

Magic Science

November has been an exhilarating month thanks to two great events: Dr Mara Miniati, emeritus curator of the Institute and Museum of the History of Science in Florence (IMSS) gave the Society's 'Annual Invitation Lecture' on Friday 20 November. The audience of this well attended lecture was treated to an evocative discourse on the beautiful instruments collected by the Medici family governing Florence between the 16th and the 18th centuries. I am planning to publish this highly-illustrated lecture in the March *Bulletin*. On the weekend of 31 October - 1 November, I attended a special two-day meeting of the Magic Lantern Society of Great Britain (see www.magiclantern.org.uk/index.html) at the Cinémathèque française in Paris (see www.cinematheque.fr/) to coincide with a remarkable temporary exhibition on the history of magic lantern slides and early 'painted' film.¹ For the scientifically-minded collector there is on view a comprehensive range of mechanical 'scientific' slides, such as astronomical slides, including demonstrating the orbits of the planets (a kind of magic lantern slide orrery), and others demonstrating such phenomena as persistence of vision (by means of animated drawings), anorthoscopic

slides (turning geometrically distorted images into undistorted ones), and chromatic wheels producing colour effects by the visual persistence of complimentary colours. One of the most 'fun' lantern slides was the 'chameleon slide' in which the aperture in the shape of this creature changes colour as the glass disc is being rotated.

If the health of the SIS is judged by its website and the *Bulletin*, it is doing very well indeed. In this issue Martin Beech is describing a strange artifact in the Oxford Museum of the History of Science which turns out to be a mechanical device for solving Kepler's equation invented by the astronomer A.A. Rambaut. Mike Cowham has taken the trouble to describe in detail the use of that 'universal calculator', the sector. Next, it gives me great pleasure to be able to print John Bradley's paper on the twentieth-century history of Negretti and Zambra. Allen Simpson discusses the need for preserving modern astronomical instruments in the context of Scotland, and Allan Mills is writing on the history of high-pressure seals as a supplement to his previous notes on the invention of the O-ring. Roger Smith has produced a delightful report on his search for camera obscuras in Continental Eu-

rope, cast in the form of a travel log, and this has also inspired our December cover illustration. Finally, to round off there is the report of the very successful two-day visit to the East Midlands.

It must be galling for any of our hard-working Officers, to see their earnest efforts laid to waste through incompetence. I draw your attention specifically to the Treasurer's Report in our previous *Bulletin* in which the Editor had omitted the key phrase 'had all been cleared' in para. 4.6 on p. 5, and the Treasurer's reaction expressed in poetic form in his letter on p. 23 in this issue. Did any of you notice the vital missing words - come on admit it!

Please note that the Society is looking for a new webmaster (see p. 23). Contact Neil Handley if you are interested in this very worthwhile enterprise. Finally, I wish you all, also on behalf of the Committee, a very happy festive season and a prosperous New Year. Happy reading and happy collecting!

Notes

1. See the fine, heavily illustrated exhibition catalogue by Laurent Mannoni and Donata Presenti Campagnoni, *Lanterne magique et film peint 400 ans de cinéma* (Éditions de La Martinière, 2009). The exhibition ends on 28 March 2010.

Cover Story

Starting *top left* then going clockwise the first camera obscura is a reproduction made by the author in 2003 of an early 19th reflex type in the Museum of History of Science, Oxford University (Inventory No. 78618). It's made from mahogany apart from the lens mounting, which needed a harder African hardwood Mgurure in order to turn the 1mm pitch thread without cracking. It has a lens of 75mm dia. and focal length of 300 mm. Overall dims: 196 x 143 x 348 mm.

Top right is 'Vermeers Camera' invented by Anson Cross in 1934. The title of the patent is 'Colour Finder and method for the studying of painting' and the text on the side of the box refers to 'Vermeer's' masterpieces painted from an image projected by lenses and mirrors', so already an established view. Effectively, the device consists of two hinged camera obscuras. The art student directed one at the scene and the other at his painting for comparison. Each has a lens dia. of 35 mm and focal length 180 mm. Overall dims. 200 x 130 x 208 mm.

Bottom right is the optics of a Tent Camera Obscura, c. 1825, which uses a meniscus prism in place of a lens and mirror. The meniscus prism was a key stage in the development of optics used in camera obscuras. It was introduced and made by the French scientific instrument makers Vincent and Charles Chevalier in 1823 and reduces spherical aberration - a distortion that occurs at the edge of images found in early lens-based systems. The hypotenuse face of the prism is plane and totally reflects light internally as a mirror does.

The two adjacent faces are curved in order to refract the light and produce a real image. The engraving on the prism mount reads:

BREVETE

*Invente Par Vincent and C. Chevalier
Ing.rs Opt.n.s Quai de L'horloge No.69 Paris.*

The 45-degree meniscus prism dimensions: 75 mm length x 70 mm wide hypotenuse face with a focal length of 1m. Overall height on tripod 1590 mm with optics assembly 150 x 110 mm dia.

Bottom left is an unusual variation for a tent camera obscura invented by Commander Blain a French militia man in 1889. It uses a lens and mirror with sliding cover for the optics, arranged in a collapsible wooden housing for protection and portability. The opened unit was then mounted on a tripod with a tent enclosure for officers to use in the field. The casing has a monogram of 'EP' with the 'E' laterally inverted followed by Brevete (patented) underwritten with S.G.O.G, stamped in the wood, and came with the note 'constructeur E.Picard 14 rue du Bac Paris' It's described in an article 'Chambre Noire de Campagne' in *La Nature* No. 893 1890 with engravings showing its arrangement and method of use 'in supporting reconnaissance reports'. The lens has a focal length of 600 mm and a dia. of 65 mm.

The central camera obscura is by Ernst Planck a German toy maker and made of tin plate painted black with brown decoration. Date c.1900 with a lens of focal length 180 mm and dia. 65 mm. Overall dims. 175 x 150 x 203 mm.

Roger Smith



Fig. 1 Jigsaw puzzle globe by Ch. Kapp, designed as a toy that would help children to learn about the continents of the world, 19th century. Image © the Whipple Museum (Wh.4608).

STOP PRESS!

Globes exhibition at the Whipple Museum, Cambridge, UK

New for Winter 2009/10, the Upper Gallery of the Museum contains an exhibition of globes from the Whipple Museum's collection. The exhibition presents globes designed for a range of different purposes, from educational tools (Fig. 1) to fine furniture, and for a variety of audiences, including as children's educational toys, sailors' navigation aids and status symbols for gentlemen. Do not miss this rare opportunity to see over forty globes from the collection displayed together. The exhibition will run until March 2010, admission free. To learn more about the Museum's globes, see their website: www.hps.cam.ac.uk/whipple/exhibitions/globes/