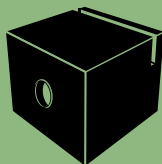


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C I C A N T

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**“STARTLING”,  
“EXTRAORDINARILY  
BEAUTIFUL”, AND  
“OBTRUSIVE”:  
REACTIONS AND  
RESPONSES TO THE  
STEREO-AUTOCHROME**

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## **Abstracts**

The commercial release of the Lumière Autochrome in 1907 made three-dimensional colour images appear in reach. The issues surrounding the viewing of autochromes seemed to be mitigated in the stereoscopic format, with stereo-autochromes branded a sensation in the photographic and popular press, compared to witchcraft in their combination of the stereoscopes' sense of depth and relief with the autochrome's full spectrum of colours. But over time, issues with the stereo-autochrome, ranging from 'clumping' to exposure times, fed into a rejection of the invention. This paper will draw on new research into the Victoria and Albert Museum's collection of autochromes and related objects and ephemera.

**Keywords:** stereoscopic; autochrome; A.W.M. Dickins; Lumière; colour photography

Upon the commercial release of the Lumière Autochrome in 1907, the desire to create three-dimensional colour images was immediate. A 1908 article noted “[a]s soon as the Lumière plates were placed upon the market much use was made of them for stereoscopic pictures” (Luther, 1908). It was a logical and much anticipated match signifying human ingenuity; Kim Timby states “[c]olour and 3D were at that time inextricably linked in public opinion by a certain idea of progress, by the sentiment that virtual reality (combining movement, sound, colour and depth) was the future” (2005, p. 195). Initial reviews branded the stereo-autochrome a sensation, with users reveling in the production of three-dimensional colour images (*Photographic News*, 1908). But the initial novelty soon wore off. Whereas the stereo-autochrome was seen to enhance the wonders of the autochrome process, notably in terms of its capacity for colour, it became apparent the invention also simultaneously highlighted the autochrome’s limitations, which impacted on the invention’s success. For a short period of time, however, the stereo-autochrome represented a significant evolution in photographic technologies, embodying possibility, and progress.

This paper is informed by close reading and research on the Victoria and Albert Museum’s (V&A’s) collection of autochromes. The V&A’s collection of autochromes comprises over 2,500 works and primarily derives from the Royal Photographic Society (RPS) collection which the V&A has cared for since 2017. For this reason, much of the collection is by practitioners involved with the RPS. In addition to works by notable autochrome practitioners like Alvin Langdon Coburn, John Cimon Warburg, Helen Messinger Murdoch and Henry Essenhig Corke, the collection includes original housing,

cameras, filters, letters, journals, manuals and other ephemera. The wealth of material provides a unique insight into the practice, reception and culture surrounding the autochrome, and by extension, the stereo-autochrome.

The Lumière Brothers, Louis and Auguste, were already established pioneers of photography when they began developing a colour photography process. Following several years of invention, the Lumières publicly announced the Lumière Autochrome in May 1904, following the filing of a patent the prior year. The process features a colour filter comprising thousands of miniscule potato starch granules dyed red, violet-blue, and green. These granules are adhered to a glass plate. On top of the colour filter sits a layer of gelatin silver emulsion. These elements are held together and protected by multiple layers of varnish. Following three further years of refinement, the autochrome went into mass production and was released commercially in 1907 to an expectant and excited public (Lavédrine and Gandolfo, 2013). Plates were initially released in France in June 1907, heightening expectation and excitement in Britain where plates became available in October 1907. It marked the beginning of relatively accessible and easily produced colour photography. A widely published notice dated October 1907 described the autochrome as “a revolution in photography”, continuing:

The new “Autochrome” plate, the invention of Messrs. Lumière, has solved the difficulty of obtaining true colour renderings by purely photographic methods of subjects which could hitherto only be obtained in monochrome (*Bucks Herald*, 1907, p. 2)

Autochrome plates could be used in any camera and were sold in a variety of sizes, including standard stereograph



**Fig. 1** Olive Edis, Diascope, c. 1912, wood, textile and mirror glass, 30.5 x 26.5 x 2.6 cm, from the Victoria and Albert Museum collection, RPS.1285-2020 © Victoria and Albert Museum

format. The process was described in the photographic press as “perfectly simple” to produce accurate renderings of the colours represented in nature (Weston, 1915, p. 21).

Despite its advertised simplicity and enthusiastic embrace, issues were soon apparent, and criticisms were aimed at the limits of the autochrome process. Autochromes, produced on glass, are inherently fragile. The multiple layers of varnish, in addition to the colour filter and emulsion, make the plates dense and dark. Viewing the colour image is only possible through strong illumination via backlighting or projection. For this

reason, autochromes could not be displayed easily in exhibition contexts or people's homes except through adhering the plates to windows or use of special viewing devices, like a diascope (Fig. 1). The latter device primarily restricted viewing to one individual at a time, reducing the capacity for collective viewing. Prolonged exposure to sunlight through display damaged the highly sensitive, fugitive dyes in autochrome plates, producing a browning effect across the work known as tanning. The plates' density also reduced their capacity to be projected as they required significant illumination, yet the excessive heat required for projection could cause the photographic emulsion

to melt, destroying the image entirely (*BJP*, 2 October 1914). Such display methods proved unsatisfactory and unreliable, reducing the capacity to successfully view and appreciate autochromes in exhibition or domestic settings. As there was no simple means to display or sell autochrome works, the marketability and commercial appeal of the autochrome, both for the creator, commissioner, and buyer, was significantly limited.

Yet, the perceived limitations associated with viewing autochromes could be successfully adapted to the stereograph format. As a 1907 article in *The Amateur Photographer* noted, “the stereoscope would form a convenient method of viewing Autochromes” (‘M. Richard’s’, 1907). Viewing stereographs already required specialist equipment and the viewing experience was accepted as a solitary pursuit, enclosing and immersing the viewer in the three-dimensional world presented. Focus was on the experiential quality of the image, and for this reason, there was little expectation of stereograph display in frames or collation in albums. While the fragility of the autochrome’s glass base was a consideration, glass stereographs and their forebear, the daguerreotype stereograph, had been a previously popular if equally fragile process (Batchen, 2020). The popularity of daguerreotype stereographs was eclipsed by the craze which surrounded the albumen print stereograph, mounted on card. Utilising the 1850 invention of albumen prints, the albumen stereograph could be cheaply produced and sold at an affordable price, appealing to the wider population. Gaining traction in the mid-nineteenth century, mass-produced stereographic photographs were sold internationally and notable firms, including Negretti & Zambra, commissioned photographers to produce stereographic images to meet the significant

public demand. In 1865 alone, the London Stereoscopic Company sold half a million stereographs, predominately showing travel imagery (Price, 2003). Sometimes the stereographs – both daguerreotypes and albumen prints – were hand-coloured, indicating a pre-existing desire to produce three-dimensional, colour images. The autochrome process could thus assume its place within the culture and social practice surrounding the stereoscope. By the 1880s, stereoscopy was fading in popularity owing to inventions like the Brownie box camera which offered personal imagery, if not three-dimensional (Christie, 2018). The stereo-autochrome can therefore be seen to have revived interest in the stereoscopic invention and experience.

The appeal of stereo-autochromes, especially commercially, was significant: it was an invention that promised colourful, three-dimensional images, as scenes were experienced and seen in life. The Lumières clearly understood the appeal of colour, three-dimensional images. Early in their experiments they produced a colour photographic process entitled ALL Chroma, the ALL standing for Auguste and Louis Lumière. ALL Chroma combined colour with the stereoscopic format. It used a subtractive process to produce vivid colour stereographs and these were sold commercially to promote the Lumière company (Lavédrine and Gandolfo, 2013). Whilst a success during their display at the 1900 Paris Exhibition, the process was complicated and expensive, and was eventually abandoned, yet it demonstrated the fascination for colour, three-dimensional images.

Similarly, the introduction of the stereo-autochrome received an enthusiastic response, described as astonishing

in its replication of colourful, realistic scenes. As one article declared “the illusion of relief, of space, becomes absolutely wonderful when they are in colour ... You get an absolute impression of reality” (Arizzoli, 2017). In a similar vein, a 1908 article in *The Photographic News* stated: [w]hen the effect of relief is joined to a life-like presentation in colour the effect is quite startling in its reality. It is not easy to imagine what the effect of anything of this kind would have been on our ancestors and witchcraft would have been but a feeble, almost complimentary term, for anything so realistic and startling.

Initially, sale and production of stereo-autochromes were largely confined to France, the location of the Lumière factory in Lyon, and the base for key manufacturers of stereoscopic cameras. The Paris-based manufacturer Jules Richard was known for the production of stereoscopic cameras, including the Verascope, and his cameras were regularly advertised and advised for use with autochromes (Judge, 1926). The company soon sought the commercial market in England. In November 1907, *The Amateur Photographer* announced Monsieur Richard had established a branch at 23 Albermarie-Street, advising “so that he may personally superintend its [the camera’s] sale in England, and at the same time place every facility for developing the plates and making the stereoscopic transparencies within the reach of the customers” (‘M. Richard’s’, 1907). The article reported that below the shop, darkrooms were set up for customers’ use, including one “specially fitted for the making of Autochromes”, advising, “[a]utochromes should certainly prove an attractive form of stereoscopic work” (‘M. Richard’s’, 1907). The following year, the London-based *Morning Post* newspaper reported on the sale of stereoscopic autochrome slides in England that could

be viewed at “Messrs. Richard, of 23 Albermarie-Street.” The article continues, noting that the best stereo-autochromes “possess an unusual realism when viewed in the stereoscope because they not only display outline, light, and colour, but also solid relief” (MacLean, 1908, p. 9). Richard sought further commercial opportunities. A record of the June 1908 RPS documents “that a number of autochrome stereoscopic pictures had been sent by Mr. Jules Richards, which would be on view for some weeks”, demonstrating Richard’s desire to access the amateur photographer market.

Amateur photographers were among the most significant practitioners of stereo-autochromes and shared their practice in society meetings and photographic publications. Presentations of stereo-autochromes, including lantern exhibitions and practical demonstrations, occurred during photographic society meetings and these were documented with interest in specialist and general publications, in Britain and abroad. For instance, the South Australian newspaper *The Express and Telegraph* recorded a meeting of the South Australian Photograph Society in April 1908 that featured a demonstration of the stereo-autochrome process, followed by a stereo-autochrome presentation. The works are described in vivid detail:

the positives were remarkable for the distinctness and realistic appearance of the colouring. The delicate shades of pink and green of the creepers and flowers were faithfully reproduced; a mahogany table showed up perfectly, and the flesh tint of the lady’s face were lifelike. What added to the beauty of the picture was the fact that they were stereoscopic, and on looking at them through the stereoscope a charming effect was produced.



Fig. 2 A.W.M. Dickins, Flower study, c. 1912, stereo-autochrome, 8 x 17 cm, from the Victoria and Albert Museum collection, RPS.20-2020 © Estate of A.W.M. Dickins

A meeting at the Edinburgh Photographic Society in 1915 concluded with a display of stereo-autochromes. This meeting was documented in the popular broadsheet *The Scotsman* with the stereo-autochrome described as “the most realistic form of photographic processes” (1915). Such statements demonstrate the heightened emotions surrounding the vision and experience achieved via the stereo-autochrome. Furthermore, the article’s presence in a widely read newspaper indicates the public interest in the developments surrounding the stereo-autochrome, and wider photographic culture.

In addition to the popular press, advancements and advice were offered in specialist photographic publications. The

publications, including *The British Journal of Photography* (*BJP*) and *Amateur Photographer*, intended to foster greater results with the stereo-autochrome format. The journals featured articles by photographers providing advice on topics including exposure and processing, and updates on the stereo-autochrome, noting that despite difficulties, “[w]hen attention is given ... the results are extraordinarily beautiful” (Luther, 1908).

Choice of subject matter was discussed regularly in the journals, with a focus on the careful selection and placement of colourful objects to heighten the stereoscopic effect; one article described the need for “an abundance of colour with good perspective” (Reflector, 1911). Some guides advised caution





Fig. 3 A.W.M. Dickins, Self portrait, c. 1910, stereo-autochrome, 8 x 17 cm, from the Victoria and Albert Museum collection, RPS.12-2020 © Estate of A.W.M. Dickins

on this front. Judge's guide *Stereoscopic Photography* encouraged colour harmony through avoiding clashes caused by inclusion of numerous coloured details. As an example, he advised photographing a bluebell meadow over a garden bed featuring numerous specimens (1926). There was clear desire for stereo-autochromes of human subjects and *BJP* advised the need for care in lighting and composition (Crémier, 1911). But portraiture involved a moveable subject, in opposition to the relatively slow exposure times of the autochrome: "60 to 100 times slower than the ordinary monochrome plates" (Judge, 1926). Without the use of a tripod, a blurry, unfocused image was common, hindering the stereoscopic effect. Instead, largely immobile subjects were favoured and many

stereo-autochromes focus on flower arrangements, gardens and architectural views, subjects supported by guides of the period (Payne, 1918; Fig. 2). As the *BJP* noted, "[t]he great majority of stereoscopic photographs now produced in this country are, almost without exception, either landscapes, interiors, or street scenes" (Lockett, 1909).

This statement is reflected in the works of A.W.M. Dickins, a chemist who extensively practiced stereographic photography. Dickins was managing director at the London based chemical works Johnson and Sons, a firm that produced chemicals used in photography and cinematography. Dickins would later move to the United States to work for the Eastman



Fig. 4 A.W.M. Dickins, from the series *Views of Holland*, 1911, stereo-autochrome, 8 x 17 cm, from the Victoria and Albert Museum collection, RPS.9-2020 © Estate of A.W.M. Dickins

Kodak Company (United States Patent Office, 1944). Based on his surviving works in the V&A collection, Dickins mainly produced stereographs. His albumen, monochrome stereographs depict a range of subject matter, from portraiture to landscape work, including portraits depicting him at work, while his stereo-autochromes are predominately restricted to still life and landscape studies. A self-portrait shows the deficiencies of creating stereo-autochrome portraits. While sharp the photograph is overly dark, denoting the possibility of flash to gain a clear image. Dickin's skin appears blotchy, a result of the starch granules (Fig. 3). More successful are his studies of flowers, capturing their delicate petals in an array of colours. Their sculptural arrangement is emphasised

when viewed through a stereoscopic viewer, giving a sense of the bouquet's layers and texture (Fig. 2).

During his travels in the Netherlands in 1911, Dickins produced both monochrome and autochrome stereo works. Both share an understanding of depth and demonstrate a consideration of aesthetic compositions. His albumen images depict women dressed in national dress, people at work and studies of architecture. Conversely, his stereo-autochromes focus on landscape images, capturing canals and street scenes. Whilst people are sometimes present in these works, for instance, a group of children standing on a bridge over a canal, they are not the focus of the work, which is instead artfully composed

around a river, with a perspective falling into the distance, enhancing the stereoscopic effect and sense of immersion (Fig. 4). His practice was recognised, with exhibitions of his stereo-autochromes at the RPS annual exhibition in 1913 (Royal Photographic Society, 1913). By this time, criticisms of the stereo-autochrome were emerging.

Issues surrounding stereo-autochromes were raised in publications, with solutions found in either the photographic community or commercial market. An issue that gained significant coverage related to the need to reconfigure and reverse autochrome plates following exposure to ensure that the left image appeared in front of the left eye, and vice versa, as required to achieve a stereoscopic effect true to the initial vision (Luther, 1908). If viewing the plates without this step, the image would be laterally reversed, showing a mirror image. One option was to cut the developed glass plates and arrange appropriately. On this topic, the popular English newspaper *Pall Mall Gazette* offered advice, reporting:

Nearly every stereoscopic worker is an enthusiast even over "monochrome," but colour work has a charm far and away more attractive. Nearly every camera can be adapted to take "autochromes," the attachment of screens to the lenses and space for the plate with the black card in the slide being all that is necessary. The transparency is easily cut with a diamond, and the transposing and mounting is then a simple matter ... The results in stereo-transparencies for natural colour work are so beautiful and interesting that they more than compensate for the little extra trouble and expense (Reflector, 1911).

But this could produce disappointing results and increased the chance of breaking the glass plates. One solution was offered by Jules Richard who developed special stereo-autochrome viewers containing prisms that laterally reversed the images, enabling the works to be read correctly. He also produced a camera that featured four-sided prisms above the lens to reverse the images, meaning the plates could be placed directly into a stereoscope for viewing following development and processing (Early Photography, 2020). These commercial developments indicate the popular appeal and market for stereo-autochromes.

Further issues with the process diminished the appeal of the stereo-autochrome. As noted, constraints on subjects because of long exposures restricted the expressive opportunities available to the photographer. Another problem lay in the tendency for stereo-autochrome plates to show signs of clumping, or a graininess, impacting on the stereoscopic effect. Guides advised against using autochromes for smaller stereoscopes, commenting on the negative visual aesthetic caused by the "magnification of the starch grains" (Judge, 1926). The clumping effect, or blemish, occurred when granules of similar colour naturally grouped together, causing colourful spots to appear at random. Whilst an early demonstration of stereo-autochromes noted that "the merging of the two images into one ensures the elimination of local blemishes to which all negatives are liable, so that slight colour shortcomings due to irregularities of the film disappear" (Maclean, 1908, p. 9), clumping remained an issue and regularly featured in discussions surrounding the stereo-autochrome. The stereoscopic effect enhanced defects, something that was further apparent when slides were projected; as *The Photographic Journal* stated, "the stereoscope is a

ruthless exposé of the deficiencies and defects of the screen-plate process (1922).” This statement moves against Maclean, indicating instead that clumping is more apparent in the stereoscopic format, as it disrupts the reading and visual similarity required to produce the stereoscopic effect. The issue of clumping and graininess blighted the initial positive promise of the stereo-autochrome; as one article surmised “[i]t was natural to expect great things from the Autochrome plate in the way of stereoscopic slides, but these expectations have been more or less upset by the fact that grain of the plate become so very prominent in the stereoscope” (*BJP*, 3 July 1908).

As shown by this article, from 1908 onwards, responses to the stereo-autochromes were mixed, marking a quick change in public opinion. Some continued to herald the miraculous colours and reality presented in the stereo-autochromes. While noting issues, Judge maintained acclaim for stereo-autochrome, noting he was “impressed by the excellent colouring renderings” (1926). In comparison, others decried the loss of an invention that encompassed such promise. A 1922 article published in *The Photographic Journal* summarised this sentiment: “[t]heoretically, a stereoscopic transparency in natural colours should be the very acme of realism. But unfortunately, there is as yet no perfect system of colour photography”. Production of autochromes on glass, and by extension glass stereo-autochromes, ceased in the 1930s with the introduction of Eastman Kodak’s Kodachrome colour film which utilised the subtractive process. A 1952 article in *BJP* considered the evolution of colour stereoscopic technologies and hailed Kodachrome a success in this area. It recalled the stereo-autochromes’ “characteristic stained-glass effect” as “unfortunately obtrusive”, and referred to the success of

later methods like Kodachrome that were “subtractive processes [and]- reseau-free!” describing, “[t]o use it means that our three-dimensional views can indeed give a perfect reproduction of the original scene, free from all interference of a graininess or geometrical pattern that does not form a part of the original, but which the old processes unhappily always imposed upon us” (Linssen, 1952).

Reading these latter statements forms a strong contrast to the joyous embrace of stereo-autochromes from 1907. Articles dating from this time convey a sense of the astonishment and wonder embodied in the viewing of stereo-autochromes. Content on stereo-autochromes, ranging from demonstrations to practical solutions, were reported on in both specialist photographic publications and the popular press, demonstrating the public’s interest. As with all photographic developments, however, the stereo-autochrome was superseded by the next iteration. Interest in stereoscopic technologies was ultimately eclipsed by cinema – a separate invention of the Lumières – where three-dimensionality was replaced by the viewing of continuous, moving imagery. But for a brief moment, the stereo-autochrome was perceived as the pinnacle of photographic representation and evolution through its combination of depth and colour.

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