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Erkki Huhtamo

The Sky is (not) the Limit:

Envisioning the Ultimate Public Media Display

Keywords

Screens, screenology, media archaeology, public media spectacles, media history, cloud projections, searchlights

Abstract

This article is a contribution to screenology, a hypothetical branch of media studies that would deal with the history of screens as both material realities and discursive entities. It develops an archaeology of the screen from a specific angle, excavating the little known efforts to turn the sky into a kind of super-screen, the ultimate media display. These efforts have been both concrete and discursive, often involving complex mixtures of both. The discussion moves between various social spheres, touching upon commerce and advertising, warfare, religion, journalism, literature and art. Among the issues the article covers are the history of cloud projections, literary fantasies about future media, Futurist aerial theatre, Albert Speer's light spectacles in Nazi Germany and László Moholy-Nagy's utopian projections of light displays in open spaces. Finally, their repercussions in more recent media discourses are also pointed out.

Screens before Screens

It is hard to imagine life without screens. And yet, little more than a century ago they did not exist, at least not in the sense we understand them today as conveyors of audiovisual messages and windows linking us with other - *mediated* - realms.¹ The word screen (as well as related concepts in other languages, such as the French *écran*) has existed for centuries, but until the late nineteenth century most of its meanings had little to do with media and communications. As a case in point, *fire screens* were common household items. Although they sometimes bore pictures as decorations, their main function was to guard, hide and divide rather than to reveal, connect and communicate. The long and complex process through which the meanings of the word "screen" were extended to media is not yet fully understood, but worth excavating as an essential aspect of the formative development of media culture.

Media displays are most often associated with indoor spaces, either public (the cinema screen) or private (the television and the personal computer screen), but such an idea is far too narrow. Mobile screen-based devices from cell phones to PDAs, iPods and portable game consoles have become an increasingly important part of everyday life. So have large screens embedded in urban outdoor environments. In all these forms media screens are used in almost total ignorance about their ancestry. For most users this hardly matters. Screens are activated and interacted with in response to short-term needs and desires; as long as they function properly and "look cool" the user is happy.

¹ This essay is part of the author's on-going research on the archaeology of the screen. See my "Elements of Screenology: Toward an Archaeology of the Screen", *ICONICS: International Studies of the Modern Image*, Vol. 7 (2004), pp. 31-82. Tokyo: The Japan Society of Image Arts and Sciences.

Media studies cannot occupy itself merely with the present. It must contextualize media culture historically, extending and questioning its seemingly timeless, self-evident and shared forms and boundaries. It has to explain not only the stages of their technological becoming, but also to assess the shapes and trajectories of their discursive shadows. As scholars such as Walter Benjamin, Raymond Williams and Carolyn Marvin have shown, these rarely go hand in hand. Screens were anticipated *discursively* long before they materialized as artifacts embedded in *de facto* media machines. The imaginary enchanted or magic mirrors, evoked by Shakespeare, Lewis Carroll, Jean Cocteau and others, belong to an archaeology of the screen just as much as television screens or the mobile phone displays, and the discourses surrounding them.² The cultural identity of media screens is complex, and in flux between material confines, social and commercial determinants and discursive elaborations.

This article excavates a phenomenon that has received little attention so far: the notion of the sky as a kind of super-screen, the ultimate public media display. Although the idea is ancient, concrete efforts to reach this elusive goal have only been made since the nineteenth century, within nets of overlapping and sometimes conflicting discourses expressing hopes, strategies, fears and desires. Various (p)layers and societal realms have been involved: inventors, businessmen, advertisers, religious apologetics, journalists, the military and, last but not least, writers and artists. What emerges from the heterogeneous and fragmentary chorus of preserved fragments of voices is hardly a neatly organized pattern. Like the movements and the shapes of drifting clouds, the sky-screen is tempting and evocative, but also unpredictable and elusive, resistant to closure and appropriation.

Two Moons

² See Jurgis Baltrusaitis, *Le miroir. Révélation, science-fiction et fallacies. Essai sur une légende scientifique* (Paris: Aline Elmayan & du Seuil, 1978), pp. 204-209. Discussing views in magic mirrors, Baltrusaitis uses the anachronistic expression *téléviseur catoptrique* (catoptric television), p. 208.

In his *Le Vingtième siècle* ("The Twentieth Century," 1883), Albert Robida imag(in)ed *L'Epoque*, the newspaper of the future.³ It was primarily an audiovisual medium, available for home subscribers via the *téléphonoscope*, an imaginary communication device, a kind picturephone.⁴ However, *L'Epoque* could also be experienced outside the newspaper's headquarters in Paris on two "immense glass plates, twenty-five meters in diameter," erected on tall scaffoldings, and visible from the street, viewing platforms around the newspaper building and the windows of neighbouring houses.⁵ The one on the left side of the building was dedicated to advertising.⁶ The one on the right displayed live news feeds from around the world, transmitted by *L'Epoque's* roaming reporters armed with small transmitters or "pocket-telephonoscopes."

Although he did not detail the technology that powered the "immense glass plates," Robida used an intriguing metaphor, saying that they "resembled two moons, particularly after dark, when an electric spark made them shine against the dark background of the sky."⁷ The apparent surreality of this comparison – the moon is challenged by the glow of two techno-moons – is anchored in reference points in the culture of the time. First of all, they evoke sky-signs, "advertisements, whose letters, standing clear of the structure's top, show against the sky."⁸ Depending on the time of the day, sky-signs could be seen from the street below as if written on the sky; in

³ Albert Robida, *Le Vingtième siècle* (Génève and Paris: Editions Slatkine, 1981, facsimile of the original 1883 Paris edition).

⁴ There were four daily editions, as well as a breaking news service. Digests of its pictures the system transmitted were only distributed on paper to the countryside and foreign countries.

⁵ "Un immense cercle de cristal de vingt-cinq mètres de diamètre, dressé sur une arcature de métal..." Robida, *Le Vingtième siècle*, p. 199.

⁶ According to Robida, a calligraphist draws the ads on paper, and an "ingenious electric apparatus" reproduced them on the glass plate in "gigantic characters." This recalls the use of the magic lantern in public election projections since the 1860s. Messages were scratched on glass plates coated with emulsion and projected on screens often erected on building tops.

⁷ Robida, *Le Vingtième siècle*, p. 199.

⁸ Charles Mulford Robinson, "Making the City Beautiful," *Current Literature. A Magazine of Record and Review* (New York: The Current Literature Publishing Co.), Vol. 31 (July-December, 1901), pp. 139-143, quot. p. 139.

the evenings they were illuminated by electricity, which further enhanced the effect. From an appropriate viewing angle, the moon *could* have been seen glowing behind the letters. Such enormous translucent signs became a permanent feature of the urban adscape, and there was a reason for it. The visual logic of the late nineteenth century culture expressed a hasty move upwards. The urban environment was getting cluttered, with commercial messages covering walls and fences. Advertisers found catching the eye of the bystander more and more difficult. Not only did they make their messages bigger; they also placed them higher. Urban buildings were getting taller, but their walls still weren't high enough, and so the signs reached the rooftop.⁹

From here on it was a logical step to treat the sky itself as a screen. The idea was not new. From primordial times humans have converted nature into culture by means of mental projections. Our relationship with the above is a semiotic affair – when we look up, we only *seem* to perceive nature; in fact, we see human-made signs with decodable meanings. We read different types of clouds to forecast the weather, treating them as indexical signs. For thousands of years, humans have projected abstract and symbolic meanings to the sky in a similar way. The constellations have been represented as mythological creatures; cosmic plays are believed to have secret correspondences with events on earth. The sun, the moon and the stars have been interpreted as anthropomorphic beings with faces; Georges Méliès's fantastic designs for his *Voyage au lune* (1902) were a manifestation of this tradition.¹⁰

Last but not least, the sky has functioned as a screen, where a divine intelligence is believed to manifest itself. The cross and the words *in hoc signo vinces* Constantine the Great is said to have seen in the sky before the Battle of Milvian Bridge (CE 312) is a well-known example, but not the only one. In 1870, an unknown writer re-enacted this tradition in a poem titled "Sky Pictures":

⁹ See Catherine Gudis, *Buyways. Billboards, Automobiles, and the American Landscape* (New York and London: Routledge, 2004), p. 19.

¹⁰ Scott L. Montgomery, *The Moon and the Western Imagination* (Tucson: University of Arizona Press, 1999).

*Every day God painteth
Such pictures upon the sky,
That I often am lost in wonder
How people can pass them by.*¹¹

Fireworks and hot air balloon ascents are human-made spectacles in the sky that go beyond the metaphoric. They demoted the sky into the role of a background - a canvas against which the spectacle of human ingenuity was (dis)played. Fireworks aimed at spectacular effects, but the rockets bursting in the sky also often had semantic meanings as well.¹² The balloon ascent was something different. The eyes of the spectators followed the hot-air balloon as it gradually rose higher and higher, becoming smaller, and eventually disappearing from sight. The outcome of the adventure could be read from a newspaper, or learned by word-of-mouth. Although the aeronauts tried to enhance the visual appeal of the event by decorating their balloons and bringing unusual passengers on board (women and animals), the interest of their ascents was never purely ocular. Spectacular views from above were the privilege of the intrepid aeronauts themselves.¹³ They were communicated to the people on the ground after the fact in mediated forms - printed descriptions, drawings, photographs, moving balloon panoramas, and, eventually, films.

To turn the sky into a screen the spectacular quality of the display had to be enhanced, the messages made more varied and readable, and their effects more durable. From the late nineteenth century onward these issues were discussed

¹¹ F.B.D., "Sky Pictures," *The Albion. A Journal of News, Politics and Literature*, Vol. 68, No. 24 (Jun 11, 1870), p. 371.

¹² See George Plimpton, *Fireworks* (Garden City, New York: Doubleday & Company, 1984), pp. 34-35; Wolfgang Schivelbusch, *Disenchanted Night. The Industrialization of Light in the Nineteenth Century*, trans. Angela Davies (Berkeley & Los Angeles: University of California Press, 1995, orig.1983), pp. 137-139.

¹³ Raoul Grimoin-Sanson's *Cinéorama*, created for the Paris World's Fair 1900, purported to reverse the situation. Films were shot radially from an ascending balloon and displayed in a circular panoramic building, providing the audience a virtual balloon ride. See the inventor's own account in Raoul Grimoin-Sanson, *Le film de ma vie* (Paris: Les Éditions Henry-Parville, 1926), pp. 88-130.

publicly, often in satirical tone.¹⁴ As it often happens in the history of technology, sky projections were first realized in the imagination. The French writer Auguste de Villiers de L'Isle-Adam published in 1873 a satirical short story that fantasized about the possibility of converting the "sterile spaces" of the sky "into really and fruitfully instructive spectacles" in the spirit of progress.¹⁵ The central character was an engineer named Grave, who, inspired by the electrical experiments of Benjamin Franklin and the "enormous lenses and gigantic reflectors of the American engineers," managed to perfect a system for "an absolute Publicity." With "powerful bursts of magnesium or electric light, magnified one hundred thousand times," spectacles would be beamed up to the sky "from the summit of some flowery hillock, the paradise of young couples." Hilarious and sarcastic messages could be projected among the constellations. Between "the sublime paws" of the Great Bear there would "burst forth this disturbing announcement: DO YOU NEED CORSETS? YES – OR NO?" Even the moon – anticipating Robida's techno-moons – would be inscribed with a slogan. Satires like this became part of the imaginary of the époque, as a funny fantasy in *Puck* (1893) demonstrated. The twelve signs of the zodiac were each provided with projected advertising slogans.¹⁶

When it comes to the technology used for sky-projections, Villiers suggested that magic lanterns (lampscopes) would be used, resorting to an existing medium, enhanced and pointed to the sky by his imagination.¹⁷ Pictures and texts had already been projected on buildings, as well as on screens erected on rooftops. But Villiers went further, suggesting that photographic lantern slides of "absconding

¹⁴ Turner mentions a cartoon published in *Punch* in 1886. A business man and his wife are gazing at the moon. The husband is "sighing for lost opportunities. If only the moon had 'Blokey's Pickles' printed across it..." E[arrest] S. Turner, *The Shocking History of Advertising* (New York: Ballantine Books, 1953), p. 247.

¹⁵ "La Découverte de M. Grave," *La Renaissance littéraire et artistique*, Nov. 30, 1873, later included as "L'Affichage céleste" in *Contes cruels* (1883). Quot. here from "Celestial Advertising," trans. Hamish Miles, online at <http://gaslight.mtroyal.ca/villier2.htm>.

¹⁶ "Fin du siècle advertising," *Puck*, Vol. 33, No. 845 (May 17, 1893), p. 202. The article may have been inspired by Villiers, but also by the well-publicized outdoor projections realized at the Chicago World's Fair 1893.

¹⁷ Lampscope was the word used in France about the common magic lanterns meant to be placed on top of a normal domestic oil lamp.

bankers" and notorious criminals would be beamed to the skies, leading to their immediate capture. The sky could also be used for political purposes. Portraits of election candidates would be projected "during the evening preceding the poll." With the "aid of a little wheel," the physiognomies of their faces would be manipulated, so that they would "smile at the Future, shed tears for our disappointments, open the mouth, wrinkle the brow, swell the nostrils in anger, assume an air of dignity."¹⁸ Such tricks could easily be realized by widely available mechanical magic lantern slides. Here the tone of Villiers' discourse is at its most sarcastic: the involuntary expressions of the faces (derived from the rhetoric of public speech) would give a "dignified" idea of the candidate for the elector, who would no longer have to buy "a pig in a poke." The idea of the politician as a media product, a visual image manipulated by others, is already expressed here.

It is not surprising to discover, then, that *Earth Chronicle*, the newspaper of the future Jules Verne imagined in 1889, had a sky-advertising department.¹⁹ "A thousand projectors" are constantly engaged in displaying "mammoth advertisements" upon the clouds from the newspaper building. The ads are "so large that they may be seen by the populations of whole cities or even of entire countries."²⁰ Although it is the year 2889, the system still doesn't work perfectly. When the newspaper tycoon Fritz Napoleon Smith visits the "enormous gallery [...] devoted to atmospheric advertising," the operators are "sitting with folded arms at their motionless projectors." The blue sky has made the projectors temporarily useless. Smith urges the "meteorological division of the scientific department" to create artificial clouds.²¹

The idea of atmospheric advertising was "in the air." When the Columbia Graphophone Company celebrated the awards it had purportedly won at the St. Louis Expo in 1904, an ad depicted its Graphophone (record player) transformed

¹⁸ Villiers de L'Isle-Adam, "Celestial Advertising," online at <http://gaslight.mtroyal.ca/villier2.htm> .

¹⁹ Jules Verne, "In the Year 2889," *The Forum*, Vol. VI, No. 6 (February 1889), pp. 662-677.

²⁰ *Ibid.*, p. 669.

²¹ *Ibid.*, p. 669.

into a sky projector.²² A light beam emanated from its horn blasting a triumphant message in the sky above the expo ground: "THE GRAPHOPHONE AND COLUMBIA RECORDS WIN HIGHEST HONORS."²³ The message was confusing, because the main competitor, Victor Talking Machine Company, was also claiming to have won the Grand Prize. Nothing less than sky projection - albeit virtual - was obviously sufficient to confirm Columbia Graphophone Company's claim. At this point commercial sky projections were no longer just a fantasy.

Searchlight as Machinic Attraction and Metaphor

Projection technology advanced considerably in the second half of the nineteenth century. Oxy-hydrogen limelight and electric carbon arc, as well as improvements in lenses and reflectors, made it possible to illuminate outdoor targets as never before.²⁴ As usual, military interests guided the development. Scanning the battlefield with powerful beams of lights could pre-empt a surprise attack in the dark and frighten the enemy not yet familiar with the technology.²⁵ In a military demonstration organized in England in 1892, the names of well-known advertisers as well as the face of prime minister Gladstone "were projected upon the trees, buildings, and artificial clouds of steam" as an entertaining coda to a mock battle,

²² See James N. Weber, *The Talking Machine: The Advertising History of the Berliner Gramophone & Victor Talking Machine*, ed. Eric Skelton (Midland, Ontario: ADIO Inc., 1997), pp. 30-31.

²³ *Ibid.*

²⁴ Fresnel lenses and the reflectors by the Frenchman Mangin and the German Schuckert were singled out by C.S. McDowell, "Searchlights," *Journal of the American Society of Naval Engineers*, Vol. XXVII (Washington, D.C.: R. Beresford, 1915), p. 222. McDowell claimed that relatively little progress had been made in the 25 years since these improvements. The technical aspects of searchlights were discussed in detail by F. Nerz, *Searchlights: Their Theory, Construction and Applications*, trans. Charles Rodgers (New York: D. Van Nostrand Company, 1907).

²⁵ Lieutenant B. A. Fiske from the US Navy claimed that the French were the first to use the searchlight for military purposes during the siege of Paris in the Franco-Prussian War [1870-71]. See B. A. Fiske, "Electricity in Warfare," *The Telegraphic Journal and Electrical Review*, Dec. 26, 1885, p. 538. It is known that more primitive searchlights were already used in the American Civil War and the Crimean War in the 1860s.

where the same searchlight had already been used.²⁶ Light cannons were found particularly useful at sea, not only to detect enemy ships and to dazzle the eyes of their gunners, but also for signalling, either directly, or via pulsating reflections in the clouds. Lighthouses also needed them.

Public monuments, buildings and even the Niagara Falls were illuminated for festivities or promotional purposes.²⁷ A particularly interesting application was described in the *New York Evangelist* in 1897.²⁸ A searchlight had been installed on the cruise boat Adirondack and used on night-time cruises between New York and Albany to illuminate scenes along the river. The "circle of illumination" was directed both on houses and on gatherings of people ("Search-light Socials") along the river. The experience evoked a media spectacle. The illuminated scenes were like a "succession of pictures" produced by the "magic shaft of the search-light." The author even felt that "[g]roups were formed on lawns and verandahs as if to be photographed." The situation made the writer philosophical, leading him to reflect on the challenges the new technology posed on privacy. The "clearness of detail was like a microscopic study. [...] The life of men is under a new scrutiny; the glooms of the world are pierced by a more powerful discoverer; the umbra in which men walk so much vanishes before a new illuminator."²⁹

The first more or less successful experiments of projecting texts and images to the sky were made in the early 1890s. At the Chicago World's Fair (1893) a huge "electric cloud projector," invented by L. K. Rogers, was used to project the daily

²⁶ "Battle Search-Lights," *The Electrical Engineer. A Weekly Journal of Electrical Engineering*, Vol. X (New Series), Nov. 4, 1892, p. 444. When an American publication later reported the same event, it was claimed that real clouds had been used: "Not only were the forms of gigantic letters thrown upon the clouds, but the well-known features of Mr. Gladstone were made to appear in ghostly outline upon the heavens." The story may have changed because of the well publicized projections at the Chicago World's Fair 1893. See "The Miscellany. Progress of Science in 1892," *The Statistician and Economist 1893-94* (San Francisco and New York: L. P. McCarty, 1893-94), p. 555.

²⁷ For W. D'Arcy Ryan's (General Electric) illumination of the Niagara Falls, see David E. Nye, *Electrifying America. Social Meanings of a New Technology* (Cambridge, Mass.: The MIT Press, 1992, orig. 1990), pp. 58-59. D'Arcy Ryan created many illuminations for expositions and public buildings.

²⁸ R.A.S., "The Hudson seen by Search Light," *New York Evangelist*, Vol. 67, No. 37 (Sept. 16, 1897), p. 9.

²⁹ *Ibid.*

number of visitors in the daytime, and to beam texts and pictures in the clouds after dark.³⁰ A. E. Dolbear, a well-known specialist of optical projections, summed up the possibilities of the new medium: "By employing large lenses of proper focal length it has been found possible to project pictures upon the clouds as upon a great screen. The pictures to be thus projected may be prepared in stencil on sheets of tin or iron. Advertisements prepared in this way may be read a mile or more away, as the letters may be more than a hundred feet long. So the cloudy sky may soon be made an advertising sheet!"³¹ Courting the *fin-de-siècle* interest in extraterrestrial life, Dolbear added an intriguing possibility: "It has been suggested that with our powerful search-lights it would be possible to communicate with the planet Mars, if it should chance to be peopled with intelligences as well equipped with lights and telescopes as we are."³²

The projections at the world's fair and elsewhere had discursive repercussions. The metaphoric possibilities of the word "searchlight" were soon grasped by journalists, publicists and ideologists alike. Many kinds of things, including love, marriage, the saloon, and China came "under the Searchlight."³³ The word was particularly often used in religious discourse. A believer yearned to become "[i]n darkness dense a strong searchlight / Before which flee the shades of night."³⁴ The spirit of god "sent home the truth like a searchlight" upon a person's conscience, while "the Cradle at Bethlehem" flashed "a searchlight down the spiral stairway up which man has come from platform to platform, kingdom to kingdom."³⁵ Sometimes the searchlight of

³⁰ "The Rogers Electric Cloud Projector," *The Electrical Engineer*, Vol. XVII (Jan. - June 1894), p. 46. The projector was on the roof of the Manufacturers' Building. See Turner, *The Shocking History of Advertising*, p. 247. It was later installed on the roof of Joseph Pulitzer's *New York World* newspaper building in New York City, projecting advertising signs. Other searchlights were used at the Chicago World's Fair as well.

³¹ A.E. Dolbear, "The Electric Searchlight," *The Cosmopolitan, a Monthly Illustrated Magazine*, Vol. 16, No. 2 (Dec. 1893), p. 254.

³² *Ibid.*

³³ See Lilian Bell, "The Girl in Love", *Harper's Bazaar*, Vol. 35, No. 7 (Nov. 1901), p. 8B; George Rutledge Stuart, *The Saloon under the Searchlight* (New York: F.H. Revell, 1908); Wm. Arthur Cornaby, *China under the Searchlight* (London: T. Fisher Unwin, 1901).

³⁴ Susan M. Griffith, "As Lights in the World," *Christian Observer*, Vol. 94, No. 12 (Mar 21, 1906), p. 8.

³⁵ "The Beginning of a Revival," *Christian Observer*, Vol. 91, No. 19 (May 13, 1903), p. 20; "The Second Coming of Christ, a New Interpretation," *Zion's Herald*, Vol. 81, No. 2 (Jan 14, 1903), p. 43.

faith pointed to the sky, as in the following example, where it gets intermingled with the metaphor of the (not yet) rising sun: "But had there been no such true friends of God before Jesus? Yes, as clouds far up the sky show the glory of the yet unrisen sun. Jesus had been the pattern of life for all the foregoing generations of men - the prophetic search-light signalling to patriarch and prophet on the clouds of those ancient skies, the outlined glory of the coming sun, the Sun of Righteousness [...]."36

Sky projection also inspired writers, whose texts were informed by social and political issues of the time - the aftermath of the world's fair, the great depression of the 1890s, the political struggle and the ideological uncertainties of the *fin de siècle*. It was associated with social unrest and anarchism in two texts published in 1897. Both presented cloud projections as a medium of mass agitation. The inventor and best-selling author Frederick Upham Adams described the "last anarchist conspiracy in the United States" in his novel *President John Smith*. The beginning of the revolt in the evening of May 23, 1899 was announced by projecting the word "STRIKE" to the clouds with the searchlight installed on the roof of the Masonic Temple in Chicago, overtaken by the anarchists.³⁷

The other text, a political allegory penned by Prof. U. G. Morrow for the *Flaming Sword*, a weekly magazine published by the Koreshan Unity cult, is equally interesting.³⁸ The "great Pan-American celebration" of the end of the century is announced before dawn on December 31, 1900 ("Year of Plutocracy, 15") by a lengthy sky message beamed upon the clouds from his golden mansion by "Your Royal Monarch, Pluto Americana." In the name of individual freedom "the opportunity of doing exactly what they desire, without constraint," is declared "to all

³⁶ Addison Ballard, *From Talk to Text or A Likely Story! - Likely Enough* (New York, London and Bombay: Longmans, Green, and Co., 1904), p. 110-111.

³⁷ Frederick Upham Adams, *President John Smith: The Story of a Peaceful Revolution* (Chicago: Charles H. Kerr & Co, 1897). See ch. 1, "The Anarchist Conspiracy," pp. 17-24. According to the preface, the book was originally written in 1893 (p. 7).

³⁸ U.G. Morrow, "Celebration of the Closing of the Century," *Flaming Sword*, Vol. XII, No. 3 (Dec. 3, 1897), p. 6. Morrow was the editor-in-chief of the *Flaming Sword*.

classes of men." A total chaos and anarchy erupts. The sky projector continues its messages, projecting on the "smoke of conflagration and explosion" of the burning city of Yorkopolis. Like "a great moon in the sky", its "disc of light [...]" reflected its weird light upon the marching masses [...]. While Pluto Americana, the "great modern Nero", is dining peacefully with "a thousand bankers", people manage to infiltrate the palace. The search-light operator is overcome, and "a new plate inserted behind the lens". As a reminder of Belshazzar's Feast and the fall of Babylon, it declares: MENE! TEKEL! The golden mansion is destroyed by dynamite, and "Plutocracy was no more!"

Projected Clocks and Beamed Dictators

World War I gave an impetus to develop searchlights - particularly mobile ones - for the purposes of search and destroy. Civilian uses had to be found for them after the fighting had ended, and so searchlights became a fixture of movie premieres, exhibitions and inaugurations of skyscrapers, particularly in the United States, where the horrors of the war had not been experienced first-hand.³⁹ An imitated sunset that had been created at the Panama Pacific Exhibition in San Francisco already in 1915 by a battery of General Electric's sky projectors was a task the technology was also suited for.⁴⁰ The projection of texts and images was more challenging. One of the problems was the nature of the screen itself, as Jules Verne had already observed. It was difficult to predict the movements and the thickness of the clouds, and the condensation of the atmosphere. Although some inventors

³⁹ P. T. Barnum already used an oxy-hydrogen (Drummond) light beam outside his American Museum in New York City in 1850 to celebrate the appearances by the "Scandinavian Nightingale" Jenny Lind. A poem, no doubt commissioned by Barnum himself, stated: "It is the Drummond Light, that from the top / Of Barnum's massive pile, sky-mingling there, / Darts its quick gleam o'er every shadowed shop, / And gilds Broadway with unaccustomed glare." See "Jenny Lind's First Week in America," *The Literary World*, Vol. 7, No. 189 (Sept. 14, 1850), p. 212.

⁴⁰ Nye, *Electrifying America*, pp. 63-65.

claimed to have found solutions for stopping the images in mid-air even without a cloud cover, starry nights usually made sky projections impossible.

Another problematic issue was content, which had to be limited to very simple graphic elements, such as silhouettes, logos and short slogans. A common method was to use cut-out stencils in front of the projection lens. When questioned by the British Select Committee on Skywriting in 1932, the sky advertising pioneer Major J. C. Savage admitted that he could project "only a very simple silhouette."⁴¹ Another witness, Major C. F. Davey of Sky Publicity Ltd., claimed he could "put a clock in the sky with the hands keeping time."⁴² The idea was in the air, for in April 1933 *Popular Science* introduced a similar device invented by the obscure British inventor H. Grindell Matthews, known as the "Death Ray Man."⁴³ In the late 1930s his projection clock stunt was performed as part of a public demonstration at Blackheath, England. In its report on the event a newspaper unknowingly re-enacted Robida's techno-moon metaphor:

*Two moons in the sky! Thousands of people gathered in amazement on Blackheath last night to stare at two men-in-the-moon / One was sober and austere, the same icy old man-in-the-moon who has been gazing solemnly upon the earth for millions of years. The other was an irreverent rascal, a jovial old gentleman who winked one eye, twinkled the other down at an astonished gathering of moongazers, and curled his lips in an expansive smile as though the earth below was a great everlasting joke. There they rode in the sky, side by side, one of the most extraordinary phenomena of the heavens that has ever been seen over Britain.*⁴⁴

⁴¹ Turner, *The Shocking History of Advertising*, p. 252.

⁴² Ibid.

⁴³ "Light Prints Time on Clouds," *Popular Science*, April 1933.

⁴⁴ Quot. (no source mentioned) in Ernest H.G. Barwell, *The Death Ray Man. The Biography of Grindell Matthews, Inventor and Pioneer* (London, New York and Melbourne: Hutchinson & Co, [1943]), p. 125.

The article reveals that the large projector was mounted on a truck and resembled "an anti-aircraft gun." It rotated in a circle "searching for clouds on which to focus a picture many miles in extent, with simply a touch of a button." The slides were mounted in "circular magazines, which are rotated by electricity," and when an operator switched them, he threw "projectiles of life." A "kaleidoscopic whirl of lights used sometimes in a popular dance hall" was changed "in a matter of seconds" to the "greatest clock in the world," whose hands, "only shadows of the two-foot clock-face which had been placed in the projector, registered Greenwich time." Except for being projected upon the sky, the projection clock was a very old idea, an adaptation of the magic lantern already known in the late seventeenth century.⁴⁵ In another occasion Grindell Matthews is said to have projected an American flag and eagle over New York, without forgetting to accompany them with a star surrounded by his own name.⁴⁶ His self-apotheosis does not change the fact that instead of being the inventor of the sky projector, as his biography repeatedly claims, Grindell Matthews was working within an existing tradition.⁴⁷

Although factually unreliable, Grindell Matthews's biography (1943) has discursive interest. The book suggests that the invention will be appropriate for people living "under the cloud-obscured heavens" in the "grey atmosphere" of Britain and the Northern countries. Grindell Matthews "could not see why this atmospheric screen, which shut off space and vision, could not be turned to good advantage, with the clouds which composed the canopy of dusk and night being converted into a kind of cinema screen." His original concept had been dominated by "the beauty of sky pictures." The projector operator "would have within his control a picture moon and

⁴⁵ Two early surviving examples, by Giuseppe Campani and Johann Philip Trefler, from the physics cabinet of the Landgraves of Hessen are on display at the Orangerie, Kassel. See my "The Early Magic Lanterns: Where are They?," *The Magic Lantern Gazette*, Vol. 19, No. 3 (Fall 2007), pp. 10-11.

⁴⁶ Barwell, *The Death Ray Man*, p. 128.

⁴⁷ Grindell's biography, written by a close friend, reports that Dr. Ernst Leitz, the well-known German optical manufacturer, exclaimed when Grindell introduced his 'invention': "Why has not someone thought of this before? Why – good heavens!" The statement has discursive rather than documentary value. The book suggests that Grindell developed his sky projector with the help of Dr. Leitz. See Barwell, *The Death Ray Man*, pp. 117-118. Matthews wasn't the sole candidate for having invented the "death ray" either. Nicola Tesla, among others, made claims about having invented one.

sun, or the depicting and symbolizing of the heavenly bodies," which would result in a "new screen drama, infinitely larger and more attracting than any of its predecessors on the ground [...]."

The references to media are interesting. Even if billboards and sky-signs evoked such comparisons only indirectly, discursively the age of sky media had arrived. This probably had to do with the influence of cinema. The book suggests that using the "unlimited cloud spaces [...] for the attraction, education and enjoyment of the human eye" would extend the media reality of the "lonely firesides by radio."⁴⁸

Grindell Matthews was a controversial public figure, whose inventions rarely led to concrete uses. In the political climate of the 1930s the "Death Ray Man" became politically suspect because of his contacts with Germany. Indeed, the biography raises the spectre of totalitarian sky projection. In the hands of a Hitler or Mussolini it could be a "weapon of decisive importance," providing an "unstoppable, unshootable beam of light carrying the messages of the invader above beleaguered cities."⁴⁹ Another beam of light could be used to erase the messages from the sky, leading to hide-and-seek."⁵⁰ Sky projectors could be mounted on trains, so that "each city served by the line would be canopied for a given period of time with the propaganda of the moment." Although he does not mention it, the author may have known that searchlights were used for propagandistic purposes in Nazi Germany in the 1930s. By using well over a hundred anti-aircraft searchlights, Albert Speer erected "Cathedrals of Light" (*Lichtdom*) for the yearly nazi rallies in Nuremberg, surrounding the Zeppelinfeld with colonnades of light extending to the skies.

⁴⁸ Barwell, *The Death Ray Man*, p. 119. Radio is another medium the book claims to be Grindell Matthews' invention, although he was just one experimenter among many.

⁴⁹ Barwell, *The Death Ray Man*, p. 120.

⁵⁰ The idea of the battle of searchlights had already evoked in the context of the Boer War. Winston Churchill explained: "That night we tried to congratulate or encourage Ladysmith, and the searchlight perseveringly flashed the Morse code on the clouds. But before it had been working half an hour the Boer searchlight saw it and hurried to interfere, flickering, blinking, and crossing to try to confuse the dots and dashes, and appeared to us who watched this curious aerial battle - Briton and Boer fighting each other in the sky with vibrations of ether - to confuse them very effectively." Winston Spencer Churchill, *London to Ladysmith via Pretoria* (London and Bombay: Longmans, Green, and Co., 1900), p. 242.

Grindell Matthews's biography tells us an interesting (although highly dubious) anecdote about a meeting between the author and the inventor with Hitler and Goebbels in 1937.⁵¹ Goebbels, the "club-footed dwarf," whose "ability to grasp anything of propaganda value" the author nevertheless admires, is said to have suggested that the sky projector would be used for "plastering the heavens with Hitler's photograph." The face of "the world's most hated murderer" was already staring at the onlookers everywhere. Only at nightfall the "grim, brooding face was blacked out in the merciful darkness."⁵² The thought of having "even the hours of night [...] spoiled by Hitler's photographs was too dreadful to contemplate." Worse, the "rotund and bemedalled" Goering, the "master of Germany's air forces," wanted to have his likeness in the clouds too. This created a real dilemma, from which Grindell Matthews found a way out – so the story goes - by pretending that his sky projector had been overestimated: "Even messages are blurred and indistinct, while it is hopeless to project anything like a photograph. I am sure that the Führer would not like a caricature-like shadow of himself flung up on the clouds."⁵³

From Aerial Theatre to Phantasmagorias of Destruction

Whatever the truth about his meeting with the Nazi leaders may have been, Grindell Matthews' description of the limitations of his invention was largely correct. In the form in which he was trying to promote it, skywriting could not progress very far. Other forms such as smoke-writing and banner-towing by airplanes could by-pass some of its limitations. Both were introduced in the early decades of the twentieth century.⁵⁴ It isn't a coincidence that the leading British pioneer of sky advertising,

⁵¹ Barwell, *The Death Ray Man*, pp. 126-127.

⁵² The style of the discourse should be related to the publishing date: 1943.

⁵³ Barwell, *The Death Ray Man*, p. 127.

⁵⁴ Later another, more complex form called "sky-typing" was developed. See Herbert Johansen, "Planes 'Type' Messages in the Sky," *Popular Science*, October 1949, pp. 136-138. Airplanes were also

Major J. C. Savage, was a former Royal Flying Corps officer and a World War I veteran. The aerial dogfights of the World War I forced pilots to extend the "performance" of their aircrafts to their limits. For spectators air battles presented an unprecedented spectacle. Just seeing airplanes in flight was an attraction, as the popularity of air shows demonstrated. One organized at the airfield of Brescia in Italy in 1909 was attended by thousands of people, including intellectuals like Franz Kafka, Giacomo Puccini and Gabriele d'Annunzio.⁵⁵ The experience differed from the balloon ascents of the nineteenth century. The balloons drifted slowly and predictably across the "big blue screen," while the airplanes were engaged in unpredictable and dramatic motions.

The Italian Futurist aviator and another World War I fighter pilot Fedele Azari saw flight as a nascent artform, which he described in his manifesto "Futurist Aerial Theatre. Flight as an Artistic Expression of States of Mind" (1919).⁵⁶ For Azari, flight was an aerial version of Marinetti's *parole in libertà*, free movement through space, unrestricted by grammars or syntaxes.⁵⁷ It was analogous to dance, but "infinitely superior because of its grandiose background, its superlative dynamism, and the greatly varied possibilities which it permits [...]." Having practiced aerial theatre already, Anzari had noticed that "it was easy for the spectators to follow all the

used to drop leaflets and practice "sky-shouting," which was the auditive parallel to smoke-writing. See Turner, *The Shocking History of Advertising*, pp. 247-255. Leaflet-dropping was frequently used in World War II, although it had been practiced from the earliest days of aviation.

⁵⁵ Peter Demetz, *The Air Show at Brescia, 1909* (New York: Farrar, Straus and Giroux, 2002). Kafka wrote what seems to be his first published text (a newspaper article) about the show. An international airshow at Rheims in France in 1908 seems to have been one of the first; many were organized in the following years.

⁵⁶ Fedele Azari, "Futurist Aerial Theatre. Flight as an Artistic Expression of States of Mind," *The Drama Review: TDR*, Vol.15, No. 1 (Autumn 1970), pp. 128-130. Azari's manifesto was ridiculed in an article in the *New York Times* that called Marinetti "the Barnum of Futurism." It also made a connection with moving pictures, suggesting Azari's aerial acrobatics for Douglas Fairbanks (who was known for his physical stunts), adding: "Sic transit gloria movie - maybe." Benjamin de Casseres, "Heavens a Hippodrome and all the Actors Aeroplanes. Drama of the Futurists Where the Gestures are Tail Spins, and the Waiting World Lies Flat on Its Back and Looks Up at the Busy Sky," *New York Times*, November 30, 1919. For a general discussion of the historical connections between art and flight, as an introduction to the author's own *Aerial Theatre*, see Steve Poleskie, "Art and Flight: Historical Origins to Contemporary Works," *Leonardo*, Vol. 18, No. 2 (1985), pp. 69-80.

⁵⁷ The leader of the Futurists, Filippo Tomaso Marinetti, coined the words *parole in libertà* (words in freedom, free words) to denote Futurist writing that had been liberated from all existing rules of grammar, syntax, meaning, traditional typography, etc.

nuances of the aviator's states of mind, given the absolute identification between the pilot and his aeroplane, which becomes like an extension of his body: his bones, tendons, muscles, and nerves extend into longerons and metallic wires."

Azari gives here an early example of what Marshall McLuhan in his *Understanding Media* came to call the "extensions of man."⁵⁸ While the pilot becomes one with his "medium," the spectators learn to read the airplane's movements - kind of mobile hieroglyphics - as if they were observing a human performer. The new dramatic medium would be performed day and night above great cities like Milan, whereas at night the planes would "compose mobile constellations and fantastic dances, invested with light projections." Azari's inspiration came from aerial dogfights, anticipating the tightening bond between spectacles in the sky and military applications.

Azari's manifesto pays attention not only to the visual choreography of the planes, but to its "soundtrack" as well. Together with fellow Futurist Luigi Russolo, the originator of the "art of noises," Azari had invented "a special type of hood to increase the resonance of the motor and a type of exhaust which regulates the motor's sonority without modifying its potential." The motor becomes a musical instrument, and its roaring an expressive medium, working in unison with the plane's movements. It is hard to resist associating this idea with the notorious wind-powered sirens the Nazis installed to their Junkers Ju-87 Stuka dive bombers. As the plane plunged down toward its target, the roaring of the siren became louder and louder, creating panic. From the perspective of their "audience," the approaching Stukas uncannily recall the monsters attacking the audience from the screen in a phantasmagoria show, except that its creepy fascination has been replaced by the terror of imminent and real death.⁵⁹

⁵⁸ Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964).

⁵⁹ Mervyn Heard, *Phantasmagoria. The Secret Life of the Magic Lantern* (Hastings: The Projection Box, 2006); Erkki Huhtamo, "Ghost Notes: Reading Mervyn Heard's *Phantasmagoria. The Secret Life of the Magic Lantern*," *The Magic Lantern Gazette*, Vol. 18, No. 4 (Winter 2006), pp. 10-20.

In *War and Cinema* Paul Virilio quotes Albert Speer's description of the nighttime mass bombing of Berlin he witnessed on November 22, 1943:

The raid offered a spectacle whose memory cannot be erased. You constantly had to remember the appalling face of reality if you were not to let yourself be entranced by this vision. Parachute-rockets – "Christmas trees," as Berliners called them – suddenly lit up the sky: then came the explosion whose glare was engulfed by the smoke of incendiaries. On every side, countless searchlights scoured the night and a gripping duel began when an aeroplane, caught in the pencil of light, tried to make its escape. Sometimes it was hit and for a few moments became a blazing torch. It was an imposing vision of apocalypse.⁶⁰

The need to remind oneself about the distinction between reality and spectacle is familiar from media cultural discourses. Time and again, cartoons, films and other documents have shown us figures who mistake what they see on the screen for reality, being deemed as dreamers or fools.⁶¹ In Speer's case the situation is the reverse: it is the reality of death and destruction that is transformed into a dark fantasy, a distorted manifestation of the technological sublime.⁶² Speer's vantage point resembles that of the media spectator. The position is aloof, safe and distanced; very different from that of the panicking subject under a Stuka attack. The distanced position of the observer enhances the media-like quality of the "spectacle."⁶³ Anonymous tragedies and struggles have been reduced to a special

⁶⁰ Quot. (typically, no source given) in Paul Virilio, *War and Cinema. The Logistics of Perception*, trans. Patrick Camiller (London and New York: Verso, 1989, orig. 1984), p. 78.

⁶¹ Stephen Bottomore, *I Want to See This Annie Mattygraph. A Cartoon History of the Movies* (Pordenone: Le giornate del cinema muto, 1995), passim.

⁶² For 'the rhetoric of the technological sublime,' see Leo Marx, *The Machine in the Garden. Technology and the Pastoral Ideal in America* (London and Oxford: The Oxford University Press, 1977, orig. 1964), pp. 195-196.

⁶³ A report in the *Daily Telegraph* in 1940 compared a nightly artillery battle across the British Channel with a "display of fireworks." The observer saw the effects in the distance on the other side of the Channel near Calais. The "display" was mostly silent, which enhanced its curious effect. A few times explosions also took place on the British side, not very far from the correspondent (quot. in *Helsingin Sanomat*, Finland, Aug. 24, 1940).

effects extravaganza.⁶⁴ What is "live" (but dying) has been transformed into something that seems staged and abstracted, somewhat like the human arabesques, or "mass ornaments" constructed of female bodies in Ziegfeld Follies and Busby Berkeley's musical choreographies.⁶⁵

The irony of Speer's situation lies in the relationship between the Berlin bombing and his *Lichtdoms*. Describing the latter, Speer used a media-historical metaphor: "It was a fairy-like decor, reminding one of the glass castles imagined by poets in the Middle Ages. I now have a strange feeling when I think that my most successful architectural creation was a *phantasmagoria*, an unreal mirage."⁶⁶ In the early twentieth century, such "phantasmagorias" of light not only serves the Nazi ideology; they were also on the agenda of the modernist avant-gardes.⁶⁷ The Constructivists, in particular László Moholy-Nagy, dreamed about public light spectacles as the ultimate expression of modernity. While most modernists were content with creating more limited visual music displays and theatres of light, public light spectacles were an integral part of Moholy-Nagy's idea of the *Gesamtwerk*, a total artistic strategy that would embrace the modern society in its entirety.

Moholy-Nagy explained his idea in an almost programmatic manner in his "Letter to Frantisek Kalivoda" (1934), published in the journal *Telehor* in 1936, and later partly incorporated into Moholy-Nagy's book *The New Vision*.⁶⁸ He admitted that he

⁶⁴ This could be linked to the debates about the effects of remote warfare by means by computer screens and joysticks with telepresence systems. The issue was discussed after the First Persian Gulf War in the 1990s as an example of the dehumanizing effects of modern military technology.

⁶⁵ Siegfried Kracauer, "The Mass Ornament" (1927), in *The Mass Ornament. Weimar Essays*, trans. Thomas Y. Levin (Cambridge, Mass.: Harvard University Press, 1995), pp. 74-86. Kracauer wrote about stage productions by the 'Tiller Girls,' and published his famous essay before Berkeley launched his filmmaking career with the Warner Bros. His arguments apply to the film context as well.

⁶⁶ Quot. *War and Cinema*, p. 78 (as usual, Virilio does not reveal his source). Author's emphasis.

⁶⁷ For light spectacles and modernism, see *Electra. L'électricité et l'électronique dans l'art au XXe siècle*, ed. Frank Popper (Paris: Les Amis du Musée d'Art Moderne de la Ville de Paris, 1983).

⁶⁸ Reproduced in Krisztina Passuth, *Moholy-Nagy* (Dresden: Veb Verlag der Kunst, 1987), pp. 337-339; László Moholy-Nagy, *The New Vision. Fundamentals of Bauhaus Design, Painting, Sculpture, and Architecture* (Mineola, New York: Dover Publications, Inc., 2005, orig. 1938), pp. 144-146. Moholy-Nagy has included two photographs of outdoor advertising projectors. Quotations are from *The New Vision*, unless noted otherwise.

was "dreaming of light machines, which would make it possible to create light visions either manually, or automatically and mechanically in open spaces, and on unusual screens, such as fog, gas and clouds."⁶⁹ Moholy-Nagy divided "light displays" (*Lichtspiele*) into two categories: ones that are performed in the open air and others that take place indoors. The latter category comprised film, reflected light displays ("pattern sequences produced by color organs"), the color piano, and the light fresco. The former included illuminated advertising displays (to be developed into a three-dimensional form), gigantic searchlights and sky-writers, projections against clouds, and "city light displays" (*städte lichtspiele*) experienced from dirigibles or airplanes; for them, an entire city would be illuminated by playing its lighting network during community celebrations.⁷⁰

Anachronisms in the Sky

There are both intriguing and troubling parallels between the totalitarian vision of Speer, the Nazi architect, and the romantic utopia of Moholy-Nagy, the leftist artist-intellectual. It is ironic that their dreams of light were truly realized, on a massive scale and in a particularly perverse way, by the war machineries of the World War II. Instead of beaming ads to the skies, searchlights were used to shoot down airplanes, whose acrobatic aerial theatre was motivated solely by survival. A burning city, witnessed from above by airmen and documented by air reconnaissance photographers, was the closest approximation of Moholy-Nagy's city light display. How and why the modernist dream about the era of light failed to prevent such a catastrophe, or perhaps even contributed to it, is a task for the historiography of modernism to tackle.

⁶⁹ Quot. Passuth, *Moholy-Nagy*, p. 337 (author's translation).

⁷⁰ In *The New Vision* was presented in a less adventurous form as "light displays revealing a vast expanse of light with ever changing planes and angles [...], available to "the spectator seated in an airplane [...]."

There are other ironies as well. The programmatic writings of the modernists endorsed pure displays of light, and had little tolerance for billboards, giant screens, and other impure additions to the built environment. Still, many of them, including Moholy-Nagy, were also actively engaged in creating advertising displays, industrial designs and other services for commercial capitalism.⁷¹ Had he been invited to design advertisements to be beamed up to the clouds, Moholy-Nagy might not have objected. In their own ways the modernists contributed to the development of the capitalist society of the spectacle. After the war, aided by the onslaught of Americanization, there was no way of stopping it. Meanwhile, totalitarian societies developed their own versions of public spectacles and monumental displays. On the surface they may have differed from the capitalist celebrations of consumerism, but all had developed from the same clusters of ideas. The Cold War was fought - and displayed - on many fronts. One of them was the sky screen, "visualized" not only by jet planes and the contrails they left behind, but also by tiny light spots in motion - satellites speeding on their orbits.

Over and over again, sky projections have been touted as an unprecedented novelty.⁷² The Bat-signal Bob Kane introduced in his comic strip *The Bat-Man* in 1939 had almost certainly been influenced by actual experiments by the likes of Grindell Matthews. It is still part of Batman's identity as a superhero, in spite of the fact that it has turned totally anachronistic in the digital information society. Old ideas can easily be coated with a layer of ultra-modernity (and a touch of nostalgia), as the "moonvertising" campaign by the brewing company Rolling Rock demonstrated in 2008. Billboards in cities like Los Angeles asked passers-by to have a look at the next full moon: the Rolling Rock logo would be projected on its surface.

⁷¹ Moholy-Nagy, Herbert Bayer, Frederick Kiesler and others did advertising design, and so did, in the Soviet Union, Rodchenko, El Lissitzky and others.

⁷² Artists like Tony Oursler, Krzysztof Wodiczko and Rafael Lozano-Hemmer, all highly informed about the preceding developments, have also contributed to this field by their public projection artworks. This interesting sub-topic must be left to another occasion.

Although it was a hoax, the campaign created a heated debate on the Internet, which of course was the intention. Some people posted serious technical calculations, trying to figure out whether or not the scheme could be realized.⁷³ Reading the postings felt like revisiting "L'Affichage céleste" - only the name of Auguste de Villiers de L'Isle-Adam was nowhere to be seen.

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⁷³ For an idea of the project and the discussion it triggered, make a Google search for "moonvertising." The idea of projecting on the moon also appears in the Hollywood film *Hancock* (dir. Peter Berg, 2008). To a question how the heart icon ended up on the moon, a commentator on answers.yahoo.com answered: "I figured he painted it at super-speed. But I didn't think too much about it, especially the physics involved."

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BIO:

The author is a media archaeologist. He was born in Helsinki, Finland in 1958, and holds a Ph.D. in Cultural History. He is Professor of Media History and Theory at the University of California Los Angeles (UCLA), Department of Design | Media Arts. His work has explored many aspects of media history and the media arts. His *Illusions in Motion: a Media Archaeology of the Moving Panorama* is forthcoming from the University of California Press.

PICTURE CAPTIONS:

1. Advertising card for The Automatic Stereopticon Advertising Company, Boston, ca. 1860s. According to the backside, "the Automatic Stereopticon Advertiser Works All Night," and displays "your Advertisement to wondering crowds." (author's collection).

2. Outdoor projections, from T.H. McAllister, *Catalogue of Stereopticons, Dissolving Apparatus, Magic Lanterns, Moving Picture Machines and Accessories* (New York: T.H. McAllister: April 1904), p. 35 (author's collection).

3. Sky Projector at the Chicago World's Fair, 1893. Lantern slide (author's collection).