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New Media and Popular Imagination: Launching Radio, Television, and Digital Media in the United States

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Cinema and Wireless in Turn of the Century Popular Imagination

Introduction

HISTORIANS OF EARLY cinema and electronic media have long operated in mutual isolation, drawing upon quite distinct historiographic assumptions, methods, and research materials. This isolation is remarkable, not only given the historical coincidence of the technological development of both cinema and the wireless at the end of the nineteenth century, but also in light of the ways in which popular responses to the anticipation and early experience of both media speak to a common set of cultural anxieties and ambitions. The new technologies of the moving image and wireless provoked a fascinating mixture of utopian and dystopian speculation arising from the new notions of time, space, and subjectivity they seemed to embody, and many contemporaneous commentators saw the technologies as emblematic of an emerging culture brought about by urbanization and industrialization. A reconsideration of the respective places of early cinema and wireless in the technological and popular imaginations of the period can suggest some of the ways in which these distinct fields of media history might inform and support one another. After offering some preliminary notes on some of the differing historiographic premisses of the two fields, this chapter will explore a few common and distinctive features in the scientific and popular cultures which informed the earliest days of the two pre-eminent communications media of the twentieth century.

If cinema's recent centenary provoked widespread critical lamentation of the film medium's putative prospective demise, it also capped a quarter-century of extremely productive scholarship devoted to early cinema and pre-cinema. At the same time, the uneven but seemingly inexorable slow-motion collapse over the past two decades of the stable structures of commercial broadcast oligopolies and public service institutions of terrestrial broadcasting across the globe have thrown into crisis long-accepted scholarly and vernacular representations of broadcasting's history and nature. More recently, the introduction of the digital video recorder, with its challenge to the foundational practices of live reception and commercial underwriting, has provoked the interrogation of broadcasting's twin ontologies of simultaneity and the mass audience. For popular audiences and scholars alike, the eschatological bent of much of the current discussions of both cinema and broadcasting has foregrounded issues of origins and historical determination. Current talk of our own putative 'post-cinema' and 'post-broadcasting'

era has provoked historians and journalists alike to look anew to the roots of both media in the scientific and popular cultures of the late nineteenth century and early twentieth century.

Within the academic study of electronic media, there is some justice in historian Michele Hilmes's claim that radio 'has become the "repressed" of television studies, occupying a position similar to that of the silent film era in film studies twenty years ago'.¹ As an object of formal post-secondary study, radio has been largely relegated to a few lectures in an undergraduate survey class and a handful of vocational courses in departments of communication, even as the study of television has exploded across the humanities in the past decade in North America and the UK.²

In support of the optimistic, perhaps wishful, implication of Hilmes's historiographic analogy between the two fields, there is at least some evidence to suggest that broadcast scholars are indeed devoting new energy to the study of the wider historical roots of broadcast culture, reflected in heightened activity in journals, monographs, and conference papers. In another temporally displaced echo across the fields of film and media studies, just as Tom Gunning once linked the historiographic turn in 1970s film studies toward the study of early cinema to what he called the 'pseudomorphs' of the cinema of attractions and the contemporaneous avant-garde film practice of North America and the UK, one could argue that recent avant-garde audio and radio work has sparked new interest in a century of experimentation by artists in recorded sound and wireless, from the Italian and Russian futurists to Antonin Artaud, John Cage, and William Burroughs.³ Recent reconsideration of this artistic work has been accompanied by heightened attention to the rich history of recorded sound and radio theory, encompassing the writings of many figures already familiar to film studies, including Dziga Vertov, Bertolt Brecht, Rudolf Arnheim, and Theodor Adorno.⁴ Indeed, even the recent debates around the emerging discipline of visual studies have served to highlight the new relevance of the historical and theoretical consideration of recorded sound and radio for the wider study of contemporary media culture. At the same time, the often-observed intellectual divide between social-science-oriented broadcast scholars and humanities-based film historians has been muted by a generation and a half of academic researchers trained in film studies who have been responsible for much of the most significant work in contemporary television and media studies.

1 Michele Hilmes, *Radio Voices: American Broadcasting, 1922-52* (Minneapolis: University of Minnesota Press, 1997), p. xv.

2 Michele Hilmes, 'Rethinking Radio', in Michele Hilmes and Jason Loviglio (eds.), *Radio Reader: Essays in the Cultural History of Radio* (New York: Routledge, 2002), 2.

3 See, for example, Douglas Kahn and Gregory Whitehead, *Wireless Imagination: Sound, Radio, and the Avant-Garde* (Cambridge, Mass.: MIT Press, 1992), and Allen S. Weiss, *Phantasmic Radio* (Durham, NC: Duke University Press, 1995).

4 See, for example, Dziga Vertov, *Kino-eye: The Writings of Dziga Vertov*, ed. with an introduction by Annette Michelson, trans. Kevin O'Brien (Berkeley and Los Angeles: University of California Press, 1984); Bertolt Brecht, *Brecht on Film and Radio*, trans. and ed. Marc Silberman (London: Methuen, 2000); Rudolf Arnheim, *Radio: An Art of Sound* (New York: Da Capo Press, 1972); Anton Kaes, Martin Jay, and Edward Dimendberg (eds.), *The Weimar Republic Sourcebook* (Berkeley and Los Angeles: 2004).

Meanwhile, scholars of early film have become more sensitive to the parallel genealogies of electronic media reaching back into the prehistory of motion pictures, part of a wider elaboration of the cultural and technological horizon of early cinema. As William Uricchio pointed out in 1997, the introduction of the telephone in 1876 inspired a number of speculative inventions which linked the simultaneity of the telephone to the photographic image, arguing that, 'with a few exceptions, simultaneity seems an implicit part of the pre-cinematic conception of a moving-picture medium'.⁵ Uricchio linked television's prehistory in the nineteenth century's anticipated fusion of photography and the telephone to the ubiquitous 'rocks and waves' genre of early film actualities, even suggesting that such filmic evidence 'renders cinema as something like a long detour from what audiences *really* wanted', i.e. live television.⁶ Similarly, Thomas Elsaesser argued that the conventional model of technological history as a series of relay-race baton-passings between successive innovations toward a foreordained goal is itself a distinctly nineteenth-century artefact. Instead, Elsaesser proposed a number of alternative media genealogies, linking serial photography, the Polaroid, the video image, the VCR, and the digital disc or, alternatively, the telegraph, the telephone, the wireless, and satellite communication.⁷

Such recent rescramblings of conventional media genealogies by film scholars suggest less a rearrangement of cast members in a familiar historical narrative than the recognition that, in historian Carolyn Marvin's words, 'media are not fixed natural objects; they have no natural edges. They are constructed complexes of habits, beliefs, and procedures embedded in elaborate cultural codes of communication.'⁸ Marvin herself examines the telephone and electric light as nineteenth-century communications media, prototypes for the electronic mediation of private and public space and the provision of mass spectacle respectively, and argues that these early inventions became important tools used by audiences and critics to think about subsequent inventions and the societies that engendered them.⁹ When considering the place of cinema and wireless in late nineteenth-century popular imagination, it is important to keep in mind the legacies of earlier inventions like the telegraph and telephone, which occasioned widespread popular and scientific speculation about the future of domestic communication and public spectacle. The distinct institutional and technological paths of motion pictures and electronic media in the twentieth century may obscure some of the significant common contexts and features in the nineteenth century.

At the same time, there are some fundamental methodological differences confronting historians of the two media; while film historians justly lament the loss of so much motion-picture material from the early cinema period,

5 William Uricchio, 'Ways of Seeing: The New Vision of Early Nonfiction Film', in Daan Hertogs and Nico De Klerk (eds.), *Uncharted Territory: Essays in Early Nonfiction Film* (Amsterdam: Netherlands Film Museum, 1997), 130.

6 *Ibid.*

7 Thomas Elsaesser, 'Louis Lumiere: The Cinema's First Virtualist?', in Thomas Elsaesser and Kay Hoffman (eds.), *Cinema Futures: Cain, Abel or Cable* (Amsterdam: Amsterdam University Press, 1998), 47-8.

8 Carolyn Marvin, *When Old Technologies Were New: Thinking about Electric Communication in the Late Nineteenth Century* (New York: Oxford University Press, 1988), 8.

9 *Ibid.* 6.

they nevertheless enjoy access to such primary texts in a way unimaginable to historians of early radio. In addition, unlike the case of the telegraph or the cinema, where the path between scientific invention and commercial diffusion was relatively brief and direct, the transition between the radio's enabling technology and its commercial application is strikingly extended and discontinuous. Thus, contrary to the straightforward periodization of 'early cinema', radio experienced the distinct stages of point-to-point Morse code transmission after 1897, amateur point-to-point voice transmission after 1907, and broadcasting proper after 1920. An imperfect analogy would be as if the first decade or two of motion-picture history consisted of amateurs fabricating their own cameras and projectors and exchanging home movies among themselves before anyone thought of opening a theatre to a paying public. As the president of RCA acknowledged in 1929, broadcasting was the 'surprise party' of radio, and it is wireless's sustained period of amateur activity and commercial uncertainty and improvisation before 1922 that marks its distinction from most previous and subsequent media, including television.¹⁰ Certainly, radio's successive rebirths in distinct applications makes more complicated both the preliminary historiographic task of periodization and the larger challenge of discerning the relations between technological innovation and cultural setting.

The shared contexts of cinema and wireless

Notwithstanding the complications of historical periodization and historical artefact, cinema and wireless emerged from the same rich context of scientific research and popular amusements in an era marked by modernity's massive transformations of human settlement, industrial labour, as well as the scale of business and bureaucratic organization, global commerce, and political power. One shared cultural site informing the beginnings of both media was the nineteenth-century popular exposition and world's fair, 'designed', in Tom Gunning's words, 'to bring together, in concentrated and spectacular form, the experience of modernity to masses of people'.¹¹ A number of film historians have eloquently laid out cinema's debt to the mass exposition as an object lesson in public spectacle, technological progress, and imperial might, and Thomas Elsaesser argues that both cinema and world's fair represent attempts to mediate a crisis of cultural self-definition.¹² In this context, it is striking to note the prominence of wireless technologies in many of the same expositions that scholars of cinema have scrutinized, including the 1900 World Exhibition in Paris and the 1904 St Louis World Exposition. The place of electrical and wireless technology in such popular expositions represents the nineteenth-century apotheosis of what historian David Nye calls the 'American technological sublime'; between 1880 and 1915, he argues, such electrical exhibitions celebrated the spectacular effects

¹⁰ J. G. Harbord, 'Commercial Uses of Radio', *Annals of the American Academy of Political and Social Science*, 142 (Mar. 1929), 57.

¹¹ Tom Gunning, 'Re-inventing Vision: The Cinema's Radical Challenge to Representation', talk at the Guggenheim Museum, Apr. 2000, <http://bboptics.com/gunning1900-1.html>.

of electric light over the scale or prowess of any specific piece of machinery.¹³ Chicago's 1893 World's Fair and Columbian Exposition, visited by 27 million people, employed more lighting devices than any city in the country at the time, and featured the 82-foot Edison Tower of Light with its 5,000 electric bulbs; Buffalo's exposition of 1901, celebrating the first hydroelectric dam on Niagara Falls, used electricity as its central theme.¹⁴ As Nye points out, for most Americans between 1880 and 1910 electrification was largely an urban, public experience; for example, at a time when only 5 per cent of US homes had electricity, Broadway was already known as the Great White Way.¹⁵ Marvin points to the proto-broadcast nature of many of the spectacular nineteenth-century public uses of electric lighting and signage, and, more generally, the technologies of electricity and wireless were often linked in the activities of its promoters and in the popular press. Electric power and wireless pioneer Nikola Tesla would thrill his nineteenth-century audiences with displays of sparks and flames emanating from his body during public lecture-demonstrations, and his personal exhibit within Westinghouse's 1893 Columbian Exposition display included a darkened 18-foot public chamber situated between two high-frequency emitting plates, where visitors were invited to handle an assortment of autonomous phosphorescent tubes twisted into letters spelling the names of prominent inventors; as one visitor noted, 'two or three were prepared with inscriptions, like "Welcome, Electricians," and produced a beautiful effect'.¹⁶ Marvin also notes the tension within the nineteenth-century engineering fraternity concerning the public presentation of technological innovations between a tone of scientific rationalism and the rhetoric of magic and seance, and points out that both the professional and popular presses alternately treated Tesla as scientific visionary and mystically inclined showman.¹⁷

It is clear that electricity, and the mysterious ether that was popularly hypothesized as its invisible medium, exerted a powerful hold on the public imagination throughout the extended anticipation of electronic communication in the nineteenth and early twentieth centuries. As historian David Nye argues, 'electricity was not merely one more commodity; rather it played a central role in the creation of a twentieth-century sensibility. Electricity seemed linked to the structure of social reality; it seemed both to underlie physical and psychic health and to guarantee economic progress.'¹⁸ Part of the power of electricity came from its imperfectly understood nature; Ambrose Bierce's 1906 *Devil's Dictionary* defined electricity as 'the power that causes all natural phenomena not known to be caused by something else',¹⁹ and, as

13 David Nye, *American Technological Sublime* (Cambridge, Mass.: MIT Press, 1994), 143–4.

14 Marvin, *When Old Technologies Were New*, 171.

15 David E. Nye, *Electrifying America: Social Meanings of a New Technology, 1880–1940* (Cambridge, Mass.: MIT Press, 1990), 382–3.

16 'Mr Tesla's Personal Exhibit at the World's Fair', in Thomas Commerford Martin (ed.), *The Inventions, Researches and Writings of Nikola Tesla* (2nd edn. New York: Barnes and Noble, 1992; 1st pub. 1893), n.p.

17 Marvin, *When Old Technologies Were New*, 48.

18 Nye, *Electrifying America*, 156.

19 *Ibid.* 152.

Jeffrey Sconce points out, by the beginning of the twentieth century, electrical communication already had a fifty-year history of association with the occult, including the intimate and sustained entanglement of the telegraph and spiritualism. As historian Daniel Czitrom notes, 'ether theory straddled the physical and the metaphysical', and popular references to the mysterious medium persisted for decades after its existence was repudiated by physicists.²⁰ Christoph Asendorf argues that, in the nineteenth century, imaginative ideas about electricity in popular literature preceded their technological embodiment, and notes the long-running fascination with electricity within Romantic literature and popular thought, including the spark of life in Galvani's frog's legs and Mary Shelley's *Frankenstein* of 1818, popular accounts of erotic attraction, Franz Mesmer's model of medicine, and countless late nineteenth-century therapeutic treatments and devices addressed to the new nervous and physical maladies themselves brought on by modernity.²¹

Asendorf links the Romantic fascination with electricity with a more general fascination with things that flow, including water, crowds, thoughts, libidinal energy, poetic association, money, even the visual trope of women's hair tracing the lines of a magnetic force field which permeated both Symbolist art and the trademark logos and advertisements of manufacturers of electrical equipment at the turn of the century.²² Wolfgang Schivelbusch also notes the pervasiveness of biological metaphors of circulation in late nineteenth-century life, prevailing over ideas of transport, communication, retail design, public architecture, and the human psyche and body.²³ Tom Gunning recently linked these pervasive late nineteenth-century metaphors of flow and immersion to the serpentine dances so frequently recorded by early film-makers. The serpentine dances of the celebrated Loie Fuller, Gunning argues, themselves seen as peculiarly American and industrial in their use of the new electric light, can be linked not only to early cinema's iconography of nature's movements—the rustle of leaves, the crashing of waves, the passage of a landscape in a phantom ride film—but to the cinematic experience itself for early audiences.²⁴

Wireless technology, unprecedented and imperfectly understood, provoked countless analogies to such biological metaphors of flow; as Carolyn Marvin notes, the human body, inescapable border between nature and culture, remained central to nineteenth-century attempts to understand electricity.²⁵ One observer in 1892 responded to a series of early wireless experiments in the UK:

The thought in a man's brain which causes him to advance his foot, must move *something* in doing it, or how could it be transmitted down that five

20 Daniel Czitrom, *Media and the American Mind: From Morse to Marconi* (Chapel Hill: University of North Carolina Press, 1982), 64–5.

21 Christoph Asendorf, 'Nerves and Electricity', in *Batteries of Life: On the History of things and their Perception in Modernity* (Berkeley and Los Angeles: University of California Press, 1993), 153–5.

22 *Ibid.* 153, 164–5.

23 Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the 19th Century* (Berkeley and Los Angeles: University of California Press, 1986).

24 Tom Gunning, 'The Imaginative Vision'

or six feet of distance? If it moves a physical something, internal to the body, why should it not move also something external, a wave, as we all agree to call it, which on another mind prepared to receive it . . . will make an impact having all the effect in the conveyance of suggestion, or even of facts, of the audibility of words? Why, in fact, if one wire can talk to another without connections, save through ether . . . should not mind talk to mind without any 'wire' at all?²⁶

The writer went on to argue that 'if you stir the ocean of ether, the motion so created must roll on, in some sense, for ever; for a portion of ether is displaced, and must displace another portion'.²⁷ Henry Parr Maskell, in his 1934 book *The Human Wireless: A Practical Guide to Telepathy and Thought Transference*, located the first scientific interest in telepathy to the founding of Societies for Psychical Research in several cities across Europe and North America in the 1870s, while tracing its popular expression back to medieval ideas of the aura.²⁸ Harvard professor John Trowbridge told readers of *Popular Science* in 1899 that the 'wireless telegraph is the nearest approach to telepathy that we have vouchsafed to our intelligence. . . . The nerves of the whole world are, so to speak, being bound together, so that a touch in one country is transmitted instantly to a far-distant one', and the possible utility of the wireless in communicating with the supposed inhabitants of Mars was a common topic in turn of the century scientific and popular writing.²⁹ The persistent association of wireless with telepathy, not surprisingly, also provoked criticism from defenders of scientific rationality during the early twentieth century; for example, a 1914 article complained that 'a great number of semi-intelligent people . . . were led by the supposition that "telepathy" was analogous to "wireless telegraphy" . . . , with a comfortable assurance that their belief has somehow or another a sort of scientific basis'.³⁰

As we shall see in the next chapter, for other early twentieth-century observers, the link between wireless and the occult remained both credible and disquieting. While electricity in the nineteenth-century popular imagination had long-established fearful associations with public disaster, personal trauma, and violent death, and the point-to-point media of the telegraph, telephone, and wireless were frequently linked to themes of alienation, isolation, and loss of personal agency, it is clear that the beginnings of broadcasting in the early 1920s brought new popular anxieties about the coercive and authoritarian aspects of communication technologies to the fore.³¹

26 'A Dreamy View of Mr Preece's Experiment', *Spectator* (29 Nov. 1892), 765.

27 *Ibid.*

28 Henry Parr Maskell, *The Human Wireless: A Practical Guide to Telepathy and Thought Transference* (London: C. A. Pearson, Ltd., 1934), 14–16.

29 John Trowbridge, 'Wireless Telegraphy', *Popular Science* (Nov. 1899), 59–73.

30 'The Analogy between Wireless Telegraphy and Waves from Brain to Brain', *Current Opinion* (Oct. 1914), 253.

31 Tom Gunning, 'Heard over the Phone: *The Lonely Villa* and the de Lorde Tradition of the Terrors of Technology', *Screen*, 32/2 (Summer 1991), 184–96; early cinema provides many examples of the association between electricity and spectacularized death as figured in the many pseudo-actuality executions by electric chair and in the filmed electrocution of a Coney Island fairground elephant before 1,500 spectators and Thomas Edison's camera in 1902; see Lisa Cartwright, *Screening the Body: Tracing Medicine's Visual Culture* (Minneapolis: University of Minnesota Press, 1995), ch. 2.

Conclusion

If wireless and early cinema are linked in the common contexts of nineteenth-century science and popular culture, there remains a seemingly irreconcilable distinction in the historiographies of cinema and wireless, that embodied in the publicness of cinema's site of reception versus the domestic setting of wireless fabrication and reception.³² Indeed, it was cinema's creation of a new public sphere that provoked both Walter Benjamin's excitement about cinema's liberating potential and the deep anxiety among many early twentieth-century conservative critics. The popular press of the period frequently contrasted the social dangers of cinema-going (associated with the city, the street, the dance hall, and the amusement park) with the therapeutic and family-affirming qualities of radio as a hobby, especially for male adolescents. It is important to keep in mind, however, that the late nineteenth century witnessed a sustained crisis in the cultural definitions of private and public space, marked by a number of striking irreconcilable topographies conflating the domestic and the public, including Schivelbusch's public railway carriage appointed in the deeply upholstered style of the bourgeois living room, Benjamin's urban arcade presenting the street as furnished interior, and the domestic living room itself penetrated by the new industrial artefacts of the telephone, the stereopticon, and the magic lantern.³³ Likewise, while radio clearly participated in a 200-year-old anti-urban vision of demographic dispersal and domestic self-sufficiency going back to the use of electric power in factories, the nature of domesticity that wireless helped to bring about was itself deeply contradictory.³⁴ A Maine newspaper article in 1898, foreseeing the widespread electrical transmission of live events into the home, predicted that 'one's own family and neighborhood would then be the stable center of the universe—beyond it would be margin and chaos'.³⁵ At the same time, broadcasting also represented an unprecedented integration of the home with the time values and economic imperatives of large-scale capitalism.³⁶ Thus, the prominent claims for a new technologically achieved domesticity in the early twentieth century seem less like observations about the empirical role of wireless in the home and more like yet another reaction formation to modernity's assault on subjectivity which film scholars and social historians have been describing for decades. The longevity of such reactionary appeals to an imagined domesticity restored by electronic communication is apparent in the promotion of contemporary digital media in our post-cinema and post-broadcasting era. The widely predicted disruptive effects of a range of new public and domestic

32 This opposition is belied to some degree by both the early use of motion pictures within the home (although the institutionalization of the 'home movies' arrives only in the 1920s) and the collective nature of much early wireless activity, including equipment fabrication, group listening outside the home, proliferating amateur radio clubs, and widespread socializing in radio shops.

33 Tom Gunning, talk at Deutsches Haus, Columbia University, 19 Apr. 2002.

34 'Removing the Last Objection to Living in the Country', *Country Life* (London) (Feb. 1922), 63.

35 Quoted in Marvin, *When Old Technologies Were New*, 200.

36 Raymond Williams, *Television: Technology and Cultural Form* (New York: Schocken, 1975); also see William Boddy, 'The Rhetoric and the Economic Roots of the American Broadcasting Industry', *Cinetracts* 6 (Spring 1979) 37–54.

moving-image platforms, including the digital video recorder, video on demand, and electronic cinema, suggest the usefulness of a historical reconsideration of earlier periods of technological innovation for unravelling the meaning of our own era's prospects and choices. Such a reconsideration is offered in the following chapters.