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INTRODUCTION

The public culture of science through an intermedial lens

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Abstract

This introduction to a special issue of *BJHS* concerned with intermedial approaches to the history of the public culture of science (those that pay attention to the forms of different science media and how they relate to each other) also stands as an argument for such approaches. It amplifies a trend within humanities and social-science approaches to its subject of studying the interactions between science, media and publics as complex historical phenomena – in comparison with evaluative research approaches that seek to make science communication more effective. It argues for the virtues of going beyond most existing scholarship in the field by considering many media together. Drawing on the work of media studies scholars Irina Rajewsky and Klaus Bruhn Jensen, it introduces working definitions of intermediality. It then explores historically the genealogies of intermediality, which emerges as an entanglement of changing disciplines, technological change and media practice. Two brief sections take the example of museum display in this intermedial context with the aim of showing first that museum practice was already intermedial before it was considered to be 'one of the media'. It then concludes by showing how, and in what circumstances, the mediatization of museums came to seem necessary.

Until recently, historical studies of science communication have tended to concentrate on single media: science on television, onstage, on the page, for example.[1] In this special issue

[1] The literature is by now extensive. Some relevant examples are Jean-Baptiste Gouyon, *BBC Wildlife Documentaries in the Age of Attenborough*, London: Palgrave, 2019; Timothy Boon, *Films of Fact: A History of Science in Documentary Films and Television*, London: Wallflower Press, 2008; Scott Curtis, *The Shape of Spectatorship: Art, Science, and Early Cinema in Germany*, illustrated edn, New York: Columbia University Press, 2015; Oliver Gaycken, *Devices of Curiosity: Early Cinema and Popular Science*, Oxford and New York: Oxford University Press, 2014; Stephen Hilgartner, *Science on Stage: Expert Advice as Public Drama*, Stanford, CA: Stanford University Press, 2000; David A. Kirby, *Lab Coats in Hollywood: Science, Scientists, and Cinema*, Cambridge, MA and London: MIT Press, 2011; Charlotte Sleigh, *Literature and Science*, London: Palgrave MacMillan, 2007; Martin Willis, *Mesmerists, Monsters, and Machines: Science Fiction and the Cultures of Science in the Nineteenth Century*, Kent, OH: Kent State University Press, 2006. Aileen Fyfe, *Science and Salvation: Evangelical Popular Science Publishing in Victorian Britain*, Chicago: University of Chicago Press, 2004. Peter J. Bowler, *Science for All: The Popularization of Science in Early Twentieth Century Britain*, Chicago and London: University of Chicago Press, 2009; Max Long, 'The ciné-biologists: natural history film and the co-production of knowledge in interwar Britain', *BJHS* (2020) 53(4), pp. 527–51; Miles Kempton, 'Commercial television and primate ethology: facial expressions between Granada and London Zoo', *BJHS* (2023) 56(1), pp. 83–102; Peter Morris (ed.), *Science for the Nation: Perspectives on the History of the Science Museum*, Basingstoke: Palgrave Macmillan, 2010; R.G.W. Anderson, '"What is technology?" Education through museums in the mid-nineteenth century', *BJHS* (1992) 25(2), pp. 169–84; Sophie Forgan, 'Festivals of science and the two cultures: science, design and display in the Festival of Britain, 1951', *BJHS* (1998) 31, pp. 217–240; Robert Bud, '"The spark gap is mightier than the pen": the promotion of an ideology

we move beyond this single-medium approach; our analysis of the total public culture of science is reaching for a higher level of generality. It is concerned with the ways in which the grammars of differing media inflect science and technology in different ways, even where the subject may be the same. Media may be mainly time-based (radio, television, film), or spatial (the exhibition), textual, visual, sonic or multi-modal. Furthermore, the conventions or grammars by which the differing media communicate have changed over time, both in kind and in degree, not least because of intermedial factors.[2] So, for example, the seat-of-the-pants late 1950s live outside broadcast television programme has little in common with Adam Curtis's *Pandora's Box* from nearly four decades later, made in its entirety and edited before broadcast.[3] Fashions have also changed dramatically across the same time frame in museum display or illustrated books, to take two further examples, and with the advent of online media that in their turn also draw from the grammars of existing media.

The intermedial approach is a way of discussing the ways in which science has been made available to people in the past (here we are thinking principally of laypeople, although it is a commonplace that, in modern sciences, a specialist in one field is as a layperson in others). For this territory, we are using the term 'the public culture of science' to denote a way of studying the historical presence of science and technology in public discourse and practice that can evade the instrumentalist prescriptive or proscriptive tendencies of 'science communication studies'. As Scott Curtis commented in his original submission to this project, 'of all the essays written about science communication, those exploring its effectiveness outnumber the rest by far'. Our focus on the public culture of science will enable this special issue to move away from evaluating effectiveness and adopt a more historical and analytical approach.

The editors have been developing and arguing for intermedial study of science films alongside other science media, including museums, since our Intermedial Science research project in 2012.[4] The inspiration for this came from a 1990 paper by my erstwhile colleague Ghislaine Lawrence. This compared late 1950s medical-museum practice with the seemingly radical approach of television in the series *Your Life in Their Hands*.[5] I assumed when I wrote the grant application that undertaking comparisons between science museum practice and that of contemporary television would reveal the museum to have been naive and unreflexive. In the event it emerged that the 1950s and into the 1960s witnessed thoughtful practitioners in both media seeking to expand the effectiveness of their work. It also became clear that, in a transmedial way (see below), similar representational tropes featured in both media, including that both media chose, rather than the heroic narratives one

of science in the early 1930s', *Journal of Political Ideologies* (2017) 22(2), pp. 169–81; Marcel Chotkowski LaFollette, *Science on the Air: Popularizers and Personalities on Radio and Early Television*, illustrated edn, Chicago: University of Chicago Press, 2008.

[2] It would be possible to make a formal comparison between our language of grammars and the concerns of medium theorists; Jensen describes their concerns with 'a key question: "What are *the relatively fixed features of each means of communicating* and how do these features make the medium physically, psychologically, and socially different from other media and from face-to-face interaction?"'. Klaus Bruhn Jensen, 'Intermediality', in Klaus Bruhn Jensen, Robert T. Craig, Jefferson D. Pooley and Eric W. Rothenbuhler (eds.), *The International Encyclopedia of Communication Theory and Philosophy*, Chichester: John Wiley & Sons, Ltd, 2016, pp. 1–12, 5, added emphasis.

[3] Timothy Boon and Jean-Baptiste Gouyon, 'The origins and practice of science on British television', in Martin Conboy and John Steel (eds.), *The Routledge Companion to British Media History*, London: Routledge, 2015, pp. 470–83.

[4] Funded by the AHRC under their 'science in culture' theme as an exploratory award, ref AH/J01141X/1.

[5] I now realize that it was this mediumistic approach that we took in the Health Matters gallery we produced four years later: both that the gallery adopted the sequential narrative of the illustrated magazine, but also that it was dense with historical media, including a substantial quantity of archive film. Ghislaine Lawrence, 'Object lessons in the museum medium', *New Research in Museum Studies* (1990) 1, *Objects of Knowledge*, pp. 103–24.

might expect, homely metaphors to convey space travel – for instance that a spacecraft is much like a family car.[6]

This special issue, like our earlier work, follows the long traditions of the modern history-of-science discipline in being porous to appropriate other disciplines, in this case media and museum studies.

What is intermediality?

In studying science communication media, the question arises of the extent to which it is possible to separate content from form. *Is* the medium the message? One possibility that we are exploring in this special issue is that by making comparisons *between* media, it may be possible to come to an understanding of what is communicated whilst also appreciating what belongs more to the medium than to the ostensible content of the communication. Many from outside the history-of-science discipline have grasped at the potential of intermediality, as is clear from just two examples: the existence of a dedicated journal *Intermédialités* since 2003, and from the launch of Edinburgh University Press's Studies in Film and Intermediality book series, which began in 2010.[7]

In a valuable 2005 essay published in *Intermédialités*, the media and cultural studies scholar Irina Rajewsky includes a clear definition:[8]

> intermediality may serve foremost as a generic term for all those phenomena that (as indicated by the prefix *inter*) in some way take place between media. 'Intermedial' therefore designates those configurations which have to do with a crossing of borders between media, and which thereby can be differentiated from *intra*medial phenomena as well as from *trans*medial phenomena.[9]

It is valuable to extend the terminology to include, in addition to *inter*medial study – that is, how a single medium may include and be included in others – also a *trans*medial analysis, which Rajewsky defines as 'the appearance of a certain motif, aesthetic, or discourse across a variety of different media'.[10] In short, it is possible and valuable to distinguish cultural phenomena that occur between, within and across different media. But, as she complains, 'a variety of critical approaches make use of the concept, the specific object of these approaches is each time defined differently, and each time intermediality is associated with different attributes and delimitations'.[11] We would argue, however, that the approach pays dividends despite this definitional diversity. Our pragmatic approach, for the sake of the special issue's coherence, is to limit ourselves chiefly to definitions from her 2005 paper and from a 2016 piece by the media and communications scholar Klaus Jensen.[12]

[6] Jean-Baptiste Gouyon, 'Making science at home: visual displays of space science and nuclear physics at the Science Museum and on television in postwar Britain', *History and Technology* (2014) 30(1–2), pp. 37–60. Interestingly, this is a point glancingly referenced by Roger Silverstone: 'Museums and media: a theoretical and methodological exploration', *International Journal of Museum Management and Curatorship* (1988) 7, pp. 231–41, 233.

[7] See http://intermedialites.com/en/presentation (accessed 24 October 2021).

[8] Henry Jenkins, *Convergence Culture: Where Old and New Media Collide*, updated edn, New York: New York University Press, 2008.

[9] Irina Rajewsky, 'Intermediality, intertextuality, and remediation: a literary perspective on intermediality', *Intermediality: History and Theory of the Arts, Literature and Technologies* (2005) 6, pp. 43–64, at www.erudit.org/en/journals/im/2005-n6-im1814727/1005505ar (accessed 8 July 2021), p. 46, original emphasis.

[10] Rajewsky, op. cit. (9), p .46.

[11] Rajewsky, op. cit. (9), p. 4.

[12] Klaus Bruhn Jensen, 'Intermediality', in *The International Encyclopedia of Communication Theory and Philosophy* (American Cancer Society, 2016), pp. 1–12, at https://doi.org/10.1002/9781118766804.wbiect170.

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Avey Nelson, Kate O'Riordan and Joshua Kim's paper in this issue, for example, looks at the visual representation of CRISPR, the recent genetic modification technique, across different media. In their study, the intermedial approach of studying CRISPR through time and between genres enables the authors to explore the public culture of human genetic engineering and to navigate the different meanings associated with this specific technology in the first decades of the twenty-first century. Kirsten Ostherr's essay skilfully uses Rajewsky's and Jensen's categories to explore gaps in communication within pandemic health education campaigns. The terminus of her explanation is social-media usage in the COVID pandemic, but she shows via historical comparisons with live television reportage styles in the era of HIV/AIDS activism and during the 1957 influenza epidemic that there is a deep genealogy to the intermedial entwinement of emerging infectious diseases and electronic media. Similarly, Scott Curtis, in his study of the Bell System Science Series, compares the work of directors Frank Capra and Owen Crump, showing that each producer made different aesthetic choices, notably in relation to the use of animation in the series as a tool to convey scientific information. Here intermediality is approached as an intrinsic feature of the television series in the balance between animation and live-action sequences. Contrasting Capra's approach with Crump's, Curtis suggests that their differing use of animation is a reflection of their understanding of how science relates in public culture to such other pursuits as the arts or religion. To Capra, animation had the potential to decentre science, while to Crump it helped reinforce its cultural hegemony.

Rajewsky concludes that, because of the diversity of practice, 'it becomes necessary to define one's own particular understanding of intermediality more precisely, and to situate one's individual approach within a broader spectrum', which is precisely what I propose to do here, with the help of some of her distinctions.[13] She identifies three fundamental aspects of differing conceptions of the term: between synchronic and diachronic approaches; between intermediality as a fundamental condition as opposed to its use as an analytical category for specific examples; and between the conventions of intermedial usage in differing disciplines; in her case, literature, media studies and media philosophy.[14] Within this structure, she opts for a synchronic distinction between different manifestations of intermediality in order to develop a uniform theory for each, and with a keen eye on the historicity of specific forms.[15] Her main example is the dance theatre production *Körper* (Bodies) by Sasha Waltz, which used a literal picture frame device to locate its performers, intermedially referencing painting. Using her categories, the orientation of this special issue is, similarly, synchronic, analytical and comparative. Our approach is synchronic, in that it adopts a historicist concern with understanding the past – including the very recent past – in its own terms. This also allows us a sound basis for comparisons diachronically, across time. For us, the overarching concern is to use intermediality analytically to consider the grammars of differing media, even though it seems evident that intermediality is a common condition in the media. Ultimately, as I say, the aim is to employ this approach to reveal how the different media have inflected the same subjects differently.

Klaus Jensen's account usefully cuts across Rajewsky's, and is worth considering for this reason, as also for his broad situating of intermediality within *longue durée* disciplinary developments. He argues,

> Three different conceptions [of intermediality] can be identified … deriving from three notions of what a medium is in the first place. First, the term denotes communication through several discourses at once, including through combinations *of different*

[13] Rajewsky, op. cit. (9), p. 45.
[14] Rajewsky, op. cit. (9), pp. 46–9.
[15] Rajewsky, op. cit. (9), p. 50.

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> *sensory modalities* of interaction, for instance music and moving images. Second, intermediality represents the combination of *separate material vehicles of representation*, as exemplified by the use of print, electronic and digital platforms in a communication campaign. Third, intermediality addresses the interrelations among the *media as institutions in society*.[16]

Jensen usefully traces the genealogy and application of notions of intermediality across literary, cultural and media and communications studies. His three conceptions are analytical abstractions of a broader kind than Rajewsky's, and these are relevant to several of our authors, as they will be to further work of this kind.

Genealogies of intermediality

It is worthwhile to historicize intermediality, to consider why we have this category now. Whereas, as we show below, practitioners and scholars have known for a very long time that media borrow from each other, intermediality as an analytical term began to be used with greater frequency from the 1970s.[17] Indeed, it would be possible to undertake a Raymond Williams-style historical etymology of 'intermediality' as a keyword; we could start by noting Samuel Taylor Coleridge's 1812 use of the term 'intermedium' to refer to the works that fall between traditional genres or media, and a 1913 dictionary's definition of the term as meaning 'lying between; intervening; intermediate'.[18] As Jensen shows, Fluxus co-founder Dick Higgins started using the term 'intermedia' in 1965 to describe that art movement's characteristics and practices.

Furthermore, the blurring of categories that has arisen from the digitization of media at an accelerating rate over the last three decades may well be equally significant for intermediality's emergence as a mode of analysis. As Friedrich Kittler stated, originally in 1985,

> The general digitization of channels and information erases the differences among individual media. Sound and image, voice and text are reduced to surface effects … once optical fiber networks turn formerly distant data flows into a series of digitized numbers, any medium can be translated into any other.[19]

Jensen concurs, referencing Jay David Bolter and Richard Grusin, authors of the 2000 text *Remediation*, 'digital technologies prompted renewed theoretical and empirical scrutiny of the very idea of media, including examination of the ways in which one medium may reproduce as well as reshape another medium in a process of remediation'.[20]

As I argue later in the context of arguments for considering museum displays as 'media', the culture of the post-1960s universities was also fertile for the development of new disciplines – including communications, media and museum studies – that were receptive to critical theory and its theoretical categories, including intermediality.

[16] Jensen, op. cit. (12), p. 1, added emphases.

[17] Jensen, op. cit. (12), p. 2.

[18] Jensen, op. cit. (12), p. 1, at https://en.wiktionary.org/wiki/intermedial (accessed 8 October 2021). Marina Grishakova, 'Intermediality: introducing terminology and approaches in the field', in Jørgen Bruhn, Asunción López-Varela and Miriam de Paiva Vieira (eds.), *The Palgrave Handbook of Intermediality*, Cham: Springer International Publishing, 2023, pp. 1–17.

[19] Friedrich A. Kittler, *Gramophone, Film, Typewriter*, Stanford, CA: Stanford University Press, 1999, pp. 1–2.

[20] Jensen, op. cit. (12), p. 4; Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media*, Cambridge, MA: MIT Press, 2000.

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A complicating history

Just as we may consider the genealogy and affordances of intermediality as a technique for analysis, it is also important to understand historically how media combining components and techniques created practices that were 'intermedial' long before the term was developed to describe and analyse them. Our historical actors – film and television makers, curators and the rest – have been into this territory before us. They have created, as Rajewsky would say, 'phenomena that (as indicated by the prefix *inter*) in some way have taken place between media'. This is her 'intermediality as a fundamental condition'.[21] Television programmes have borrowed from radio and documentary film-making; nineteenth-century science lecturers both performed and printed their popularizations, and so on. I am therefore proposing that it behoves us as historians, at the same time as we deploy our developing sense of what is particular to the grammars of individual media, to handle sensitively the fact that the people we study may also have had beliefs about the power of borrowing across media. So, for example, when museum curators began to incorporate film shows and film clips into their museums, they did so from a sense of the communicative affordances of crossing borders.[22]

Directly relevant to our theme, Jorgen Bruhn and Anne Gjelsvik have recently asserted that cinema itself is intrinsically an intermedial art, in their 2018 book *Cinema between Media: An Intermediality Approach*, in the Edinburgh University Press series:

> early cinema borrowed heavily from traditional performing arts, like theatre, vaudeville, and tableau vivant. Narrative forms of literature, particularly the novel, have also played important roles. The list of influencing forms … includes music, opera, magic, architecture, photography and painting; and following … the importance of the digitalisation of the medium, the notion of cinema as a mixed medium has become even more prominent within film theory. In other words: cinema is currently and always has been intermedial.[23]

Raymond Williams argued as long ago as 1983 that early cinema acting styles drew on stage melodrama, and that novels were also important to cinema's gestation, just as Elaine Bell pointed out in 1986 that early television documentary styles drew on radio and documentary film-making, a point that was well known to its practitioners.[24] I would add that those engaged in establishing new media have often undertaken this intermedial borrowing deliberately, sometimes as path dependency, when, for example, radio producers became the first television producers, in a process I have termed the 'fate of genres'.[25] Furthermore, it is clear that this appropriation has often featured not only at moments of creation of new media, but at points of renewal of old ones, as has clearly been the case with the creation of more vivid kinds of museum display over the last seventy years.

More broadly in media theory, the notion that differing media are related to and draw on other media is very old. It was there in 1964 with Marshall McLuhan, who stated that

[21] Rajewsky, op. cit. (9), p. 47.

[22] Jean-Baptiste Gouyon, 'Experimenting with film at the Science Museum in London', in Scott Curtis, Vinzenz Hediger and Oliver Gaycken (eds.), *Epistemic Screens: Science and the Moving Image*, Amsterdam: Amsterdam University Press, forthcoming 2025.

[23] Jorgen Bruhn and Anne Gjelsvik, *Cinema between Media: An Intermediality Approach*, illustrated edn, Edinburgh: Edinburgh University Press, 2018, p. 1.

[24] Raymond Williams, 'British film history: new perspectives', in James Curran and V. Porter (eds.), *British Cinema History*, London: Wiedenfeld and Nicolson, 1983, pp. 9–23, 18; Elaine Bell, 'The origins of British television documentary: the BBC 1946–55', in J. Corner (ed.), *Documentary and the Mass Media*, London: Edward Arnold, 1986, pp. 65–80; Norman Swallow, *Factual Television*, London: Focal Press, 1966.

[25] Boon, op. cit. (1), p. 3.

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'the contents of one medium are always other media'.[26] Kittler elaborates: 'film and radio constitute the content of television; record and tape the content of radio; silent movie and magnetic sound that of cinema; text, telephone, and telegram that of the semi-media monopoly of the postal service'.[27]

Rupert Cole's paper in this issue introduces us to *Within These Four Walls*, a now forgotten 1970s BBC television series that, each week, showed the viewer a gallery from a science museum in the company of a selected credentialled expert in conversation with the programme's presenter, Peter Bennett. Cole reveals the complex intermediality that arose from using the grammar of one medium, at a particular stage in its development, to represent the grammar of another. We may see *Within These Four Walls* as belonging to another category proposed in this special issue, Arne Schirrmacher's 'museum films', which are *about* museums. The theme of Schirrmacher's essay is the cinematic representation of San Francisco's 'Exploratorium' science centre. Focusing on one very particular example – *Exploratorium*, the film made by Jon Boorstin – he proposes that intermediality was in play in relation to this pioneering science centre: that the displays incorporated filmic elements into the displays, but also that documentary grammars can be used transmedially to understand this revolution in science museum display.

The intermediality of displays in science museums

Here I want specifically to pay attention to the comparability of moving-image media and museum displays in order to pay attention to what may seem to be a 'hard case' for the intermedial approach because of their very different time-based and spatial grammars. Just as television can be traced to foregoing media forms, it is commonplace to identify a genealogy for modern museums in the rather dissimilar visual display traditions of early modern cabinets of curiosity and the international expositions of the nineteenth century. But the displays of the first purpose-built building of the Science Museum London in 1928, which were laid out following a developmental logic of machines and scientific technique, are better seen as the descendants of the South Kensington Museum model, itself heavily influenced by the Musée des arts et métiers in Paris.[28] As several scholars have shown, however, in the post-war era museum staff pressed for exhibitionary styles to actively borrow from other media, including film and advertising media.[29] The externally curated Festival of Britain science exhibition in 1951 especially, held on the Science Museum's territory, eschewed the established museum technique of developmental sequences of historical objects. Instead, it adopted a newspaper-like 'story' structure for its exposition, favouring interior-design techniques, props, models and film projections over historical objects.[30] The language used by participants to describe these innovations did not explicitly consider museum display to be a medium in and of itself; rather, for them it was a matter of drawing on the persuasive power of media to render museum display more effective. The eminent first-generation exhibition designer Misha Black, a key figure in the festival, was influential in this respect when he promoted a designer's duty 'to use every trick and device of

[26] Marshall McLuhan, *Understanding Media: The Extension of Man*, 2nd edn, London: Routledge, 2001 (first published 1964), p. 8.

[27] Kittler, op. cit. (19), p. 2.

[28] Tim Boon, 'Presidential address. "Some years of cudgelling my brains about the nature and function of science museums": Frank Sherwood Taylor and the public role of the history of science', *BJHS* (2023) 56(3), pp. 283–307, 287–8.

[29] For example, Forgan, op. cit. (1); Scott Anthony, 'Ambition and anxiety: the Science Museum, 1950–1983', in Peter Morris (ed.), *Science for the Nation: Perspectives on the History of the Science Museum*, Basingstoke: Palgrave MacMillan, 2010, pp. 90–110.

[30] Tim Boon, 'Scripting the postwar museum', paper for BSHS Annual Conference, York, 2017.

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the advertising man, the film director and the professional illusionist … to shout or whisper … his message at the unsuspecting visitor'.[31] As I have noted elsewhere, medial transfer became part of their practice, as we can see with the exhibition creators' adoption of the term 'shooting script' to name the working documents that laid out the contents and texts for use in the festival exhibitions.[32] Within four years of the Festival Exhibition, the report of the Science Museum's Advisory Council was urging a populist response to visitor tastes in modern media:

> The shop counter display, the strip-cartoon, the variegated techniques of advertising, radio, television, the cinema and the stage … The public, surrounded by examples of their productions … has acquired a standard of taste dominated thereby … In these circumstances we believe that there would be an immense gain in standard of display if the Museum were readier to seek and act on the advice of outside consultants when considering the fundamentals of how to arrange both the classical and currently projected new exhibits.[33]

The explicit argument here was that the public taste for vivid forms of communication placed a duty on museums to adopt more dramatic forms of display. The mechanism suggested was to integrate a new class of professional, the exhibition designer, into the production of displays, a task that was formerly the curator's province. With that came the adoption of other media within the displays and events programming of the museum in the form of, for example, the projection of clips from films within exhibitions and the expansion of complementary public film programmes. Evidently, the Advisory Council's opinion was widely shared because it became normal from the 1950s to create displays that sought to be more vivid than the pre-war norm. Increasingly they incorporated techniques such as shopfitting and specialized lighting to subdivide gallery spaces, and period room sets and dioramas to make displays more immersive, a trend that Alison Griffiths has explored over the *longue durée*.[34] And technical museums generally became more intermedial by the incorporation within displays of a whole range of new media as they came along, including illuminated slides, film loops, audio tours, videotapes, videodiscs and computer information points. I know of no work that looks at whether science museums were more invested in the degree of their intermedial interpretive practice than the generality of museums and galleries, but the evidence is that such practices were widespread, building on longer traditions of having 'machinery in motion' wherever possible. Another example of this can be seen in Elisa Mandelli's 2021 book in the EUP series *The Museum as Cinematic Space*, which looks at the history of the introduction of moving images into displays at the Imperial War Museum.[35] In the case of both museums, the argument for intermediality and transmediality, had they used the terms, was on two levels: that displays should incorporate film and audio alongside objects, texts and illustrations, i.e. an *inter*medial intention, but that displays should also become more cinematic –that is, a *trans*medial intention.

[31] Quoted in Forgan op. cit. (1), p. 236 n. 62: 'Black's article was highlighted by a note on the circulation list; PRO, WORKS 25/19/Al-El, 19. Black also edited the standard text on exhibition design first published in 1950, *Exhibition Design*, London, 1950.'

[32] Boon, op. cit. (30).

[33] Science Museum Advisory Council report for 1955, p. 2.

[34] Alison Griffiths, *Shivers down Your Spine: Cinema, Museums, and the Immersive View*, New York: Columbia University Press, 2008; also Boon, op. cit. (28), pp. 293–4.

[35] Elisa Mandelli, *The Museum as a Cinematic Space: The Display of Moving Images in Exhibitions*, Edinburgh: Edinburgh University Press, 2021.

Museum display: becoming 'one of the media'

I described above the multiple genealogies of intermediality as a mode of analysis, but in the 1950s no one was defining museums as a medium. That was to come later, from the late 1980s, when UK writers in communications, media and museum studies began separately to press the idea that museum display is comparable with cinema, newspapers and, especially, television, and that it should therefore be considered one of the media. These were new disciplines that welcomed the insights of critical theory as a means to differentiate themselves from foregoing connoisseurial or curatorial traditions. I will look first to media studies, then to museum studies, before considering the broader economic and political context for these changes.

As in so many cases, the late Roger Silverstone made an early and forceful intervention here. A sociologist, sometime television producer and media studies expert, he had already taken a concerted look at science documentary television – notably in his study of BBC's *Horizon*.[36] From the second half of the 1980s, amongst other activities, he also turned his attention on museums and specifically science museums.[37] His fantastically concentrated eleven-page 1988 'Museums and media' paper wastes no time in asserting his claim:

> Museums are in the communications business. They offer both the specialist and the lay visitor a display of objects and artifacts which has been designed to educate, inform and entertain ... I would like to explore some of the implications of treating the museum and the exhibition as media.[38]

He explains, 'It is my purpose in this paper to introduce some ideas and approaches which owe their origins to the study of television but which could prove relevant and instructive, now, in the changing world of the museum'. Had it been part of the lexicon of the inchoate disciplinary field in which he was a key figure, he would surely have invoked intermediality here.[39] In four sections he lays out 'the beginnings of a theory of the dynamics of the museum's role in contemporary culture'.[40] These, respectively, suggest a comparative discursive approach to the two fields, apply approaches from de Certeau and Ricoeur to the representations of space and time in museums and television, and consider questions of power and the deconstruction of museum display 'texts' using approaches already applied to television.[41]

In museum studies a few years later, a key text to advocate seeing museums as media was Eilean Hooper-Greenhill's 1995 edited collection *Museum, Media, Message*, which derived from a conference two years earlier. She made the argument that evidently felt novel to her:

> many exhibitions share the major characteristic of most forms of mass communication in that they involve a one-way process, a single message source with a large group of receivers, and the messages themselves are in the public domain. Museums,

[36] Roger Silverstone, *Framing Science: The Making of a BBC Documentary*, London: BFI, 1985.

[37] It was via Silverstone that Sharon MacDonald came to the museum to conduct her influential ethnographic study, *Behind the Scenes at the Science Museum*, Oxford: Berg, 2002.

[38] Roger Silverstone, 'Museums and media: a theoretical and methodological exploration', *International Journal of Museum Management and Curatorship* (1988) 7, pp. 231–41, 231.

[39] For his field of study see Nick Couldry, 'Professor Roger Silverstone (obituary)', www.independent.co.uk/news/obituaries/professor-roger-silverstone-6094906.html (accessed 27 July 2024).

[40] Silverstone, op. cit. (6), p. 232.

[41] I separately later explored the potential of looking at museums through the lens of de Certeau's *Practice of Everyday Life*: Timothy Boon, 'A walk in the museum with Michel de Certeau: a conceptual helping hand for museum practitioners', *Curator* (2011) 54(4), pp. 419–29.

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> when they communicate through exhibitions, publications, advertisements and other methods such as videos, can be characterised as mass communication media.[42]

Her introduction to the volume went on to look into the literature in communications studies in search of an analysis of audience research in non-museum fields. She noted that 'museums are rarely, if ever, to be found in these accounts', whilst setting about including them here.[43] We may see it as characteristic of the isolation of the museum studies discipline at that stage that neither in her introduction, nor in any of the other contributions, was Silverstone's piece mentioned or cited, when the essential argument was the same, and even though it had been published in a museum journal, the *International Journal of Museum Management and Curatorship*. And, unfortunately, we may think, she followed Stuart Hall into the reductive semiotic language of message sending and reception, although she shared his essential scepticism about its real-life applicability.[44]

The work of Hooper-Greenhill especially, and of colleagues at the Leicester Museum Studies department, exemplified a move to create an academic discipline, museum studies, where previously there had been the more practitioner-centred 'museology'.[45] As in the parallel case of discipline formation in the establishment of film studies in opposition to the then more empirical and connoisseurial field of film history, the dominant approach was the application of insights from cultural theory as well as communications studies, making museums an object of analysis rather than simply advocating better practice.[46] And yet, to my eye, Hooper-Greenhill's proposition bears the scars of its critical engagement with the essentially practical field it studies: she wanted cultural theory to change museum practice, and thereby to reinforce the case for the university-level study of museums. All the same, the media approach to museums, especially given the intensification of online media, is here to stay, and has become an established part of the discourse of museum studies.[47] Also in the post-1960s universities, the embrace of critical theory in literature faculties led to an interest in intermediality as a development of intertextual approaches, especially in those departments that became the seedbeds for film and cultural studies.[48]

Theoretical analysis aside, as it was experienced in museums, the key factor in the mediatization of museums was an intensification in the 1980s and 1990s of the turn towards audiences that we have already seen in the 1950s Science Museum's Advisory Council's ideas on the tastes of visitors. It can be argued that, in Britain, the definition of museum display as a medium was a distant product of the adoption by state museums and galleries of more commercial operating models under the neoliberal ethos of Thatcherism. Museums turned towards their audiences with newfound deliberation, identifying visitors as customers. They established audience research departments to attune displays to the

[42] Eilean Hooper-Greenhill, 'Museums and communication: an introductory essay', in Hooper-Greenhill (ed.), *Museum, Media, Message*, 1st edn, London: Routledge, 1998, pp. 1–12, 6.

[43] Hooper-Greenhill, op. cit. (42), p. 7.

[44] 'Where empirical studies were done, it was frequently shown that the theorist's analysis was mere assumption, and was not borne out by audience responses ... Media messages ... could not tell people how to think but could set the agenda as to what to think about'. Hooper-Greenhill, op. cit. (42), p. 7. Also see Stuart Hall, 'Encoding and decoding in the television discourse', University of Birmingham, at http://epapers.bham.ac.uk/2962 (accessed 27 March 2022), esp. pp. 15–18.

[45] She wrote, 'My academic writing has concentrated on the social sides of museums and galleries, education, learning, exhibitions, in short – the experience of visitors'. At www2.le.ac.uk/departments/museumstudies/AboutUs/people/professor-emeritus-eilean-hooper-greenhill (accessed 28 September 2021).

[46] Kathryn Dodd and Philip Dodd, 'Engendering the nation: British documentary film, 1930–1939', in Andrew Higson (ed.), *Dissolving Views: Key Writings on the British Cinema*, London: Cassell, 1996, pp. 38–50, 38.

[47] See also Kirsten Drotner, Vince Dziekan, Ross Parry and Kim Christian Schrøder (eds.), *The Routledge Handbook of Museums, Media and Communication*, 1st edn, London: Routledge, 2018.

[48] Jensen, op. cit. (12), pp. 2–4.

tastes and kinds of understanding of the people who might visit, to the extent, and in the ways, that their methodologies, largely derived as they were from commercial marketing practices, permitted. Today, audience research, the creation of ideal/typical marketing segments of visitors and the targeting of exhibitions to such segments are the most obvious inward signs of this change. But the turn to audiences was double-edged; it embodied both an emancipatory generosity towards people who visit and a neoliberal marketization of the museum experience.[49] Moreover, that is explicit in Hooper-Greenhill's introduction:

> In 1990 we were witnessing in Britain the decline of public funding for the arts and museums, and were in the middle of a push by government to think of ourselves as an 'industry' with an economic role to play in social life, and with customers to satisfy. Marketing officers were being appointed in museums and the concept of the 'audience' … as opposed to merely the 'visitor' … was beginning to take on considerable importance.[50]

However, for our argument now, we should observe that, once it is possible to consider museum display as one medium among others, the invitation to compare display with other media in an intermedial fashion becomes seductive; it is one that has, for example, been taken up by Mandelli. We too, though at some analytical distance, are also taking this path.

Conclusion: the potential affordances of an intermedial approach

The interdisciplinary space at the intersection of museum and media studies is producing a valuable and provocative literature. For example, the photography historian Michelle Henning has done particularly interesting work here, first in her 2006 monograph *Museums, Media and Cultural Theory* and most recently in her edited collection, *Museum Media*.[51] Her approach is not so much to focus on intermedial comparisons, as I am urging here, but to locate a common ancestor; to establish how museum display was a product of modernity, responding to transformations in technological possibility and to related public expectations, just as cinema had been. Reflexively we see here, in her theoretically informed historical account, cinema in turn becoming transmedially one of the new technologies that drove changed expectations of what museums should be like and how they could be expected to appeal to visitors. In this welcome interpretive turn, she is one with those scholars, including Griffiths and Tony Bennett, who have located museums historically within larger narratives of modernization.[52] *Museum Media* demonstrates an enrichment of the terms under which museums and media are discussed together; her interest, she avers, is 'not so much in applying cultural-studies theories to [museums] as in enabling … museums to rewrite cultural and media studies'.[53]

This introduction has made the case for intermedial study of the public culture of science, whilst excluding discussion of the essential third part of the producer–product–audience triad. Instead of including that here, we editors have made audiences the topic of Jean-Baptiste Gouyon's consolidating afterword.

[49] Compare Charles Thorpe and Jane Gregory, 'Producing the post-Fordist public: the political economy of public engagement with science', *Science as Culture* (2010) 19(3), pp. 273–301.

[50] Hooper-Greenill, op. cit. (42), pp. 1–2.

[51] Michelle Henning, *Museums, Media and Cultural Theory*, Maidenhead: Open University Press, 2006; Henning (ed.), *Museum Media*, 1st edn, Chichester: Wiley-Blackwell, 2020.

[52] Griffiths, op. cit. (34); Tony Bennett, *The Birth of the Museum: History, Theory, Politics*, 1st edn, London and New York: Routledge, 1995.

[53] Henning, *Museums, Media and Cultural Theory*, op. cit. (51), p. 1.

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