44f3-9f7a-d87ef92629d7
ePistolarium, CKCC project, Huygens ING, The Hague, 5 November 2014 Record ID 909672, last altered by Miranda Lewis on 17/02/2017

[2] Figure 2: A "modern" magic lantern

The way in which the lanterns were used and experienced is also a cognate to the forms of communication and entertainment surrounding them. They began in the hands of scientists such as Huygens and then became the profession of wanderers called Luikerwalen who brought them to people for small, tempting amounts of time. They then were then made into productions people would go and see. This includes the Victorian *Phantasmagoria* in the later 1800s. Lanterns were also used for education in large lecture halls. Eventually the technology was democratized as people bought lanterns and slide-sets for home and made their own. Finally, their popularity sharply declined with the advent of film, to the point where, a century later, few remember their long and varied history or even know what a magic lantern is.

**Creating Slides: Purpose**

I chose to create a slide for the magic lantern to foster intimacy with the technology, to encourage research and direction, and to bring my enjoyment of artistic creation into the project. If you create something for a medium, the experience teaches you what is necessary to consider. It allowed me to focus in on the many ways that the slides have been created in the past so that I could make a similar experience with modern fabrication. It also allowed me to discover what was underlying the fascination with the magic lantern and this type of simple-animation projection. libi striegl , PhD candidate at the University of Colorado Boulder and MAL researcher, described the magic lantern as "basically a GIF machine" and I realized that this is what causes such affection for it. Too often I assume the newness of the Internet's treasures, but short-form visual entertainment has been captured in this way for centuries. In honor of this connection, the slide created for the lantern is a 2-lever version of Keyboard cat, a beloved viral video, GIF, and meme from 2007.

**Figure 3**: A still from "Charlie Schmidt's Keyboard Cat (THE ORIGINAL)"[3]

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Fleming, H.G. "How to Make a Magic Lantern." *The Book of Knowledge,* v. 12. New York: The Grolier society, 1912. p. 2767- 2771, print. Accessed digitally on the Hathi Trust Digital Library. https://hdl.handle.net/2027/umn.31951d00381169d?urlappend=%3Bseq=125 (accessed May 20, 2018).

[3] Figure 3: Still from Charlie Schmidt's "Keyboard Cat" Youtube video: "Charlie Schmidt's Keyboard Cat! - THE ORIGINAL!" at approx. .25 seconds
Image shows his cat "playing" the piano (in reality, manipulated under a baby's shirt by Schmidt himself) Uploaded Jun 7, 2007, accessed 6/1/2018 from https://www.youtube.com/watch?v=J---aiyznGQ

**Figure 4:** The completed slide from the magic-lantern recreation

**Creating Slides: Worth**

Creating a moving slide allows you the chance to envision the worth of what you are creating. a GIF is the result of a long winding path of technological innovation, but that is obscured by the ease with which we can procure and deliver it now. It is also a fascinating quandary that though a GIF is infinitely easier to "make", I have little idea behind the process, whereas a slide is time-consuming and difficult, but ultimately creatable with my own two hands. By hand-making a GIF I could re-evaluate the importance of them within my own experience, and how much the digital realm enables me to live outside of material constraints. Considering also the cost of the slide to create, it is perhaps much more valuable in labor and materials, even as it is less valuable as a far-reaching experience. This could be used as an exercise in design thinking to discover what it is about these small and instantaneous interactions that delights us in such a time-proof way.

**Creating Slides: Optimization**

The actual process of making the slides was fascinating. I thought that it would be a walk in the park to color them, but it turns out that paint used in modern stained-glass windows too dark for a clear view. I tried to use Pebeo brand translucent glass paint to no effect. I could have done a more complete job had I prototyped more of my design questions. I was still thinking about a backlit computer screen, and the idea of translucent paint behaving like opacity was impossible to envision without trying it out. I was, however, pleased with the final result. I spent a long time in Adobe Illustrator, thinking about how the tools of mechanical movement, in my case levers, would allow me to create an illusion of cat-movement. I think this again provides an interesting design challenge Many of my missteps could have been avoided

through deciding upon the essential effects more thoughtfully. What about Keyboard cat makes it keyboard cat?

**Creating Slides: Fidelity**

The final and most fascinating part of this experiment to me was fidelity. I created keyboard cat in a recognizable form, but the legs move independently, the color isn't there. It is the GIF and yet, it's more and less. It's less realistic, more re-poseable and manipulatable on an individual level. Within current memetic culture, the fixation seems to be with the alteration of an existing piece. However, those manipulations are presented as often obvious changes between the "original" and changed piece. To me, the magic lantern slide is something that might be manipulatable within itself. Though it's a small thing, you can make this keyboard cat play the piano however you would like. You are now the direct manipulator of the cat. Does this have existential implications? Have we, through our standardized processes of extreme fidelity become bored with it? It seems almost that "perfection" has become less desirable. By making a low-tech version of a high-tech object the fidelity is gone, but through its increased person-by-person manipulation *within the object itself*, perhaps its value is altered to a different plane. Could we explore within our technology today, ways of making on-the-spot manipulation of the original medium more accessible? What could that look like?

**Conclusion**

This project allowed me to delve more deeply into the philosophy of a living anti-museum and the value of older technologies not only as interesting historical foci, but also as essential and generous teachers for the ways we can think about our world and what we value within it. This paper may read as more philosophical than technical, but it is a focus on the techne of the lantern, that strange and beautiful beauty of it as a still existing object with immediate value.

Projection of the created slide:

Link to video of the slide in action: https://vimeo.com/273000422

Link to the Adobe Illustrator file for the slide:
https://drive.google.com/file/d/17EKvra4qAJJ4EFY0OYlSqYCF5zu6EzNL/view?usp=sharing

**About the Media Archaeology Lab**
Founded in 2009 and generously supported by the College of Media, Communication and Information as well as the Department of English at the University of Colorado at Boulder, the motto of the Media Archaeology Lab (MAL) is that "the past must be lived so that the present can be seen." Nearly all digital media labs are conceived of as a place for experimental research using the most up-to-date, cutting-edge tools available. The MAL – which very well might be the largest of its kind in the world – is a place for cross-disciplinary experimental research and teaching using still functioning media from the past. The MAL is propelled equally by the need to both preserve and maintain access to historically important media of all kinds – from magic lanterns, projectors, typewriters to personal computers from the 1970s through the 1990s – as well as early works of digital literature/art which were created on the hardware/software housed in the lab.

The lab is defined as much by what it is not as by what it is. It is a unique humanities lab that is not interested in scientificity. Rather than being hierarchical and classificatory, it is porous, flat, and branching. Objects are organized in any way participants want; everything is functional and made to be turned on. Rather than being an entity you need to apply to be a part of or something you can only participate in as a researcher, librarian, PhD student, anyone may participate in the lab and have a say about what projects we take on, what kinds of work we do. Rather than setting out to adhere to specific outcomes and five year plans, we change from semester to semester and year to year depending on who's spending time in the lab.

The MAL is interested in experiments with temporality, with a disruptive relationship between past, present and future, and with lab infrastructure in general. It is a place for serious play and for playful seriousness. It is an anti-museum museum, in that all of its hundreds of devices, analog and digital, are meant to be turned on and actively played with, opened up, tinkered with, experimented with, created with, and moved around and juxtaposed next to any other device. The MAL acts as a kind of meta-lab for thinking through the infrastructure of labs and how they fundamentally shape and inform what is produced, from games to history, within the confines of the lab structure. The MAL's holdings quietly show how the history of computing is anything but a neat progression of devices simply improving upon and building upon what came before. In other words, the MAL's collection itself is a disruption to a particular notion of temporality underlying another particular notion of "history". With these devices, we can understand the waxing and waning of technologies more in terms of a phylogenetic tree whereby they are altered over time, split into separate branches, hybridized, or are terminated.