

A QUEST FOR THE TRUE INVENTOR

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IN DEAC ROSSELL'S THOUGHTFUL ARTICLE 'The True Inventor of the Magic Lantern' (*NMLJ* Vol. 9 No. 1) he suggests quite convincingly that Christiaan Huygens may not have been the inventor. I find myself in agreement with him. The generally accepted story that Huygens was ashamed of such a trifle seems incredible in relation to a scientist of his calibre.

Deac then proposes a few other candidates who may have been instrumental in showing Huygens a lantern, all from earlier in the seventeenth century. The quest is at best a bit of a wild goose chase, but perhaps not as impossible as tracing the inventor of the wheel! I would like to put forward some other names, from very much earlier in history, who had knowledge of optics in one form or another.

The first possibility is the great English scholar Roger Bacon, who was born in 1214 or earlier and died in 1292. Most of his life was spent in Oxford and Paris. In a lecture to the British Academy in 1928, Dr A.G. Little read a paper on Roger Bacon in which he made a number of revelations regarding Bacon's scientific work.¹ According to Little, the high-water mark of Bacon's life was reached in the years 1265–8 when he was 'pouring out his soul to the Pope's command in the three great works – the *Opus Majus* and the two supplements, the *Opus Minus* and *Opus Tertium*'. Little also mentioned that discoveries of Bacon's works had been made only 'recently', by one Father Delorme in Paris and by Monsignore Pelzar in the Vatican. Pelzar had identified missing portions of Bacon's *Opus Minus*, and a manuscript of a (hitherto unknown) part of the *Opus Majus* annotated in Roger Bacon's own hand for the use of Pope Clement IV.²

Dr Little quotes from a statement which occurs in Bacon's *Opus Majus* and elsewhere: 'that we can arrange lenses that large objects can appear small and vice versa, and distant objects can appear near, and that we could read the smallest writing at an incredible distance'. However, says Little, a passage to the same effect, and partly in the same words, also occurs in Grosseteste's treatise on the rainbow.³

This provides us with another candidate – Robert Grosseteste (c.1168–1253), who became Bishop of Lincoln in 1235. He was acquainted with the works of the Arab scholar Avicenna (980–1037) and the Spanish Moorish scholar Averroes (1126–98). Like the works of Bacon, Grosseteste's manuscripts are also found in libraries all over Europe. He was considered the greatest scholar of his age.⁴

Both Bacon and Grosseteste had dealings with the papacy (Bacon sent a concave lens to the Pope to experiment with).⁵ Surely the great historical library of the Vatican, where Monsignore Pelzar had made the discoveries already noted, must be one of the most likely places where a search for the true inventor of the magic lantern should begin.

Other natural philosophers of interest who busied themselves with the 'Science of Opticks' include Witelo, a thirteenth-century Polish philosopher who commented on the work of the Arab mathematician Alhazen (c.965–c.1040) and studied the subject of refraction. In 1604 Johannes Kepler published a work called *Paralipomena in Vitellionem*, in which the question of refraction came up in connection with the theory of lenses.⁶ Mention should be made also of John Peckham (1228–91) of Canterbury's *Spectiva Communis*, a major treatise on optics. Peckham taught in Paris and Oxford and came into contact with the great scholars of his age.

Then, somewhat later, there are William Gilbert of Colchester (1544–1603) and Galileo Galilei (1564–1642). Gilbert was the first eminent man of science in England since Roger Bacon. He bequeathed his books, instruments, lodestones, etc. to the College of Physicians housed at Amen Corner, by St Paul's Cathedral. Unfortunately all were destroyed in the Great Fire of London in 1666.⁷ A far more shadowy figure – one Hans Lippershey, a manufacturer of spectacles in Middleburg, Germany – is credited by some sources with being the inventor of the telescope, rumours of which reached Galileo in due course.⁸

Is it not likely that some, if not all, of these experimentors, working over centuries on aspects of optics, could have stumbled on a combination of lenses capable of projecting images? Some place, somewhere may hold the secret we are looking for. By no means all of our private and public libraries have been exhaustively catalogued. A case in point is the discovery in 1965 of two of the scientific notebooks of Leonardo da Vinci (1452–1519), long thought lost, in Spain's Biblioteca Nacional. These have since been published and are now known as *Madrid Codex I*, which deals with applied and theoretical mechanics, and *Madrid Codex II*, which deals with a variety of topics including geometry and optics.⁹

So another candidate should be Leonardo da Vinci himself. Marco Cianchi's 1980s book¹⁰ on Leonardo's designs for machinery includes a number of reproductions of sketches of optical devices, a few of which are reproduced here. None of them shows a magic lantern as we know it and, as with all Leonardo's designs, it is unclear whether these are simply sketched ideas or whether they were ever realised, but the possibility is always there. The quest needs to go on for some while yet!

Bill BARNES is an internationally renowned scholar and collector of all things optical. With his brother John he assembled the Barnes Collection, one of the foundations of all modern interest in the history of the cinema and other optical media.

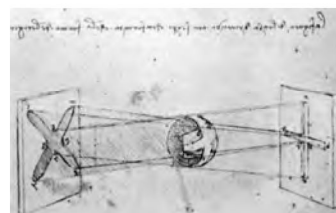
Sketches by Leonardo da Vinci, apparently showing optical machines and principles (Source: Cianchi, *Leonardo's Machines*)



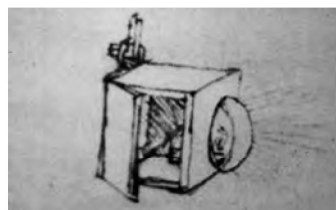
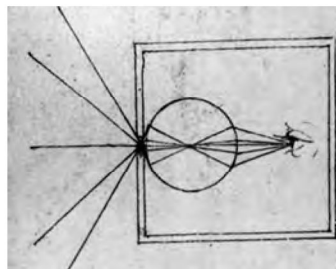
1. A perspective machine or drawing aid



2. A room of mirrors



3,4. Sketches of optical effects, possibly related to the camera obscura



5. A lamp with lens, generating 'an intense and wide light'

NOTES

1. *Proceedings of the British Academy*, Vol. XIV (London: Humphrey Milford, 1928).
2. Monsignore Pelzar, *Archivum Franciscan Historicum* XII (1919), 45.
3. *Proceedings of the British Academy*, op. cit.
4. J.H. Scrawley, *Robert Grosseteste, Bishop of Lincoln* (Lincoln: Friends of Lincoln Cathedral, 1966). For more on Grosseteste see James McEvoy, *Robert Grosseteste* (Oxford: Oxford University Press, 2000).
5. *Proceedings of the British Academy*, op. cit.
6. Ivor B. Hart, *Makers of Science* (London: Oxford University Press, 1923).
7. *Proceedings of the British Academy*, op. cit.
8. Hart, op. cit.
9. Sherwin Nuland, *Leonardo da Vinci* (London: Weidenfeld & Nicolson, 2000).
10. Marco Cianchi, *Leonardo's Machines* (Florence: Becocci, c.1988).