DISSOLVING WITH A SINGLE LANTERN: THE 'CRITERION OPTICAL LANTERN' OF 1896

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It is easy to impose our own priorities on the past. We might presume, for instance, that in 1896 lanternists would be most concerned about the new medium of moving pictures, and the transformation that this novelty was likely to bring to their business. But in that year, as the pages of the *Optical Magic Lantern Journal (OMLJ)* demonstrate, lanternists were still preoccupied by the things that had bothered them for many years, such as how they could achieve dissolving effects using only a single magic lantern.

By 1896 professional lanternists were using biunial lanterns, with complex gas taps that gave them full control over their limelight jets. These enabled them to slowly fade out the light behind one slide stage, while raising it behind the other, to achieve a smooth dissolve between images. Audiences would have noticed the difference between these shows and those given by lanternists with only a single lantern, who were obliged to break the illusion on the screen by pushing one slide out of the way before showing the next.

Manufacturers offered a range of slide carriers which did their best to mimic dissolving, mostly by permitting one slide to be overlaid by the next, which came into focus as the first was removed. The most popular such carrier was Beard's 'Eclipse', introduced a decade earlier,[1] which was available for 10s 6d, and was marketed as "the nearest approach to dissolving yet obtained with a single lantern".[2] But lanternists wanted more, and in September 1896 the *OMLJ* published a new suggestion for changing slides in any single optical lantern which possessed "clear space between the condenser and the objective", as in a science lantern.

The *OMLJ* proposed using a carrier mounted directly in front of the condenser, which held two slides side by side, but was positioned off-centre so that the light shone through only one of them. If the carrier was hinged on four short arms, two above and two below, it could swing forward and across the front of the condenser as the lanternist pushed it gently sideways, then swing back in front of the condenser, putting the second slide before the light. In this way "the first picture…is put out of focus, and the second one in being brought to view is at first blurred, but as it assumes its proper position, becomes sharp, thus giving a pleasing effect."[3]

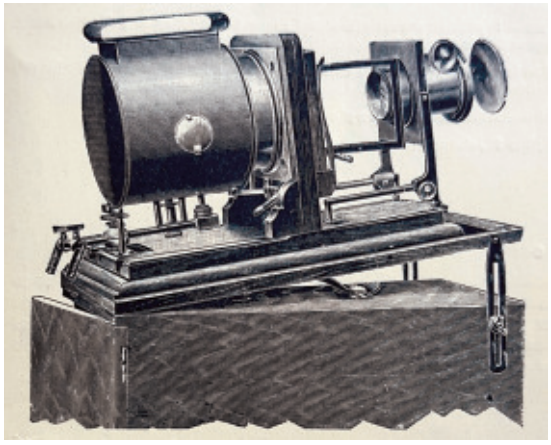
It is not known if any readers were sufficiently impressed by this article to build such a device, which the *OMLJ* assured them could be "easily made". But the article must have come as a shock to the Birmingham Photographic Company, which had just begun manufacturing a very similar patented design and was even planning to advertise it in the *OMLJ*. Advertisements for the company's 'Criterion Optical Lantern', incorporating this "new method of changing slides", duly appeared in the issue for November 1896, in time for the new lantern season.[4]

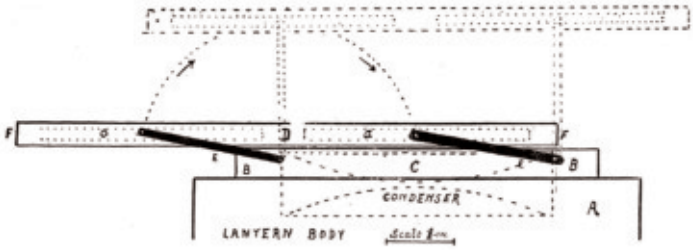
1. The 'Criterion Optical Lantern' of 1896, later adapted to electric light

The 'Criterion' lantern, with its own swinging slide carrier, had been designed by the 22-year-old Frank Alston, who lived close to the headquarters of the Birmingham Photographic Company in Sparkbrook, a south-eastern suburb of Birmingham. Frank Herbert Paffard Alston had been born in Norwich on 5 April 1874, but had moved to Birmingham with his father while still a boy. By 1891, when the Birmingham Photographic Company was established, his father was describing himself as an 'Artist Photographer', and the 17-year-old Frank had become a 'Brass Lamp Worker'.[5] When Frank married, a few years later, it was to the daughter of another Birmingham brassworker,[6] and this specialism may have helped shape his future career, for Birmingham brassfounders manufactured parts for magic lanterns.[7]

The Birmingham Photographic Company was originally created to exploit the Kallitype process, a method of producing iron-silver photographic prints, invented by a Birmingham chemist and patented in 1889. A company had been set up to manufacture the new Kallitype paper, close to where Alston lived in Sparkbrook, and in March 1891 it was taken over by a big local leatherworking and saddle-making firm, J.B. Brooks and Company. They renamed it the Birmingham Photographic Company, and christened its factory the 'Criterion Works', after J.B. Brooks' existing factory in central Birmingham.[8]

Alston applied for a patent for his lantern on 18 December 1894, when he was still only 20. In the application he described himself as a 'Mechanic', and he may not yet have had any connection with the Birmingham Photographic Company. His design incorporated a new 'universal mounting' for the gas burner, but it also featured a novel slide-changing mechanism, mounted on a detachable wooden frame the thickness of a mahogany-mounted slide, and held against the





2. Catalogue illustration of the 'Criterion Optical Lantern', with a limelight burner (William Tylar's 1898 catalogue, p.183) (left)

3. Top view of the swinging slide carrier, suggested by the OMLJ *in September 1896 (above)*

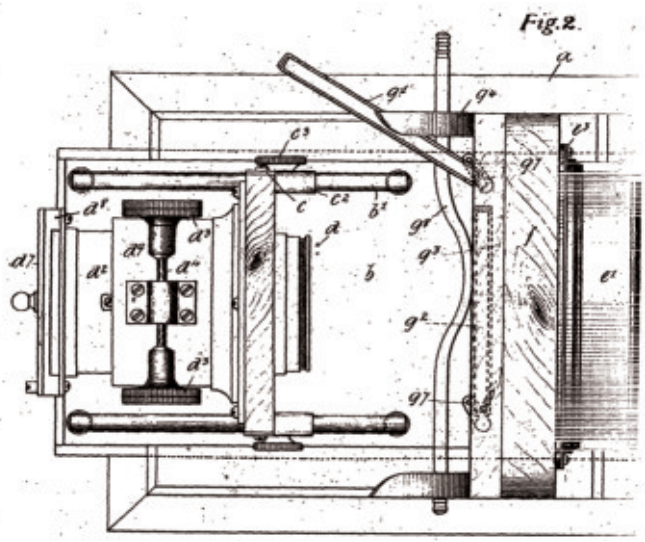
4. An advertisement for the 'Criterion Optical Lantern' from the OMLJ *of November 1896*

condenser lens by 'feather springs'. As Alston explained, "the slide carrier ... constitutes one of the main points of this invention":

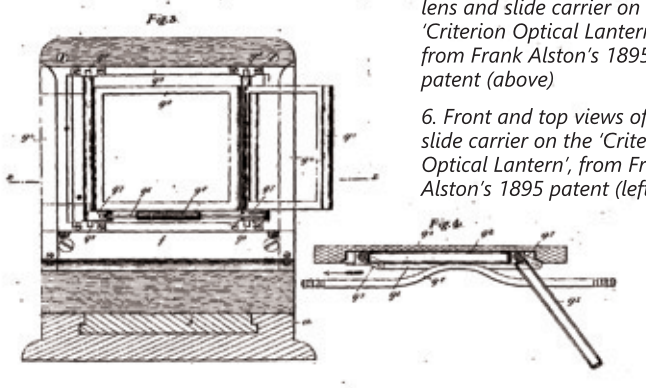
> *"This is constructed with two frames swinging on joints or hinges and so connected that while one holds a slide in position against the condenser, the other stands at the side holding the next slide in readiness. When it is required to change the picture, the connecting rod is moved, this causes the frames to turn on their hinges so that as one picture leaves the condenser the next approaches to take its place."*

The two vertically-hinged 'slide-carrying frames' were made to act in unison by this connecting rod, which the lanternist moved from side to side with a second 'pull and push rod', fixed to it and accessible from the right-hand side of the lantern. According to Alston's patent, this novel system ensured that there was "no time lost" between slides. If the lanternist wanted to use slipping slides or chromatropes, or even preferred a standard slide carrier, the patent carrier could be removed.[9]

The 'Criterion Optical Lantern' was available either "in polished walnut with nickel silvered fittings", as in the example shown here, or in the more traditional mahogany and brass. The basic price with either oil or gas burners was £6 10s, which included a carrying-case with a tilting lid for projection. The whole was hailed as "a very compact and well thought out lantern, and suitable for all purposes both as a lantern for home work, for the lecture hall, or for the science class."[10]



5. Top view of the objective lens and slide carrier on the 'Criterion Optical Lantern', from Frank Alston's 1895 patent (above)



6. Front and top views of the slide carrier on the 'Criterion Optical Lantern', from Frank Alston's 1895 patent (left)

7. The 'double-action flap changing device' in action. (a) stage 1 (b) stage 2: mid change (c) stage 3: new slide appears with audible 'flack'

The 'Criterion Optical Lantern' was marketed by William Tylar of Birmingham, and the company naturally sang its praises. "Ordinary glass slides can be inserted in the double-action flap changing device," its catalogue noted, "and a very beautiful effect of a dissolving nature is shown upon the sheet."[11] At only 17 inches long when in operation, the 'Criterion' was a small and attractive lantern of a striking new design. Despite the claims in its advertising, it seems principally intended for domestic use, and the base even has a thin sheet of leather underneath to avoid scratching polished table-tops.

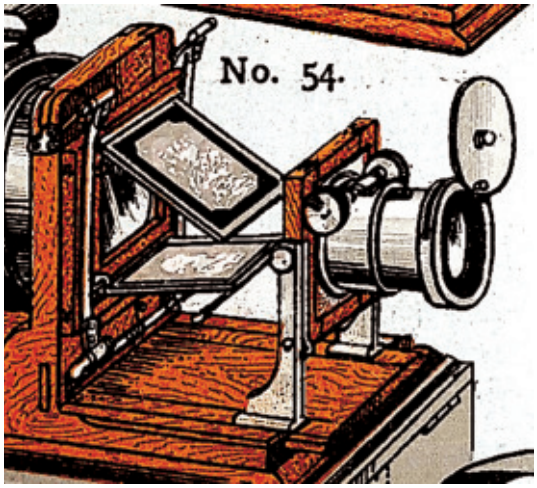
The 'Criterion' incorporates many novel elements, but it is hard to imagine that Alston had much experience of lantern design. The objective lens is separate from the body, to allow room for the slide

changer, but Alston didn't mount it rigidly on a rod or slide, as in science lanterns. Instead he supported it with attractively-slender legs running on two parallel rods, which don't seem to serve any purpose since they are mounted on a board which also slides in and out. Alston also made the mistake of designing these legs in two parts, lightly soldered together, and in the example shown they had simply collapsed under the weight of the lens mounting. Extra holes in the wooden lens board, where a previous owner had remounted them, also hint at further problems with a design that is a visual tour de force but a practical nightmare.

It is also difficult to imagine that Alston had much experience of giving lantern shows. His claim of "no time lost" in changing slides is hard to understand when the changeover is no faster than with the simplest slide carrier. As with Beard's 'Eclipse' carrier, the old slide goes out of focus and the new slide emerges into sharpness to take its place, but, in contrast to the 'Eclipse', the slides have to be inserted and removed from both sides of the lantern. That would demand some care if the limelight had been burning for a while, and the lanternist had also to remember to insert the slides back to front as well as upside down, for the left-hand carrier flips them clockwise to the right, while the right-hand carrier flips them anti-clockwise to the left. If any were especially thick, or had damaged binding, there would have been a lot of fumbling in the dark to get them into the tight-fitting 'slide carrying frames' of Alston's 'double-action flap changing device'.

The launch of the 'Criterion Optical Lantern' was part of an expansion of the Birmingham Photographic Company in 1896, which also saw the launch of the 'Criterion Pocket Camera'.[12] Then, in 1897, construction of an even bigger 'Criterion Works' began on newly-acquired land at Stechford, east of Birmingham.[13] Alston's lantern remained in production, but there had probably been criticism from users, as William Tylar's 1898 catalogue carried a new illustration of it "with all improvements up to date".

As can be seen (Fig. 8), Alston had redesigned the weak lens mounting and done away with the parallel rods, which were little more than decorative. He had also decided to turn the patent 'flap changing device' through 90 degrees, to ensure that, as the text noted, "the carriers are filled and emptied from the right hand side of the lantern." Not having to reach across the lamphouse was certainly an improvement but Alston had made no change to the slim 'carrying frames' into which slides now had to be fitted the right way up and back to front. Every second slide change was also against gravity, which must have been rather awkward, although to assist with this it seems he had done away with the 'pull and push rod' and attached a protruding handle to the lower frame.



8. The 'Criterion Optical Lantern' as it appeared in the 1898 William Tylar catalogue, with the 'flap changing device' now mounted sideways

By now it seems that Alston had joined the Birmingham Photographic Company full time, and by 1899 he was the manager of one of its departments, describing himself as a 'Designer of Photographic Apparatus'.[14] Two years later, when he applied for a hand-camera patent, it was on behalf of both himself and the company.[15] However, soon after this his career took a surprising turn. The prosperity of J.B. Brooks and Company, which owned the Birmingham Photographic Company, was based on its manufacture of leather bicycle saddles, but it now branched out into motorbike saddles and even began marketing the 'Brooks Aeroplane Seat'.[16] Alston moved across into this new world of motorbikes and aircraft, and from 1907 was closely associated with the 41-year-old Boultbee Brooks, the son of the firm's managing director, in the design of electrical systems for internal combustion engines. Between 1908 (GB190720361) and 1912 (GB191116878) the two men were granted a series of patents for ignition systems, and Alston came to describe himself as a 'Designer of Electrical Apparatus'.[17]

Frank Alston's interest in the magic lantern seems to have lasted for only a few years. It probably grew out of his father's professional interest in photography and his own involvement with the Birmingham brass industry, and by the First World War he had moved on to work in other fields. The remainder of his business career was devoted not to cameras and lanterns but to electrical work, and especially to wireless. He remained in Birmingham, and by 1939 was living in Solihull and running a radio business at 1141 Coventry Road, Yardley. This was a family affair, for he listed himself as a 'Radio Dealer', with his wife as a 'Radio Dealer['s] Secretary', and his two sons as a 'Radio Engineer' and 'Radio Service Manager'.[18] Frank Alston died in Solihull on 22 July 1946, aged 72,[19] but the firm of F.H. Alston and Sons, television and radio dealers, continued for many years under his son Leslie.[20]

NOTES AND REFERENCES

1. David Robinson, Stephen Herbert and Richard Crangle (eds), *Encyclopaedia of the Magic Lantern*, Magic Lantern Society, London, 2001, pp.282-3, 'Slide Carriers'. The 'Eclipse' was patented in 1886
2. *RRB: The Beard Brand – Section A* (catalogue), R.R. Beard, London, n.d., p.5, 'Beard's Eclipse Single Lantern Slide Carrier'
3. *OMLJ*, September 1896, pp.139-40, 'Dissolving with Single Lantern'
4. *OMLJ*, November 1896, p.xii, 'The Criterion Optical Lantern'
5. 1891 Census entry for 197 Ladypool Road, Balsall Heath
6. Registration of Marriage for Frank Alston and Harriet Dayes, Edgbaston Parish Church, 23 May 1899. Harriet's uncle was also a brassworker: 1901 Census entry for 40 Wenman Street, Balsall Heath
7. In 1896 the Birmingham brassfounder Wilkins & Wright, which specialised in brass stamping, advertised that it also produced "camera and lantern brasswork": *Peck's Circular Trades Directory ... to the Manufactures of Birmingham*, W.E. Peck, Birmingham, 1896-97, p.xxxiv (Wilkins & Wright advert)
8. *British Journal of Photography*, 27 February 1891, p.141 col.2, 'Bristol and West of England Amateur Photographic Association'; 3 April 1891, p.224 col.2, (unheaded); *Work: An Illustrated Magazine of Practice and Theory*, 1 August 1891, pp.306-7, L. Ivor Poole 'The Kallitype Photographic Printing Process'; *Birmingham Daily Gazette*, 27 November 1907, p.4 cols.4-5, 'Midland Captains of Industry: XXXIX - Mr J.B. Brooks, JP'; Dick Stevens, *Kallitype: The Processes and the History*, Xlibris Corporation, Bloomington, Indiana, 2013, pp.39-41
9. Patent No. 24,655, applied for 18 December 1894, granted 30 November 1895 (GB189424655A)
10. William Tylar's 1898 catalogue, p.184. I am very grateful to Dr Michael Pritchard for supplying copies from this catalogue in his collection
11. William Tylar's 1898 catalogue, p.183
12. *Leeds Mercury*, 15 December 1896, p.1 (advert)
13. *The Builder*, 3 July 1897, p.19 col.3, 'Tenders'; *Birmingham Daily Gazette*, 27 November 1907, p.4 cols.4-5, 'Midland Captains of Industry: XXXIX - Mr J.B. Brooks, JP'
14. On his marriage in May 1899 Alston described himself as a 'Manager', and in a May 1901 Patent application he expanded this to 'Manager of Department' for the Birmingham Photographic Company, Criterion Works, Stechford, Birmingham. In the March 1901 Census he described himself as a 'Designer of Photographic Apparatus'
15. GB190110033, accepted 10 April 1902, for 'Improvements in and Relating to Cameras for Photographic Purposes'
16. *Aero*, 7 December 1909 (advert)
17. 1911 Census entry for 327 Green Lane, Small Heath, Birmingham
18. 1939 England & Wales Register entry for 51 Keswick Road, Solihull
19. England & Wales Probate Calendar 1947, p.92. Frank Alston left £1,473
20. *Birmingham Daily Post*, 10 October 1968, 'Features', p.9 col.1, 'Obituaries: Mrs Harriet Alston'