

Corporate Channels:
How American Business and Industry Made Television Useful

By
Kit Hughes

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The dissertation is approved by the following members of the Final Oral Committee:

Michele Hilmes, Professor, Communication Arts

Jonathan Gray, Professor, Communication Arts

Derek Johnson, Associate Professor, Communication Arts

Jeremy Morris, Assistant Professor, Communication Arts

Caroline Frick, Assistant Professor, Radio-Television-Film, University of Texas at Austin

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Abstract

In an era when television is increasingly discussed as fragmented, mobile, and on-demand, this dissertation examines the emergence of television as a new medium within a forgotten sphere of media practice to suggest that television has always been a multivalent technology that included decentralized practitioners and audiences engaging with the medium on a range of hyper-local and regional (as well as national) scales. Drawing from archival research in corporate, state, and institutional archives as well as interviews with industrial workers, media texts and artifacts, trade journals, instruction manuals, and newspaper reports, this project interrogates the crucial role business and industrial intermediaries played in the development of television's meanings, texts, affordances, and uses in the second half of the twentieth century. Further, I explore how television operated as critical tool of efficiency, expansion, and—presaging the rise of business computing—data management for its corporate and industrial users. In following these strains, this project builds on the recent groundswell of attention devoted to media use within institutional settings such as schools, government, military, corporate workplaces, and religious organizations as well as initiatives such as the Orphan films movement, which seeks to raise awareness of the serious threat posed to non-commercial, amateur, alternative and underground films by lack of preservation and scholarly attention. In attending to useful, institutional, and orphan *television*, this project challenges these rising subfields' persistent focus on film in order to better account for of the place of audio/visual media in everyday life.

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Introduction

Television is dead. Long live television.

The refrain is too common to attribute to a single source. For almost a decade it seems cultural critics and bloggers have been writing eulogies to television. As the “long live television” refrain makes clear, however, these pronouncements of the death of television are tongue-in-cheek; television is not dead so much as it is transitioning into a new, potentially unrecognizable form. While the location of television is one of the key questions provoking anxiety, also at issue are a host of shifts, including economic models, labor arrangements, exhibition and transmission technologies, and increasingly fragmented and mobile audiences.¹ The demi-crisis of the hyper visible transition of the domestic medium’s form has provoked a popular communal check on the ontology of television. Most coverage of the death of television suggests that the medium we knew as “television”—domestic broadcasting—is being replaced with something new. While this may very well be the case in many instances, this dissertation argues that our understanding of what television was *in the first place* needs to be reexamined. As I will show, the placement of television within a constellation of the home, leisure, publics,

¹ Kate Chisholm, “Death of Television” *The Spectator* (3/22/08): n/a. John Borland, “The TV Is Dead. Long Live the TV” *Wired*. 4/6/07: http://archive.wired.com/entertainment/hollywood/news/2007/04/tvhistory_0406 (accessed 3/16/14); Steven Rosenbaum, “Why Television is Dead” *Forbes* (1/28/2014): <http://www.forbes.com/sites/stevenrosenbaum/2014/01/28/why-television-is-dead/> (accessed 3/16/14); Aaron Cohen, “Is television dead?” *Fortune* 5/7/2014: <http://fortune.com/2014/05/07/is-television-dead/> (accessed 3/16/14). Academics, with a more playful tone, have also been productively investigating the “death” of television. See, for example, Margot Hardenbergh, “The Death of Television” *ETC: A Review of General Semantics* 67, no.2 2010: 170-176. Lynn Spigel and Jan Olsson, eds. *Television after TV: Essays on a Medium in Transition*. Durham: Duke University Press, 2004.

and popular audiences neglects a full accounting of how television was developed and used by some of the most powerful institutions of the second half of the twentieth century.

This dissertation maps the emergence of television within American business following the end of World War II to show how understandings of the medium's meanings and capabilities developed within the site-specific discursive structures and material practices of American industry, and further, how the new medium met the changing communication needs of American business in the second half of the twentieth century. It takes as its endpoint the decline of business satellite television systems, which fell out of favor in the late 1990s as the internet was increasingly recognized as a more effective and efficient medium for the corporate communications ambitions developed under the watch of television. While I use the terms "industrial television" and "business television" to refer to the same phenomenon—television used to support manufacture, trade, and commerce—I have included both terms to acknowledge the different ways television has been situated by its practitioners, i.e., sometimes as an extension of industrial film practices, other times as part of a larger cluster of electronic communication tools for business (read: "office") communications, respectively. In moving beyond traditional approaches to television that associate the medium with commercial (broadcast or cable) programming and the home, this project builds on and intervenes in television studies, useful cinema studies, the orphan films movement, media industry studies, and business communication.

Recent years have seen a groundswell of attention devoted to media use within institutional settings such as schools, government, military, corporate workplaces, and religious organizations interested in how "cameras, films, and projectors have been taken up and deployed variously—beyond questions of art and entertainment—in order to satisfy organizational

demands and objectives, that is, *to do something* in particular.”² In examining how film, television, and sound are used for projects like employee and member training, presenting new programs to various publics, or streamlining work processes through increased communication, “useful” or institutional media studies—also studied under the framework of non-theatrical film studies—offers an opportunity to trace the output of the U.S.’s largest non-governmental institutions at the same time it demands we rethink our canon and disturb traditional paradigms based on entertainment media production, distribution, exhibition, and reception. Furthermore, as is becoming increasingly clear, the commercial media products at the center of our media histories actually represent the minority of media texts produced in the twentieth century, if we consider the sheer volume of training, education, marketing, and amateur and content produced by institutions and individuals outside of Hollywood (and even some of the content produced within). A major cultural studies project, investigating the ways in which these “marginal majority” media shape social relations beyond the theater, leisure, and the home enables us, finally, to more fully account for “culture as a whole way of life.”³

From a cultural studies perspective, institutional media require the study of complex power relations often overshadowed in the analysis of commercial media. In particular, institutional texts and practices provide fodder for thinking through relations of governance, power/knowledge projects, and authority. For example, many institutional films—particularly

² Haidee Wasson and Charles Acland, “Utility and Cinema,” in *Useful Cinema* (Durham: Duke University Press, 2011): 3. In addition to sources mentioned across these footnotes, see Devin Orgeron, Marsha Orgeron, and Dan Streible, *Learning with the Lights Off: Educational Film in the United States* (Oxford: Oxford University Press, 2012) and Geoff Alexander, *Academic Films for the Classroom: a History*. McFarland, 2010.

³ I have chosen the terminology of “marginal majority” to emphasize the extent to which “useful” and other non-commercial media genres are both central to everyday life and actively obscured by much media studies work. Raymond Williams, “Culture is Ordinary” in *Raymond Williams on Culture & Society*, ed. Jim McGuigan. Los Angeles: Sage, 2013: 3.

those about training and interpersonal dynamics—are the product of various theories about social relations, psychology, learning, and communication.⁴ Others result in a struggle between scientific experts and changing epistemologies or the authority of cultural intermediaries (museums, librarians) over commercial culture.⁵ Across these efforts, institutional films attempt to coerce emotions, direct perception, build knowledge and shape attitudes in ways fitting to the needs and desires of private companies and other institutions. Scholars have also explored how large institutional operations attempt to enforce national or global interests on local levels or, on the most local of levels, how formal strategies attempt to govern viewers' meaning-making processes.⁶

To follow the first thread mentioned above, scholars have positioned industrial film as “translation devices,” “media interfaces,” and “theory machines” for business.⁷ In these analyses, scholars emphasize media texts and practices as sites of negotiation between multiple, competing and colluding interests. Some scholars have examined how the desires of government bodies,

⁴ Heidi Solbrig, Heidi. *Film and Function: The History of the Industrial Motivation Film*. Unpublished Dissertation. University of California at San Diego. 2004; Anna McCarthy, *The Citizen Machine: Governing by Television in 1950s America*. New York: The New Press, 2010.

⁵ Miriam Posner. *Depth Perception: Narrative and the Body in American Medical Filmmaking*, Unpublished dissertation. Yale University. 2011. Arlie Bellin-Belliveau. *Micromotion study: The role of visual culture in developing a psychology of management*. Unpublished Master's Thesis, York University, 2011. Haidee Wasson, *Museum Movies: The Museum of Modern Art and the Birth of Art Cinema*. Berkeley: University of California Press, 2005. Jennifer Horne, “A History Long Overdue: The Public Library and Motion Pictures,” *Useful Cinema*, eds. Haidee Wasson and Charles Acland. Durham, NC: Duke University Press, 2011. 213–257.

⁶ McCarthy, *Citizen Machine*, 10-23; Ramón Reichert, “Behaviorism, Animation, and Effective Cinema: The McGraw-Hill *Industrial Management* Film Series and the Visual Culture of Management,” in *Films that Work: Industrial Film and the Productivity of Media*. Eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009): 298.

⁷ Belliveau 2; Rudmer Canjels, “Films from Beyond the Well: A Historical Overview of Shell Films.” In *Films that Work: Industrial Film and the Productivity of Media*. Eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009): 241; Mats Bjorkin, Technologies of Organizational Learning: Uses of Industrial Films in Sweden during the 1950s, Mats Bjorkin, in *Films that Work: Industrial Film and the Productivity of Media*. Eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009): 303.

funding sources, academics and experts, filmmakers, and corporations negotiate over media texts' content, while others have demonstrated how these texts operate at the intersection of various theories, e.g., communication, social relations, identity, race, organizational management, and international relations.⁸ Still others have looked at how industrial media makers sought multivalent strategies to appeal to different constituencies. For example, Belliveau looks at how micromanagement studies films were tailored to appeal to workers (as a non-threatening and even exciting new mode of organizing work relations), the general public (the Gilbreth's situated their films as pretty spectacle and pro-worker in opposition to Taylor's as a means to gain goodwill), and international audiences (emphasizing the unique elements of their project). The value of all of these approaches for shaping my approach to business television appears in their exploration of the heterogeneous social relations and bodies of power that influence the construction and reception of institutional texts and technologies.

Likewise, though scholars have tackled the intricacies of industrial organization, stasis and change within the entertainment industries—including broadcast and cable television—far fewer have explored the nontheatrical and industrial media industries that run alongside and overlap with Hollywood's production, distribution and exhibition sectors.⁹ A healthy body of scholarship already investigates the role institutional media play in legitimating institutions,

⁸ See, for example, Khary Oronde Polk, "'Easy to Get': Race, Regulation, and the Black Venerial Body," in *Subaltern Soldiers: Race, Sexuality, and American Militarism in the Early to Mid-Twentieth Century*. Unpublished Dissertation, New York University, 2011 and Devin Orgeron, "Spreading the Word: Race, Religion, and the Rhetoric of Contagion in Edgar G. Ulmer's TB Films," in *Learning with the Lights Off: Educational Film in the United States*, eds. Devin Orgeron, Marsha Orgeron, and Dan Streible. Cambridge: Oxford University Press, 2012: 295-315.

⁹ John Thornton Caldwell, *Production Cultures: Industrial Reflexivity and Critical Practice in Film and Television* (Durham: Duke University Press, 2008); Derek Johnson, *Media Franchising: Creative License and Collaboration in the Culture Industries* (New York: NYU Press, 2013).

groups, and the circulation of particular types of expertise within and beyond the workplace in the fields of business, political economy, medicine and medical anthropology, government, labor, cultural studies, and industrial media.¹⁰ However, no one has adapted a production cultures framework to explore the productivity of business television workers. In so doing, my dissertation examines how these professionals developed their own production cultures and used institutional media to assert their professional identities and to forward their industry—inadvertently or not contributing to the proliferation of business television and the building of corporate empires.

The other ongoing conversation within useful and institutional media studies addressed by my dissertation is the question of media's ability to shape social/spatial relations and interactions. As others have explored in investigations of media embedded within the spaces of work, school, travel, commerce, and leisure, media position audiences both in relation to texts (and the often corporate, national, or international interests embedded within those texts) and in relation to others occupying the same space (but perhaps different positions of power).¹¹ On the

¹⁰ Christopher Sellers and Joseph Melling, "Towards a transnational industrial-hazard history: charting the circulation of workplace dangers, debates and expertise" *The British Journal for the History of Science* 45, no. 3 (2012): 401-424; Silvia Gherardi and Davide Nicolini "To transfer is to Transform: the Circulation of Safety Knowledge" *Organization, Special Issue on Organization Learning* 2 (2000): 303-324; Charles L. Briggs "Communicability, racial discourse, and disease. *Annual Review of Anthropology* 34, (2005): 269-291; Linda F. Hogle, "Introduction: Jurisdictions of authority in science and medicine" *Medical Anthropology: Cross-Cultural Studies in Health and Illness* 21, no. 3-4 (2002): 231-246; Yves Dezalay and Bryant G. Garth, eds. *Lawyers and the Rule of Law in an Era of Globalization*. New York: Routledge, 2011; Yves Dezalay, *Professional Competition and Professional Power*, New York: Routledge, 1995; Janice Radway, "Research universities, periodical publication, and the circulation of professional expertise: On the significance of middlebrow authority" *Critical Inquiry* 31, no. 1 (2004): 203-228; Benjamin Lee and Edward LiPuma, "Cultures of Circulation: The Imaginations of Modernity, *Public Culture* 14, no. 1 (2002): 191-213; Michele Foucault, *The History of Sexuality, Vol. 1: An Introduction*, trans. Robert Hurley. New York: Vintage, 1990.

¹¹ Anna McCarthy, *Ambient Television: Visual Culture and Public Space*. Durham: Duke University Press, 2001; Keeler, Amanda R. *Sugar Coat the Educational Pill: The Educational*

one hand, Groening's work on training film, for example, argues that the habits of "good spectatorship" encouraged by industrial film exhibition—silence and individual concentration—become explicitly translated into models of good work habits (for female telegraph operators); the relationship that the films ask female workers to build with the screen becomes the model for their relation to work (and their isolation from other workers).¹² Heidi Solbrig and Anna McCarthy's work, on the other hand, explores models and theories of social interaction (small-group, role-playing) that developed around uses of institutional media invested in various social projects.¹³ Over the course of the next five chapters, I will continue to build on this body of research through several case studies that investigate the ability of television to extend the capacities of workers, bind spaces, and create intimacies between different groups of employees.

Within a field interested in analyzing (and combating) the unequal distribution of resources necessitated and facilitated by late capitalism, a focus on business and industrial media specifically also enables an exploration of the rise of corporate speech (inside and outside of the corporation) and its role in developing and maintaining these conditions, a particularly relevant phenomenon for our post-Citizen's United era. Anna McCarthy and William Bird both look at how institutional media—corporate sponsored programming in particular—provided a site for companies to establish a line of communication with citizens in which they developed their role as benefactor and the provider of "better living" in direct opposition to the government.¹⁴ Rick Prelinger goes so far as to trace the growing commercialization of public discourse back to

Aspirations of Emergent Film, Radio, and Television. Unpublished dissertation. Indiana University, 2011; Stephen Francis Groening, *Connected Isolation: Screens, Mobility, and Globalized Media Culture*. Unpublished Dissertation. University of Minnesota, 2008.

¹² Groening, 67, 69.

¹³ Solbrig, *Film and Function*, 93-99; McCarthy, *Citizen Machine*, 83-116.

¹⁴ McCarthy, *Citizen Machine*, 31-80; William L. Bird, Jr., *"Better Living": Advertising, Media, and the New Vocabulary of Business Leadership, 1935-1955*. Evanston, IL: Northwestern University Press. 1999: 3-7.

Jamison Handy, the figurehead of one of the most prolific industrial and educational media production houses of the 20th century.¹⁵ As illustrated by the wide-ranging *Films that Work* anthology, others have profitably taken the opposite tack, investigating how corporations direct media at their own workers and at their internal corporate operations in order to enable companies to better spread over large distances, manage internal relations, record activities, rationalize practices, and provide sustaining rhetoric to insiders. As Patrick Vonderau and Vinzenz Hediger note in their introduction to the anthology, “organizational practice is always already media practice.”¹⁶ My project balances both of these approaches by looking at how television served a range of communication needs by seeking audiences both inside and outside of business and industry.

Alongside the Orphan films movement that began in 1999 to raise awareness of the serious threat posed to non-commercial, amateur, alternative and underground films by lack of preservation and scholarly attention, the turn to useful and institutional media has been productive in developing theoretical and methodological approaches to a vast—and vastly understudied—field of media practice. However, despite these twin movements’ shared interest (and remarkable success) in challenging the marginalized position of non-commercial texts, practices, and audiences within the field of media studies, they focus almost exclusively on the medium of film. While this may be a condition of their founding—by a group of scholars interested in non-theatrical film as well as film archiving and preservation—it nevertheless

¹⁵ Rick Prelinger, Eccentricity, Education, and the Evolution of Corporate Speech: Jim Handy and His Organization, Rick Prelinger in *Films that Work: Industrial Film and the Productivity of Media*. Eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009): 215.

¹⁶ Vinzenz Hediger, and Patrick Vonderau, “Record, Rhetoric, Rationalization: Industrial Organization and Film” in *Films that Work: Industrial Film and the Productivity of Media*. Eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009): 40.

reinforces persistent medium-specific hierarchies and silences that impede our full understanding of the place of audio/visual media in everyday life. Furthermore, this emphasis on film also leads to a persistent avoidance of institutional media beyond the post-war and immediate post-Sputnik eras, when videotape ascended as the medium of choice in institutional communication.

The few notable exceptions that engage institutional media beyond the confines of film remain mostly outside of the specific context of business media. While Anna McCarthy's first book explores how television shapes institutional space from the tavern to the mall, her more recent book looks at how television was used by a range of organizations, from philanthropic institutions to private companies, as a tool of governance and citizen education. Joy Fuqua takes a different tack in her recent monograph *Prescription TV*, in which she traces the use of television across a single industry (though within both the hospital and the home) as a mechanism of therapeutic discourses.¹⁷ While a handful of articles have discussed training videos and business sound technologies, media studies has yet to look seriously at business television.

Business communication scholars such as JoAnne Yates, Paul A. Argenti, and Paul M. Leonardi have investigated how changing forms of communication impact industrial organization, competition, and expansion; however, television—with the exception of its commercial use as a tool to reach consumer publics—remains conspicuously absent in these analyses.¹⁸ Using Yates' landmark work as an example, *Communication as Control* addresses the

¹⁷ Joy Fuqua, *Prescription TV: Therapeutic Discourse in the Hospital and at Home*. (Durham: Duke University Press, 2012).

¹⁸ JoAnne Yates, *Control through Communication: The Rise of System in American Management*. Baltimore: John Hopkins University Press. 1993; Paul A. Argenti, *Strategic Corporate Communications: A Global Approach for Doing Business in the New India*, New York: McGraw-Hill, 2008; Paul M. Leonardi "When Does Technology Use Enable Network

ways in which printed organizational technologies (e.g., vertical files) enabled networks of communication that extended companies' management capacities and made corporate expansion possible from 1850-1920. *Structuring the Information Age*, which attempts to trace the prehistory of business computing beginning in 1900, draws on several key technologies, e.g., tabulators, but excludes television (and film), even though, as I indicate throughout, television was an important predecessor to corporate computing. In both instances, her focus on *logistical* mechanisms of organization elides the important role that organizational technologies *as cultural resources* play in the management of the firm. From yet another direction, work in organizational communication looks glancingly at the role of media within organizational training and communication initiatives from a practitioner's perspective, though no one has taken a critical-cultural and historical approach to understanding the role of these texts and practices in supporting industrial operations. To work against these silences and track television outside of the limited contexts in which it has so far been understood, my project develops an interdisciplinary understanding of everyday culture, technology, and the workplace by drawing on work in institutional film studies, cultural studies, television studies, production cultures and the media industries, social construction of technology, and business history.

Television as Orientation

Increasingly it is clear that television has always been a multi-sited, multivalent technology worked over by a host of competing interests across hyper-local, regional, and national scales. This dissertation expands on work undertaken over the past 15 years that has radically challenged our understanding of what and where television is. Joining these projects, I

Change in Organizations? A Comparative Study of Feature Use and Shared Affordances." *MIS Quarterly*, 37(3) (2013): 749-775.

argue that television can be understood as a technology of orientation particularly suited to logistical and cultural management in three different, but related senses. First, building on Lisa Parks' definition of television as an "epistemological system derived through the alternating discursive modalities of commercial entertainment, public education, military monitoring, and scientific observation," I see television as a interface that shapes viewers' understanding of their world and their place within it. (Though, of course, I would add corporate and workplace communications as a key discursive modality shaping this system, and I imagine that additional research—into medical television—for example, would expand this list further.) Much like worker orientation is imagined to introduce the uninitiated to cultural norms and expectations and provide the necessary tools for their success within the workplace, television has long been understood as a cultural resource that provides certain opportunities—and not others—for orienting oneself to a particular text, viewing practices, and larger cultural and subcultural spheres.

Second, I understand orientation as the logistical process of enabling action in space. Here I expand on Anna McCarthy's research into how television attempts to shape the activities and social relations of people in public spaces, whether this means directing the movement of travelers and female shoppers or pacifying those stuck and waiting. Although wary of definitional work, Anna McCarthy suggests we can best understand television as a "site-specific cultural form," a slippery medium ultimately defined by "its *flexibility* as an environmental apparatus," that shapes the micro-politics of the TV set's immediate environment at the same time it incorporates these relations to larger scales of institutional and even global power and

movement.¹⁹ Where I diverge from McCarthy is in my emphasis on television as a logistical tool that—due to its liveness and scaled connectivity capabilities (capabilities that do not belong to film)—has been used to literally and materially shape action at a distance. This sense is closer to John Durham Peters’ understanding of “logistical media” as devices that “arrange people and property into time and space” that “do not necessarily have ‘content’” but “establish the zero points of orientation, the convergence of the x and y axis.”²⁰ In short, logistical media create the ground on which actions can take place. As I discuss in relation to closed-circuit television systems that extend workers’ abilities to control factory operations and satellite call-in programs, television is a tool of logistical control that extends the power of the viewer to materially act in space, whether that means meeting with top brass at corporate headquarters 2,000 miles away, consulting a file in another building, or diffusing a nuclear weapon from behind a blast shield. In these instances, television as a mechanism of orientation both enables users to understand their coordinate position within the building, institution, or country (if we think in increasing scale) and to act within those spatial relations. As a result, television works on users’ (a more relevant term than “viewers” in this context) understanding of their own spatialized capabilities and their social, cultural, political positions within spatialized hierarchies, e.g., headquarters versus branch offices (an orientation that works closer to the first sense I mention above).

Third, I invoke orientation to describe the way television offered a productive and rich site for numerous and diverse groups and institutions to engage in and orient themselves toward larger conceptual frameworks concerning the “problem” of electronic communication. Work on

¹⁹ Anna McCarthy, *Ambient Television: Visual Culture and Public Space*. Durham: Duke University Press, 2001: 11, 14-15, emphasis in original.

²⁰ John Durham Peters, “Calendar, Clock, Tower,” in *Deus in Machina: Religion, Technology, and the Things in Between*, ed. Jeremy Stolow. (New York: Fordham University Press, 2013): 41-42.

television—by inventors, manufacturers, marketers, private user companies, schools, the government, and other organizations—became an opportunity to experiment with different social, technological, cultural, and economic forms of connectivity, networking, action at a distance, and efficiency as they were important not only to commercial interests, but to institutional form writ large. In using an analytical frame trained on intermediality, my analysis of television situates the medium in a far longer trajectory of electronic communication than it is normally assigned, beginning with the telegraph. As I argue in the next chapter, in part due to television’s ability to resolve logistical systems control with the distribution of cultural content (the first two modes of orientation I mention above), it was situated at the intersection of overlapping institutional communication desires and as a solution to persistent technological shortcomings of its precursors. As a mechanism of orientation for those working on these problems of electronic communication, television—in its combination of these affordances—“paved the way” for thinking through the utility of computer networks.

Television, Video, and Emergent Technologies

Another group productively working on the problem of television and the proliferation of its reach are those developing histories of video. The majority of these studies tend to focus on a number of key relationships, e.g., between Hollywood content, adult films, and home users, agents of the format wars, and bootlegging, piracy and democratization of culture.²¹ Others look

²¹ On the issues of Hollywood and the home, see Michael Newman, *Video Revolutions: On the History of a Medium*. New York: Columbia University Press, 2014; Daniel Herbert, *Videoland: Movie Culture at the American Video Store*. Oakland: University of California Press, 2014; Wasser, Frederick. *Veni, Vidi, Video: The Hollywood Empire and the VCR*. Austin: University of Texas Press, 2002; Gray, Ann. *Video Playtime: The Gendering of a Leisure Technology*. New York: Routledge, 1992; and Marlow, Eugene and Eugene Secunda. *Shifting Time and Space: The Story of Videotape*. Santa Barbara: Praeger, 1991. On the format wars, see Joshua Greenburg, *From Betamax to Blockbuster: Video Stores and the Invention of Movies on Video*. Cambridge: MIT Press, 2008 and James Lardner, *Fast Forward: Hollywood, the Japanese and the Battle*

at video as a unique art form or cultural practice.²² However, almost all of these projects focus squarely on entertainment and art uses of videotape. In fact, the only monograph-length study of videotape within the corporation from a humanities perspective is Eugene Marlow's unpublished dissertation *The Reported Use of Videotape in American Corporations 1956-1980: A Media Ecology Approach*.²³ Drawing on Marshall McLuhan, Harold Innis, and Neil Postman, Marlow explores whether the introduction of videotape changed corporate culture. A broad introduction into the use of video in corporate settings, his study fails to offer a rich qualitative analysis of the kinds of discourses that circulated in this context or what actors might benefit most from certain meanings articulated to video. Instead, he achieves a superficial mapping of the ends to which videotape was used, drawing on trade journals largely to note if discussions of video uses were negative, positive, or neutral. Marlow's major intervention—that it was the time and space-shifting elements of video that were the catalysts for changed corporate culture—even fails to consider why this might best serve the needs of capitalism or how this would impact the daily lives of the men and women of the corporations who used video. It is in part this gap—the shadows cast on corporate uses and cultural meanings articulated to video (as well as television more broadly)—that the present study hopes to fill.

over the VCR. New York: Norton, 1987. On the rest, see Lucas Hilderbrand, *Inherent Vice: Bootleg Histories of Video and Copyright*. Durham, Duke UP, 2009; Dennis Redmond, *The World is Watching: Video as Multinational Aesthetics, 1968-1995*, Carbondale: Southern Illinois University Press; and Gladys D. Ganley and Oswald H. Ganley. *Global Political Fallout: The VCR's First Decade*. Cambridge: Program on Information Resources Policy, Harvard University, 1987.

²² Sean Cubitt, *Videography: Video Media as Art and Culture*. Hampshire: Palgrave MacMillian, 1993. Gray, Video Playtime; Michael Renov and Erika Suderburg, eds. *Resolutions: Contemporary Video Practices*. Minneapolis: Minnesota Press, 1996.

²³ Marlow, Eugene. *The Reported Use of Videotape in American Corporations 1956-1980: A Media Ecology Approach*. New York University, 1988. Unpublished Dissertation.

To undertake such a task, this project will examine television as an emergent medium. Since, as Raymond Williams suggests, “the moment of any new technology is a moment of choice,” attending to the earliest periods of television’s life as it is continually “reborn” in new instantiations (domestic broadcasting, CCTV, video cassettes, satellite) allows for understanding how decisions regarding its cultural meaning and potential uses were negotiated and contested—as well as what groups and institutions gathered and maintained the most power to enforce their decisions.²⁴ While this means looking for how television fits into common discursive tropes, including utopian and dystopian strains of technological determinism, remediation, and supersession based on increasing immediacy and transparency—or who was invested in these tropes and why—I am more interested in the practical development of television as a series of inter-institutional decisions made about the technology’s aesthetics, affordances, economics, and uses in struggles over meaning, communication, epistemology, and identity in the American corporate workplace.²⁵ As others have noted, close analysis of these early moments of media in flux provides insight into the development, destruction, and persistence of interpretive communities, their battles over cultural legitimacy and institutional and epistemological authority, and users’ changing relationships with media technologies.²⁶ Attending to moments of emergence in this way thus builds on traditional cultural studies questions of power, inclusion and exclusion, and cultural and social hierarchies.

²⁴ Raymond Williams, “Dominant, Residual, and Emergent.” In *Marxism and Literature*. Oxford University Press, 1977: 146.

²⁵ William Boddy, *New Media and Popular Imagination: Launching Radio, Television, and Digital Media in the United States*. Oxford UP, 2004: 166; Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media*. Cambridge: MIT Press, 2000.

²⁶ Geoffrey Pingree and Lisa Gitelman, “What’s New About New Media?” In *New Media, 1740 1915*, eds. Lisa Gitelman & Geoffrey Pingree, Cambridge: MIT Press, 2003: xv; Carolyn Marvin, *When Old Technologies were New: Thinking about Electronic Communication in the Late Nineteenth Century*. New York: Oxford University Press, 1988: 5; Hilderbrand, 35.

I argue that treatments of emergent media that focus on their adoption by popular audiences may elide or swiftly pass over the development of media to meet (non-entertainment) industrial needs and desires and complicated interrelations between the two sectors (populated, we often forget, by the same viewers and users). Drawing from the work of Jonathan Sterne, Janet Abbate, and Brian Winston, I emphasize the interrelation between the development of television within the corporate sector and the later proliferation of televisual technologies, i.e., the video cassette, in the home, as well as implications regarding shared pools of television labor, aesthetic practices, and gendered and affective discourse. Focusing on how television technologies developed alongside ideas about its ideal aesthetic form, funding, affordances, and uses within earlier non-entertainment contexts expands our broader understandings of the relationships between the American corporate sector, the entertainment industries, and popular users.

On a practical level, my approach to emergent media makes sense of the meanings articulated to television and the decisions made about its development within the workplace. I emphasize intermediality and the continuities that bind video to previous media forms, especially as they are used in other institutional settings, e.g., education and the government. Though emergent media is often swept up in utopian revolutionary discourses, its roots tend to find branches in older forms—whether by drawing on similar research and understandings about communication—or by becoming meaningful largely through comparison to older media.²⁷ In addition to using this comparative lens, I draw from social construction of technology (SCOT) approaches to understand television as a socially constructed technology shaped by individuals,

²⁷ Jonathan Sterne, *The Audible Past: Cultural Origins of Sound Reproduction*. (Durham: Duke University Press) 2003: 3; Boddy, 16; Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture*. Cambridge, MA: MIT Press, 2006: 6; Bolter and Grusin 60, Hilderbrand 11.

institutions, ideologies, economics, and processes of legitimation.²⁸ As noted by Sterne, Gitelman, Abbate, and others using social constructionist-inflected models, what often appear to be the socially neutral, intrinsic, or even ontological attributes of technologies are actually the results of contingency, conscious decisions made by various communities in different relations to one another, and aggregated custom.²⁹ In the following chapters, I thus look to practices of professionalism among television workers, standards, protocols, and the development of formats as manifestations of these struggles over control, social relationships and economic forces, and material experience.³⁰ Furthermore, following Bruno Latour, my analysis of television investigates how struggles over the potential affordances of television coincided with questions of delegation (the human tasks given to objects), prescription (the demands objects then make on human users), and des-inscription and subscription (how human users take up or refuse their prescribed roles).³¹

While I have already put forth my formulation of television as orientation machine, I have yet to describe what this means for business—and how a framework interested in emergence and intermediality helps with such questions. By checking persistent business communication desires and beliefs against television as an always-in-transition, always-emerging set of technological attributes, affordances, exhibition sites, and discourses regarding communication and connection, it becomes possible to locate how powerful institutions oriented themselves to the problem of communication. As I discuss in the following chapters, the pursuit

²⁸ Susan Douglas, (1987) *Inventing American Broadcasting, 1899-1922*. Baltimore: John Hopkins UP, 1987: 322.

²⁹ Abbate, Janet. *Inventing the Internet*. Cambridge, MA: MIT Press, 1999: 179; Gitelman 6, Sterne 8.

³⁰ Abbate 179; Gitelman 7-8; Jonathan Sterne, *MP3: The Meaning of a Format*. (Durham: Duke University Press) 2012: 7.

³¹ Bruno Latour (as Jim Johnson) “Mixing Humans and Nonhumans Together: The Sociology of a Door Closer,” *Social Problems* 35.3 (1988): 299, 301, 307.

of individualized communication, speed, cost, anywhere access, co-presence and intimacy—in short, operational efficiencies and useful affective economies—provide the touchstone of television’s grand promises. Although my history ends prior to the rise of streaming video, the narrowcast networks offering specialized circuits of information control that flourished under business television helped crystallize the orientation to business communications that would increasingly recognize the value of computer networks as the ideal (or, at least, next) manifestation of these desires (e.g., massive data storage and retrieval, non-discrimination of content in transmission and distribution, ubiquitous access, liveness, and interactivity, to list a few). The correspondences become clear only if we situate television not primarily as a mechanism of programming distribution, as we traditionally do, but as a mechanism of orientation—a constellation of lenses, experiments, and prototypes—directed towards the “problem” of electronic communication more broadly.

In the specific context of American business and industry, television—as a tool of logistical and cultural management (the first two forms of orientation mentioned above)—provided an infrastructure for the building of empires. On the first point, television enabled companies to operate remotely by building networks of instantaneous visual and aural communication, expanding the capacities of their employees to operate over larger spaces, and reorganizing the architectures of work. In each case, television provided companies with faster, cheaper, and more efficient means of managing resources.³² On the second point, television as a

³² We can see this instrumentalist efficiency-based approach to pedagogy in universities and other educational institutions (which, as will become clear across the rest of this project, often experimented with many of the same technologies that get taken up in business, though to different ends) as they increasingly become more “businesslike”; the adoption of new technologies to secure communication efficiencies, e.g., though Massive Open Online Courses and other online teaching practices, is justified through a framework that emphasizes first and foremost the maximization of resources.

distribution mechanism for training video, institutional advertising and corporate communications provided an opportunity for the corporation to work on and over relationships among workers, between the worker and the company, between the worker and their own work, and between the public and the corporation; television became the chosen interface to mediate these relationships and build company identity. Furthermore, companies also worked on employees' orientation to television itself. Employers attempted to borrow the affective relationship employees built with television as an intimate entertainment medium in their leisure time to increase the efficacy of corporate messaging. While this makes employees' leisure time doubly productive in capitalist circuits—since they 1) produce value for networks to sell to advertisers and 2) ostensibly build an affective relationship with the medium that can potentially be exploited in the context of corporate operations—it also signals the development of a much larger project that continues to accelerate wherein employers attempt to acclimate their employees to extreme levels of mediation on agnostic devices that bridge both leisure and labor contexts. In short, beginning in large part with television (though the telephone is certainly an important predecessor), companies attempted to exploit employees' relationship with entertainment consumer technologies to reorient their expectations of mediated work, opening them up to increased demands of corporate connection and cooperation. While in the context of television, this might mean providing employees with tapes to watch on the home VCR, today we see a similar phenomenon any time an employer asks their worker to be available after hours to respond to email or otherwise engage in work.³³ Television, as a consumer technology defined

³³ Perhaps a key difference here—though of a degree rather than kind—is that with television, emphasis remained largely on finding the most efficient means of communication, i.e., tape was faster, cheaper, and easier. With digital technologies, emphasis seems to rest more explicitly on the technologies that make workers themselves faster, cheaper, and easier to manage (e.g., via

by ubiquitous access, helps crystallize these ambitions. Ultimately, business television offered a mechanism of orientation that built and shaped relationships—for the benefit of industry—on material, cultural, social, and affective planes.

Methodology

In attempting to answer these questions, I pursue my understanding of television “not as a collection of wires, transmitters, and electrons but as a social practice grounded in culture, rather than electricity.”³⁴ If, following Jonathan Sterne and Lisa Gitelman, a medium is a (temporarily) congealed manifestation of a complex set of social, cultural, economic, and material relations, this means I must look to the processes and conditions (technological, economic, ideological) that pushed business television to emerge in one form rather than another.³⁵ My history is thus interested in how different parties (equipment manufacturers, corporate leadership, audiovisual professionals) engaged in the development of *possibilities* for the shape of television, and how these possibilities were taken up (or not) as television use evolved in the corporation following World War II.

Accounting for possibilities as they arise and recede moves beyond mapping the easily identifiable roots of existing phenomena in order to disrupt understandings of (in this case) television founded on its most “successful” (that is, most stable) form: commercial broadcasting in the home. Michel Foucault’s genealogical approach is especially helpful here, since it does not attempt to reinforce the singular foundations of our received past, but attempts to disturb and

on-call staffing). Although this was part of television’s ambitions as well, discursively, focus often remained on the technologies themselves.

³⁴ Although Michele Hilmes uses this passage to refer to radio, it applies equally as well to television in the context of my study. *Radio Voices*. Minneapolis: University of Minnesota Press, 1997: xiii.

³⁵ Jonathan Sterne, *The Audible Past*, Durham: Duke University Press, 2003: 7-8, 182; Gitelman, 7.

disrupt them by focusing on “the accidents, the minute deviations—or conversely, the complete reversals—the errors, the false appraisals, and the faulty calculations that gave birth to those things that continue to exist and have value for us.”³⁶ In many ways, this approach is ideally suited to mapping the development of emergent technologies, given the messy heterogeneity of standardization battles and the diverse, but connected experiments across different industries (e.g., business, education, commercial entertainment).³⁷ The development of television also left a slew of failures in its wake—of technologies, aesthetics, programming practices, and communication strategies; these failures—in and of themselves knowledge projects that created and circulated discourses and experts that spoke on the utility of television—helped establish the “conditions of possibility” in which business television becomes legible as a technology and practice.³⁸ Logistically, a focus on possibility requires attending both to technologies and the discourses that make them meaningful. As Sterne notes, “possibility is both a conceptual

³⁶ Michel Foucault, “Nietzsche, Genealogy, History,” Nietzsche, Genealogy, History,” *The Foucault Reader*. Ed. P. Robinow. Penguin Press, 1986: 81.

³⁷ Here we might also consider Foucault’s claim that the conditions that regulate the appearance of new objects in effect produce them by making them *legible*: “They do not define its internal constitutions, but what enables it to appear, to juxtapose itself with other objects, situate itself in relation to them, to define its difference, its irreducibility, and even perhaps its heterogeneity, in short, to be placed in a field of exteriority.” *Archeology of Knowledge*, (New York: Pantheon Books) 1972: 45. I would argue that standards battles can be seen best through this lens, wherein formats become legible as a group through certain shared characteristics (and those characteristics that do not matter in this way are forgotten); I address this point in depth in “Record/Film/Book/Interactive TV: EVR as Threshold Format.” *Television and New Media* 2015 (online first, forthcoming in print). As an added methodological point, as Sterne notes, new technologies tend to be accompanied by a lot of informational and illustrative material, as their promoters attempt to make them meaningful to potential users; this provides a logical source of data revealing the carving out of possibilities (7).

³⁸ Ann Laura Stoler, *Along the Archival Grain: Epistemic Anxieties and Colonial Common Sense* (New Jersey: Princeton University Press, 2009): 34, 106, 138-139.

problem and a material issue: a practice or an event must be both thinkable and potentially able to be accomplished.”³⁹

The method I have chosen to follow these possibilities is Foucauldian discourse analysis channeled through the “integrated approach” or “circuit of media studies” model developed by Julie D’Acci.⁴⁰ I use the circuit model to identify my primary sites of inquiry, my sources, and their interrelation, while discourse analysis provides the lens with which to read these sources. In my pursuit of understanding the dynamics of the business television industry, I have assembled trade journals, manufacturers’ advertisements, news items and clippings files, equipment manuals, corporate archival records, industry reports, and interviews with former industry professionals across a wide range of industries (from steel to insurance) and overlapping institutions (from medicine to education). With regards to my texts, I have identified extant film and video that make for appropriate case studies for sketching the contours of business television as a bundle of formal, aesthetic, and cultural strategies. To ground my analysis within the social, technological, and cultural context of the second half of the twentieth century, I have drawn on the work of previous scholars as well as primary documents (primarily newspapers) to fit business television into American, business, and communication histories. Last, and most difficult for this (historical) project, I have attempted to incorporate questions of the audience through theoretical frameworks, e.g., Raymond Williams’ flow, and by reading against the grain of corporate documents and trade materials for insights into how media forms were taken up by audiences and the persistence of fantasies of reception harbored by the corporate interests that used business television. I proceed through these sites using an episodic approach that dwells on

³⁹ Sterne, 341.

⁴⁰ Julie D’Acci, “Cultural Studies, Television Studies” *Television After TV: Essays on a Medium in Transition*. Eds. Lynn Spigel and Jan Olsson, Durham: Duke University Press, 2004: 431-434.

key moments in television's emergence and continual refashioning at the hands of American business. By "Foucauldian discourse analysis," I mean an approach to sources that looks for patterns—"system(s) of dispersions, whenever, between objects types of statement, concepts or thematic choices, one can defined a regularity (an order, correlations, positions and functionings, transformations)"—in both what can be said and what cannot be said, and how the social, cultural, economic, ideological, technological, and material conditions discussed above (the "rules of formation") shape these possibilities.⁴¹ Furthermore, I focus on how certain positions occupied by industries, institutions, and their actors enabled greater claims to authority and power when it came to speaking about, shaping, and legitimating business televisions' many forms.⁴²

As a researcher and historian, I also recognize that institutions weigh on my own ability and authority to write on the development of business television. Not least of these are archives. I distinguish between "the archive" as a theoretical construct debated by critics and theorists like Carolyn Steedman, Jaques Derrida, and Michel Foucault, and "archives" as the particular brick-and-mortar institutions dedicated to core functions that include records acquisition, processing, access, and preservation and are shaped by archivists' own theories, labor and professionalization projects. Traditionally, historians have colluded with archival power by effacing the labor of the archivist in order to safeguard their own authority as people who have had direct, unmediated access to the past and can therefore make truth claims about it; to acknowledge the active, mediating role of the archivist would be to diminish some of the historian's own authority as a mediator of the past.⁴³ Over the last few decades, however,

⁴¹ Foucault, *Archeology of Knowledge*, 28, 38.

⁴² Foucault, *Archeology of Knowledge*, 55.

⁴³ Blouin Jr. Francis X. and William G. Rosenberg, *Processing the past: contesting authority in*

historians and other scholars have developed post-structuralist theoretical frameworks that approach archival materials with greater awareness of the relations of power that create them, select certain records and not others for preservation, and mediate between the researcher and access. This accounting for the archivists' professional practices is a vital part of critically utilizing historical sources, for as a theorist of "the" archive suggests, "archivization produces as much as it records the event."⁴⁴ We might consider, for example, how the archives profession's shift from a Jenkinsonian custodial model (keep everything) to a records management model, meant a concomitant shift in how they understood their key constituency (moving away from historians and towards their home institutions, e.g., the private company) and how this affects what records are kept and which are discarded.⁴⁵

Taking into account this archival power, my project is particularly interested in locating and combating historical silences supported in part by archival practice. As I discuss above, the history of television that fills the following pages seeks to correct the persistent focus on television as a medium of commercial entertainment *at the expense* of other understandings of its capabilities and uses. This neglect of television's "work life"—although primarily due to the interests and concerns of the field of television studies as they have developed since the 1970s—can also be understood in relation to the difficulty in securing access to historical corporate (audiovisual) records.⁴⁶ While I have drawn from some archives that are open to the public and

history and the archives. New York: Oxford University Press, 2011: 31.

⁴⁴ Derrida, Jacques, *Archive Fever: A Freudian Impression*. Translated by Eric Prenowitz. Chicago: University of Chicago Press, 1995.

⁴⁵ Blouin and Rosenberg, 47-49.

⁴⁶ The lack of the academy's interest in pursuing non-commercial, non-entertainment directions is well illustrated by the 1982 essay by Daniel J. Perkins that attempts to draw scholarly attention to sponsored films using many of the same arguments for their historical and cultural significance that would be taken up almost 25 years later with the turn to nontheatrical and useful cinema in well-received anthologies and major conferences. Despite his compelling reasons for

actively solicit researcher attention, i.e., the Wisconsin Historical Society, the New York Public Library, the Prelinger Collection, and the Hagley Museum & Library, that last which funded part of this dissertation research through an exploratory grant, most archives I visited were closed to the public or required special permission for researcher visits. Although I contacted around thirty companies that I knew to have internal television networks at some point, I was granted (sometimes very partial) access to only four: Johnson Controls, Motorola, New York Stock Exchange, and Steelcase. Several of these repositories—as well as a number of the collections I consulted in public institutions, e.g., UNIVAC’s videos—have yet to be the subject of media studies analysis. Additionally, archivists at several companies who could not grant me access to their collections sent files they believed would be helpful to my project. As I describe below, I also consulted records relating to projects at AT&T, Johnson & Johnson, and several others through the personal papers of audiovisual professionals.

As will become clear, industrial television can be a particularly difficult historical subject due to the material fragility of its sources (videotape and its requisite hardware), the longstanding lack of recognition of its cultural and historical value or—for its corporate owners—lack of economic value, and a common (but by no means universal) unwillingness of private corporate archives to grant access to outside researchers. Indeed, the production of archives is one of the four key moments identified by Michel-Rolph Trouillot in which silences—understood as the products of power—impact the production of official histories.⁴⁷ As Caroline Frick has detailed

why sponsored film should be central to our understanding of film history (and his very clear plan for going about and doing the actual research—recommended trades, extant collections, etc.), he would have to wait for decades before his call to arms to be heeded. Perkins, Daniel J. “The Sponsored Film: a new dimension in American film research” *Historical Journal of Film, Radio and Television* 2.2 (1982): 133-140.

⁴⁷ Michel-Rolph Trouillot, *Silencing the Past: Power and the Production of History*. Beacon Press, Boston, 1997: 26, 28, 48.

in her history of the intertwining of commercial and national interests in the development of film “heritage,” discourses of film preservation can themselves be powerful weights on preservation practices that create deep fissures in our ability to access wider strains of film history.⁴⁸ In a similar vein, Antoinette Burton argues we must consider the political, cultural, social, and economic factors that lead to the founding of repositories and govern their operation (e.g., private companies’ need within capitalist systems to manage a growing workforce or meet regulatory requirements regarding document retention).⁴⁹ In this way we can register the “personal, structural, and political pressures which the archives places on the histories [historians] end up writing—as well as those they do not.”⁵⁰ While I attempt to account for the factors that shape my access to archival materials throughout the next five chapters, my conclusion explicitly addresses how these archival issues impacted my research process.

One of the ways in which I attempt to compensate for the archival power of corporations that might attempt to limit access to their materials (whether, for example, due to limited resources or fear of unsanctioned uses) is by recognizing that such archives are only one site in which we can locate traces of the past. Those invested in the development of business television created masses of materials to prove the medium’s value to their corporate executive audience and to carve out their own identities as professional audiovisual workers. Many of these traces—legends, memories, personal papers—continue to exist. By incorporating traces that lie outside of corporate repositories, I open up my research to sources that might not normally be included in corporate collecting frameworks. As Trouillot points out, although history is produced by a wide

⁴⁸ Caroline Frick, *Saving Cinema: The Politics of Preservation*. Cambridge: Oxford University Press, 2011.

⁴⁹ Antoinette Burton, *Archive Stories: Facts, Fictions, and the Writing of History*. Durham: Duke University Press, 2005: 6.

⁵⁰ Burton, 9.

range of narrators, “Inequalities experienced by the actors lead to uneven historical power in the inscription of traces. Sources built upon these traces in turn privilege some events over others, not always the ones privileged by the actors.”⁵¹ For example, although subaltern voices might be represented within an archives—as Carolyn Steedman describes in *Dust*—they are likely already shaped by the strategies of recording (not to mention retention) developed by those in power, e.g., colonial and legal forces strategically interested in certain types of information and not others.⁵² Even when records of audiovisual production persist and are accessible, incorporating multiple sites of history production is invaluable for understanding how the past was and continues to be meaningful to the people who lived it.⁵³ By turning to stakeholders whose voices may not be recognized by corporate archives, that is, business audiovisual professionals, I attempt to counterbalance—in very small part, considering those voices I continue to exclude—this “differential control of the means of historical production” and gain a broader perspective on the meaning of business television in the twentieth century.⁵⁴

As part of this effort, I look beyond the corporate archive in my turn to the trade magazines written by and for audiovisual and other industrial professionals. Doing so enables me to examine the functioning of sector supports (not only trade journals themselves, but the awards, festivals, and other mechanisms devoted to strengthening industrial media making that the trades report on) and map how audiovisual professionals promoted and understood their own work in the context of an ostensibly specialized, professional space. Furthermore, engaging with

⁵¹ Trouillot, 19, 48.

⁵² Carolyn Kay Steedman, *Dust: The Archive and Cultural History*. New Brunswick, N.J.: Rutgers University Press, 2002: 40, 45, 54, 56.

⁵³ Trouillot, 22.

⁵⁴ Trouillot, 49. In using snowball sampling and beginning with prominent industry leaders, e.g., those who had lead one of the major professional organizations, I found my sample was restricted to men who worked at the largest firms, primarily in producer positions.

industrial, useful, and institutional media trades means working with sources that continue to be understudied relative to their commercial counterparts. As Eric Hoyt recently demonstrated, media historiography has long been dominated by a few marquis trade magazines that account for a large majority of non-archival, primary document periodical citations in the field's own journal articles.⁵⁵ Limiting our research to these few trade journals dramatically circumscribes the scope of our industrial analysis as well as the voices we include in our histories. A pair of journals that features heavily in the following pages is *Business Screen* and *Educational Screen*. Unlike juggernauts *Variety* and *Daily Variety* which, combined, have been cited in over 200 academic articles hosted by JStor, *Business Screen* has been cited in only 15—with two of those citations (ironically) a research bibliography and a survey of trade journal resources for academic scholars. Other journals focusing on non-commercial media, e.g., *See & Hear*, experience similar neglect and are featured here as well. Furthermore, I have drawn heavily on other industrial trade journals—in fields as diverse as banking, steel, and agriculture—to incorporate multiple understandings of the value and purpose of business television in my analysis.

In choosing semi-structured in-depth interviews as a secondary method, I draw on theories of interviewing and ethnography as a practice that can reveal subjugated, hidden, or

⁵⁵ While Hoyt used JStor's Data for Research (DFR), which contains information only for those journals it holds license agreements for, given the scope and scale of JStor's collection (15 major film studies journals like *Cinema Journal*, *The Moving Image*, and *Film History*), the dramatic difference between the use of a journal like *Moving Picture World* (cited in 139 articles) and *See & Hear* (cited only twice) indicates a pervasive gap, even when only a partial accounting (that also, for example, focuses on film-centric publications). Furthermore, given the disproportionate focus on orphan and useful media in *The Moving Image* and *Film History* in the past decade (drawn in large part from journals like *Business Screen* and *Educational Screen*), it would be unsurprising if the gap between types of sources is actually wider in the field as a whole. See Eric Hoyt, "Lenses for Lantern: Data Mining, Visualization, and Excavating Film History's Missin Sources." *Film History* 26, no. 2 (2014): 146-168. On reading the limited JStor data probabilistically, see, in particular, page 152.

unarticulated knowledge.⁵⁶ As Mark Williams points out in his analysis of women's role in the production of early television, despite issues of nostalgia, faulty memory, and self-promotion that shape people's accounts of their past (and, of course, the intervention of the researcher, who co-constructs the interview whether she officially recognizes it or not), interviews provide a mechanism for generating knowledge about the past and its ongoing meaning for people that is particularly suited for exploring media histories ignored by archives and other institutions of memory.⁵⁷ While many of my questions focus on the broad contours of the industry in which my interviewees participated, others are also interested in traditionally feminist questions regarding the meaning and significance subjects' work had to their personal lives and identities, how they understood industrial television as a non-dominant media practice, and whether they felt the more traditional sources my history drew from, e.g., trade journals, were relevant and reflective of their experience. Following the lead of John Caldwell and other production cultures scholars, I am particularly interested in indigenous critical theory used by media professionals in the course of their work that becomes legible in workers' trade stories and personal collections of papers they deem important for preservation.⁵⁸ Although the people I talked to—all white men who occupied leadership positions within their divisions—do not necessarily occupy the positions of non-dominance more frequently targeted by feminist oral history and interview methods, as Patricia Lina Levy points out that “we miss the complexity of power if we are attentive to only

⁵⁶ Sharlene Nagy Hesse-Biber, “The Practice of Feminist In-Depth Interviewing,” in *Feminist Research Practice*, eds. Sharlene Nagy Hesse-Biber and Patricia Lina Leavy. Thousand Oaks: Sage Publications, 2007: 113.

⁵⁷ Mark Williams, “Considering Monty Margetts's *Cook's Corner*: Oral History and Television History,” in *Television, History, and American Culture: Feminist Critical Essays*. Eds. Mary Beth Haralovich and Lauren Rabinovitz. Durham: Duke University Press, 1999: 36-38.

⁵⁸ Caldwell, 37-38.

one type of power.”⁵⁹ My interviews with former professionals enable me to place limits on my own readings of archival and published materials and attend to the voices of workers otherwise excluded by media studies’ focus on the dominant commercial media makers.

Chapter One: The Development of the Audiovisual Business Communications Sector

My first chapter traces the development of the audiovisual business communications sector (AVBC) up through the emergence and early establishment of television networks within major American corporations (c1980). I argue that business television came about in part through the struggles of a diverse (though mostly white and male) group of media professionals who promoted television to their employers as the realization of persistent empire-focused fantasies of communication as control. In developing this argument, I suggest we turn to production cultures frameworks and methodologies to consider the ambitions, e.g., secure employment conditions, that shaped media workers’ participation in and promotion of the expansion of capitalist enterprise. In situating this discussion in the context of scholars’ treatment of communication and empire, I argue that television occupies a key transitional position for the mediated corporation in which electronic communication used as a logistical tool converges with electronic communication as a conduit for industrial cultures content production. Attending to these processes enables us to ask after the development of an alternative media sector and the symbiotic relationship between the “knowledge industries” and corporate expansion as well as the specificities of how media infrastructures are created at scale—both in terms of how companies use media to sustain their expansive operations, and how the business audiovisual sector organized and expanded its own capacities to support American industry. Last, these

⁵⁹ Patricia Lina Leavy, “The Practice of Feminist Oral History and Focus Group Interviews,” in *Feminist Research Practice*, eds. Sharlene Nagy Hesse-Biber and Patricia Lina Leavy. Thousand Oaks: Sage Publications, 2007: 167.

questions enable us to historically examine the consequences of increased corporate communications for workers, such as the increasing presence of the corporation in workers' daily lives, and the continual blurring of labor and leisure via agnostic technologies.

Chapter Two

Broadcasting Business to the Home

In chapter two and beyond, the focus of this project shifts to an episodic series of roughly chronological case studies in which I examine how different televisual technologies and practices (home broadcasting, CCTV, cassettes, satellite) attempted to redefine the nature and utility of television. Chapter two begins as many histories of television do—in the home. While discussions of (network) television as a commercial medium animate early histories of television broadcasting, these analyses tend to focus on how networks worked with sponsors, e.g., Kraft, to create glossy entertainment fare for the home audience. These histories of early television keeps entertainment giants—the pre-existing radio networks, Hollywood, and Broadway—(and powerful and resource-rich sponsors) at its center. This chapter expands these discussions while emphasizing the intersections between institutional and popular media by exploring how the institutional media producers and users who are almost wholly absent from histories of the television's emergence added to discursive struggles regarding the possibilities and potential of the new medium while helping to shape early programming strategies.

Throughout the 1940s, the industrial film sector intently observed the development of commercial television. With the penetration of sets in American homes still in its infancy and control over programming, distribution, and new legal and labor relations in flux, business and industry identified opportunities for participation in the new medium along four major lines: sponsoring glamorous entertainment fare, producing commercials for sponsored programming,

supplying sponsored and educational film to fill a skeletal broadcast schedule, and producing demonstration and direct sales programs on local stations. This chapter follows the latter two of these activities to identify how and why domestic television—particularly network affiliates and local independent stations—became an avenue for industrial content, and how the industrial sector came to understand the public relations, selling and distribution capabilities of commercial television. In tracing these paths, I also address the role domestic television played in the ongoing operations of the industrial film sector. In moving beyond corporate media addressed to insiders and employees, this chapter addresses intersections between the histories of industrial film and commercial entertainment that have yet to be fully recognized. As I show, these intersections between commercial distribution, mass entertainment, and the industrial sector provided American business the opportunity to contribute to the establishment of a new medium and experiment with the utility of television as a domestic communication (and sales) technology.

Chapter Three: “To extend vision beyond the horizon, to see the unseen”: Closed-Circuit Television in the Post-War Era

Chapter three traces the development of “industrial television” (ITV). A widely used synonym for closed-circuit television in the United States, ITV was the first sustained initiative backed by major media and technology institutions such as RCA to recognize the potential of television tailored specifically to the needs of industry. By consulting a wide range of sources created alongside the development of CCTV—technical reports, trade journals, handbooks and manuals, archival documents and newspaper coverage—I correct common understandings of closed circuit television as a surveillance technology designed to police behavior. Instead, this chapter shows how CCTV was positioned by its creators, promoters and early users as a

mechanism not to constrain bodies in space but to extend them. As we increasingly recognize the complicated relationship between capacity building and surveillance built into digital technologies, e.g., GPS, CCTV, as an antecedent, offers an opportunity to better understand this tension. This chapter argues that CCTV provided employers an opportunity to reconfigure the ideal working body, building its capacities to meet the shifting demands of diverse post-war industries. I address the specific shape of these electronic transformations as I move through various industrial applications in a mode borrowed from CCTV manuals of the mid to late 1950s: the taxonomy of uses. However, instead of organizing my analysis based on use sector (medicine, government, industry, education) or application (observing industrial processes, security), I have designed my discussion to touch on the myriad ways television promised to extend the worker's body and build its capacities (to make it invincible, adaptable, bigger, stronger, more perceptive, more connected, and smarter). In so doing, this chapter contributes to studies of how "work systems" produce people, socializing them to the conditions and expectations of capitalism as well as to investigations into how technologies altered workers' relationship to their labor.

Chapter Four: The Other Format Wars: Industry Adoption of Early Format Audiovisual Cartridges and Cassettes

This chapter shifts from a focus on television as a means of visual and corporeal extension to its use as a distribution medium for recorded content. Drawing on underexplored trade journals in business and education, popular histories of the development of videotape, archival materials, and interviews with AVBC professionals who worked with tape throughout their careers, this chapter addresses a persistent gap in understandings of the development of videocassettes: their development in industrial (and educational) contexts before they find

success in the home market. In tracing the series of tensions that influenced manufacturers and users' transitions from reels to cartridges and cassettes, from film to video, and from playback only to record/playback, I outline those affordances and cultural meanings that this progression advanced—and those that were left behind—in order to identify precisely how industrial users contributed to the development of videocassettes prior to “the” format wars, the battle between VHS and Betamax. This chapter argues that in failing to considering earlier cartridge technologies and in failing to move outside of the singular context of the home to investigate the varied ways institutional users contributed to discourse and practical applications surrounding cassettes, common treatments of the format wars do not consider the emergence and adoption of a videocassette standard holistically.

Furthermore, although authors have addressed some of the social and cultural contours of home video, discussions of earlier formats remain animated almost exclusively by an economic lens. This chapter offers a corrective to these earlier studies by seeking to understand how focusing on continuity with technological precursors—rather than ruptures—can deepen our understanding of cassettes' technological development, adoption and use. It asks after the role businesses and trade organizations played as intermediaries in the development of cassette technology and the discourses that surrounded their use and proliferation, as well as the affordances of cassettes that appealed particularly to business and industry—and what these affordances (and the series of successes and failures among a variety of competing standards) indicate about ideals of corporate communication in the 1970s and 1980s. In answering these questions through a series of three case studies—8mm cartridge projectors, CBS's EVR, and Sony's U-matic—this chapter revises assumptions regarding the place of the cassette as an audiovisual media technology developed within and for home entertainment use, at the same

time it reveals the limits of technological histories bounded by a single medium and the dangers in substituting single-sector analyses—in video’s case, of the home market—for the history of a medium tout court.

Chapter 5: Satellites, Narrowcast Networks, and the Utility of Liveness

This chapter continues to explore the corporate emphasis on television’s “narrowcast networks” that appears in discussions of videocassettes but rises to prominence in the context of satellite communication. It begins by discussing how a series of international experiments undertaken by governments, educational organizations, and other institutions set some of the conditions by which satellites would be understood within the business sector. I will argue these experiments promoted expansive notions of learning by satellite with regards its potential audiences and content flows, established the geographical reach and power of satellite technologies, contributed to ongoing discussions regarding the particular utility of television for teaching, established satellite communication as cost effective relative to other technologies, and linked satellites to discourses that would emerge as “globalization” in the 1980s and 1990s. As the meanings and uses developed by education projects continued to accrue around instructional satellite technologies (and commercial satellite systems became a technology feasible), business became increasingly interested in their potential utility for building private, narrowcast networks to manage distributed workforces in the context of globalization. This chapter examines a pair of uses adopted by two different international companies that are rarely described in academic literature and have yet to be addressed at significant length: first, the use of satellites to build private corporate television networks for the distribution of industrial programming and second, modified corporate “videoconferencing.” To develop a qualitative sense of how business users attempted to incorporate satellite technology into their own knowledge and information

programs—in large part to build their own corporate identities to appeal *to employees*—I discuss these uses in a pair of case studies corresponding to two different companies (Johnson Controls and Steelcase) and two different genres (a hybrid employee newsletter/cable-style news program and a series of call-in meeting programs, respectively). In both cases, I describe how companies used, commented on, and attempted to formally augment satellites' claims to liveness and instantaneous global (but perfectly targeted) reach in order to position themselves before their employees as global powerhouses, generous purveyors of lucrative information, and concerned employers interested in developing community across corporate and geographical hierarchies. As with many of the televisual technologies discussed throughout this dissertation, satellites offered a proving ground for the business communications sector—ever infatuated with Marshall McLuhan—to see how the medium could become the message.

Chapter One

The Development of the Audiovisual Business Communications Sector, 1844-1959

In a 1959 issue of *Business Screen*, tucked between a notice for Parthenon Pictures' new films available for corporate sponsorship and a column discussing the value of creativity for the advertising agency producer, sits a short article on the audio-visual equipment used in the conference room of the New York City studios of Visualscope. Accompanied by a photograph of three metal cabinets arranged as a secular triptych stuffed with communication technologies, the brief describes the company's "visual power pack." Operated (along with the curtains and dimmer switch) at the nearby conference table, this wired wall of technologies features products from a range of equipment manufacturers:

- lighting dimmer (Variac)
- office and private phones
- a 16mm sound projector (Kodak's Pageant model with Vidoscope anamorphic lenses)
- two slide projectors (one a wide-screen number from Golden, the other a DuKane)
- two automatic change turntables (high-frequency from DuKane, low-frequency from Soundview)
- a television set (GE)
- an automatic tape machine with cueing device (LaBelle's AVT Maestro)
- a tape splicer (Robins DeLuxe Gibson Girl)
- a tape recorder (Wollensak T1515).

The unit (complete with doors that could be closed to conceal the "power pack" for less electrifying meetings) also provided drawers to store films, tapes, slides, cans, and sundry equipment squeezed out of the top shelves. Since it is unclear whether the story was placed in the journal on behalf of Visualscope, Inc.—as *Business Screen* often ran copy provided for them by

equipment manufacturers and content producers—it is difficult to know who praises the technological prowess of the company when the feature concludes, “It’s a setup any modern business would be proud to own.”⁶⁰ A heightened example of the range of communication technologies used by mid-century industry, the Visualscope “power pack” also provides a view of how business interests imagined ideal audiovisual communication systems: interconnected, flexible, expandable, and wired into traditional business architectures and spaces such as the conference room.

Although this project is ultimately interested in the place of specifically televisual technologies within the business sector, it is impossible to wholly uncouple these devices and their uses from a wide range of business technologies—such as those featured in the “power pack”—that predated or were used concurrently with television. A cursory analysis of A/V equipment used for selling, training, corporate communications, public relations, and employee management reveals hundreds of competing devices in the first decade after WWII alone.⁶¹ Although much of this business communication equipment offered similar technical capabilities (projection for film, slidefilm, slides, and printed materials; rear projection cabinets and screens; recorded sound on magnetic tape, disks, and film), these similarities obscure how widely A/V equipment could range in scale and operation. While Visualscope’s setup provides an example of a motley crew of technologies used for the boardroom, industrial media just as easily encompassed handheld stereoscopic viewers used by itinerant salesmen to sell heavy machinery as it did multi-screen projectors that played breathtaking wide-screen spectacles promoting

⁶⁰ “Model Audio-Visual Unit for a Conference Room.” *Business Screen*, 20, no. 7 (1959): 24.

⁶¹ With names like Pictur-Vision, Viewmaster, Port-a-View, Stereo Project-Or-View, Opta-Vue, and Robovision, the vast number of available machines may have exhausted the recombination possibilities of audio-visual terminology. For some idea of the range of products available, see *Business Screen*’s New Products feature which ran announcements for equipment manufacturers toward the end of each issue.

firms to inside shareholders or the public.⁶² Given this heterogeneity within the audiovisual business communications sector in the mid-twentieth century (when we might begin to place the adoption and use of televisual technologies), one of the goals of this project is to make sense of this diversity—in media technologies, content producers and studios, audiences, and uses. More specifically, in order to understand how and why television (and its companion technologies videotape and CCTV) may have developed to meet the needs and desires of industry, we must situate its emergence among other audiovisual technologies and media practices that preceded and accompanied it within private industry.

In this spirit, this chapter traces the development of what we might call the audiovisual business communications sector (henceforth AVBC) roughly up through the emergence and early establishment of television networks within major American corporations (c1980). I argue that business television came about in part through the struggles of a diverse (though mostly white and male) group of media professionals who worked together to promote television to their employers as the realization of persistent empire-focused fantasies of communication as control. In building this argument, I suggest we turn to production cultures frameworks and methodologies to consider the ambitions (creative fulfillment, secure employment conditions) that shaped media workers' participation in and promotion of the expansion of capitalist enterprise. In situating this discussion in the context of scholars' treatment of communication and empire, I further suggest that television occupies a key transitional position for the mediated corporation in which electronic communication used as a logistical tool converges with

⁶² For the former, see, for example, “Salesmen can’t carry big machinery—but light compact Stereo-Realist kits hold the complete line” *Business Screen* 14, no. 3 (1953): 7. For an example of the latter, see “Quadravision,” a four-screen experience designed by Ford to demonstrate their products in the tented parking lots of shopping centers, “Ford Tours the Shopping Centers” *Business Screen* 20, no. 5 (1959): 34.

electronic communication as a conduit for cultural content production. In pulling together these two uses and understandings of corporate media, television networks helped realize the communication desires that would support the development of their computer counterparts. Attending to these processes enables us to explore 1) the development of an alternative media sector and the symbiotic relationship between the “knowledge industries” and corporate expansion, 2) the specificities of how media infrastructures are created at scale—both in terms of how companies use media to sustain their expansive operations, and how the business audiovisual sector organized and expanded its own capacities in order to support American industry, and 3) the consequences of increased corporate communications for workers, such as the increasing presence of the corporation in workers’ daily lives, and the continual blurring of labor and leisure via agnostic technologies.

Reaching back to 1844, this story begins with the introduction of the telegraph to the United States. Though seemingly far afield from the somewhat coordinated and concentrated system of studios and technology manufacturers practically thriving a century later, the example of the telegraph indicates the extent to which communication technologies and business have impacted and relied upon one another for growth, particularly within the American context. Alongside business experiments with later technologies, including recorded sound and wireless, the telegraph revealed persistent concerns and assumptions about ideal modes of corporate communication that attended business attempts at incorporating electronic media. None of these technologies, however, led to the strong business media publishing industry that proved to be the lifeblood of the industrial film sector. After detailing these early fits and false starts, this chapter turns to film, the medium that provided the backbone of AVBC onto which televisual technologies were eventually grafted. By looking at the rise of content producers and distributors

(studios such as Jam Handy and Wilding), technology manufacturers (Bell & Howell and Kodak), and supporting institutions (trade journals, film festivals, and professional organizations), we can sketch the contours of a loose organization of diverse institutions and agents—of differing levels of power and impact—that became invested in the development of audiovisual communication technologies for business. I then turn to the emergence of television, during which media workers situated the new medium as the convergence of system-based logistical controls, such as the telegraph, with the cultural and representational capabilities of film as they had already been established by the professional activities of business film workers. Drawing on interviews with former media professionals and on archival materials, I show that businesses' adoption of television was not preordained, but accomplished through a strategic combination of corporate media projects and discourses of value.

Business by Lightning

While there has been no lack of attention given to the reciprocal relationship between technology and business, most analyses focus either on machines that replicate or transform the labor activities of human workers, e.g., the mechanical loom that so upset the Luddites, Fordist assembly lines, or computers (as processing machines).⁶³ Very little—at least within the fields of technology or business history—examines how electronic communication technologies shaped or were shaped by business, or how they were used in situ. (And although the railroad may be an exceptional technology that significantly changed patterns of both manual labor and

⁶³ Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work* (New York: Monthly Review Press, 1974). Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch, eds. *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology*, Cambridge: MIT Press, 1987. See also David Noble, *America by Design* New York: Alfred A. Knopf, 1977 and Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* Cambridge: Harvard University Press, 1977.

communication, analyses of its relevance to business often focus on product distribution.⁶⁴) Moreover, within the field of media studies, the study of business and industrial media has only emerged as a vibrant subfield of study within the last decade and is still somewhat constrained in its choice of subject by its origins in film studies. Significant gaps thus persist within the respective fields of history of technology, business history, and media studies. However, by consulting research undertaken within or around the margins of each of these fields it becomes possible to sketch the continuities and disjunctures that defined the production, adoption, and use of business audiovisual communication throughout much of the twentieth century.

Although a discussion of communication technologies enmeshed in business development could worm its way back to the printing press by linking its invention to the eventual rise of urban dailies and other modes of press that supplied vital information to commercial interests around the turn of the nineteenth century—or, following Harold Innis, back even to the clay and papyrus that coordinated Mesopotamian and Egyptian empires—such an origin is beyond the scope of this project, which takes as its general subject electronic communication.⁶⁵ As a result, within these parameters the first major communication technology to radically impact the course of industry was Samuel Morse's electric telegraph, which

⁶⁴ Kent T. Healy, "transportation," 366- 387 in *The Growth of the American Economy*. Berk, *Alternative tracks: The Constitution of American Industrial Order, 1865-1917* (Baltimore Johns Hopkins University Press, 1994); William G. Roy, *Socializing Capital: The Rise of the Large Industrial Corporation in America* (Princeton, NJ, 1997).

⁶⁵ See, for example, Thomas C. Cochran, "The Business Revolution," *The American Historical Review*. Vol. 79, no. 5 (Dec. 1974), 1449-1466, esp. 1452-1460. Cochran's discussion of the "business revolution" in early American national development also proposes roads and better transportation as vital technologies that supported faster and surer commercial communication which was central to major shifts in industry and economics that occurred in the second half of what is more commonly referred to as the Industrial Revolution. For a wide-ranging discussion of how the material form of communication technology impacted the spatial and temporal expansion of societies—including their economic and political systems—see, Harold Innis, *Empire and Communications*. London: Oxford University Press, 1950.

demonstrated its ability to send messages over the “lighting wires” in the U.S. in 1844. The telegraph also has the dubious honor of providing the basis of the nation’s first business monopoly, Western Union.

From its beginning in the United States, the telegraph was imagined and developed primarily as a corporate communications technology. The trouble that telegraph patentees experienced trying to secure financial investments in the technology’s early years was quickly diffused when the business sector began to believe in the advantages of telegraphy for industry (and the technology’s potential wider profitability as an investment). It was many of these earliest users—small enterprises, independent merchants, and wholesalers in the fields of retail, finance, and news—rather than technology manufacturers, rights holders, or government that funded the expansion of telegraph lines.⁶⁶ It was also these business interests who demanded the telegraph’s national expansion (particularly westward), encouraging the development of monopolistic practices within the telegraphy industry.⁶⁷ Telegraphy’s reliance on business capital encouraged certain patterns of use and technological dispersion that were largely unique to the United States. Unlike in Europe, where “social uses” of telegraphy predominated—and where telegraphy was almost exclusively a nationalized industry—the vast majority of messages sent over the “lightening wires” in the U.S. were commercial in nature.⁶⁸ While contemporaries of American telegraphy often estimated business use of the systems at 80 to 90 percent, more recent

⁶⁶ Richard B. Du Boff. “Business Demand and the Development of the Telegraph in the United States, 1844-1860” *The Business History Review*. Vol 54. 4 (Winter, 1980), 559 – 479, especially pages 467, 474-475.

⁶⁷ *Ibid.*, 465.

⁶⁸ Great Britain’s move to nationalize its inland telegraph companies in 1866 left Canada and the U.S. as the only two countries with privately operated and owned telegraph lines. Richard B. Du Boff, “American Technology and Monopoly: The Telegraph.” *Comparative Studies in Society and History* 26, no. 4 (1984): 572.

historians have placed this number at a still high 70 percent or more.⁶⁹ By way of explanation for the discrepancy, many point to differences in the fees charged to users of the wires and the profit motive of American telegraph operations; in the U.S., high prices—which meant sending a couple of sentences via telegraph could cost 68 times more than sending a letter through the post in 1869—were far more acceptable to business users who were willing to pay for “almost interactive” communication.⁷⁰ Whereas telegraphy offered individuals the opportunity of leisure-time social interaction—a function that could easily be filled by the postal service at a much cheaper rate—the same technology offered business something that mail could not—a facsimile of the in-person meeting, a proposition becoming increasingly expensive as industry was spreading across the nation.⁷¹ Rates were thus structured in the U.S. to meet the profit desires of the private telegraphy industry by taking advantage of the willingness of business to pay top dollar for the benefits that rapid communication afforded. In turn, these particular patterns of capital investment and ongoing funding significantly shaped who used electronic communication and what they used it for.

Other evidence substantiates the heavy influence business had on the national development of telegraphy. After Western Union experienced significant success leasing its wires to businesses so they could enjoy the luxury of private lines in 1884, the firm briefly considered eliminating its message sending service wholesale and moving into the leasing of wires for private use.⁷² Since Western Union was a well-established monopoly by this time, we

⁶⁹ Ibid., 465-470.

⁷⁰ JoAnne Yates, “The Telegraph’s Effect on Nineteenth Century Markets and Firms.” *Business and Economic History* 15, no. 2 (1986): 152. Message rates decreased rapidly in following years, but remained high enough to discourage heavy “social” use of telegraph lines.

⁷¹ Ibid.

⁷² United States Congress, Senate, *Investigations of Western Union and Postal Telegraph-Cable Companies*, 60th Cong., 2d sess., S. Doc. 725 (Washington, D.C., 1909), 21-22.

might speculate that the implications for “social” uses of telegraphy would have been dire. Though Western Union ultimately maintained its message-sending service, the incident indicates the extent to which profit motives and business desire weighed on the development on the technology, with other uses occupying a secondary and somewhat supplementary position. Likewise, though the telegraph held the promise of communication that would universally connect the nation, making Lewisburg, Pennsylvania as accessible to the wireless user as New York City. In reality, however, telegraphy developed unevenly, favoring larger cities with more extensive communication infrastructure—infrastructure that was developed, in part, to suit the needs of industry. Even when smaller towns were wired for telegraphy, it was common for a person wishing to send a message to wait hours until the traffic between or within major industrial cities (New York, Philadelphia, Boston, Washington, New Orleans, St. Louis) momentarily ceased. This was not simply an issue of heavy use of the lines (though business’s needs for exact, verified information did generate extensive traffic).⁷³ In a practice that recalls the warnings of net neutrality proponents, a hierarchy of users—which placed individuals firmly at the bottom—was built into the use of telegraphy wires. Government, police, and (occasionally) the press were given top priority, with “higher order” (busier) stations close behind. These busy urban stations used their privileged spot in the hierarchy to better serve their biggest customers, allowing large commercial interests right of way on the nation’s wires.⁷⁴ Just as the rates and economic barriers to participation in wired communication were measured to meet the needs and capabilities of business, so were the practical uses made of the wires once they were established.

⁷³ Du Boff, “American Technology and Monopoly,” 580-581.

⁷⁴ Ibid.

If the above indicates a few ways in which business shaped the ultimate form of telegraphy in the U.S., it provides little to indicate how telegraphy, in turn, shaped the form of business. This reciprocal relationship becomes important for understanding the relevance of early electronic business communication and practice to later media, including radio, film, and television. Perhaps most fundamentally, the telegraph aided and abetted the building of empires. A space-binding medium, it “freed communication from the constraints of geography” and in doing so it both made coordination and control at extreme distance practical and it changed the way people understood the process, purpose, and common sense social organization of communication.⁷⁵ As a means of controlling growing railroad and steam ship operations, telegraphy enabled the national expansion of markets, reducing costs associated with coordinating inventory across large geographical spaces and making such oversight “tenable” in the first place.⁷⁶ By transforming local and regional markets into national markets, this, in turn, lead to larger-scale production practices and “a whole new framework for entrepreneurial decision making” that required more and different types of communication based on remote markets and the growing anonymity among buyers and sellers.⁷⁷ Using the telegraph, companies became capable of managing the distribution of goods to meet the changing needs of diverse

⁷⁵ According to Innis, media that biased the construction and maintenance of spatial relationships, e.g., the telegraph, were especially suited to the development of empire, commercialism, centralization, and the monopolization of knowledge production. In the words of Carey, updating Innis for the space age, electronic technologies “enhanced the capacity of imperial powers to bring satellite areas within the orbit of their control.” James Carey, *Communication as Culture: Essays on Media and Society*. Revised ed. New York: Routledge, 2009: 157.

⁷⁶ Carey, 164. It is here that many historians remind their reader that telegraphy actually preceded rail in many instances of American expansion.

⁷⁷ Du Boff, “Business Demand and the Development of the Telegraph,” 478. Carey 159? (search invisible)

markets through precise logistical control.⁷⁸ This was particularly important to industries that required rapid, near-constant communication: the railroad (to avoid crashes), the meatpacking industry and agriculture (to avoid spoilage), and even department stores (to avoid bare shelves resulting from the necessarily fast turnover of seasonal goods).⁷⁹ In some instances, the scale of business operations increased ten fold.⁸⁰ For the first time, America could be imagined by industry as a national mass of consumers.

In addition to magnifying the scale at which business understood its consumer base—which would, of course, have its own outsize impact on commercial and entertainment communication histories—the telegraph also encouraged the development of large-scale firms. These particular effects of the telegraph were heterogeneous, depending on the communication needs for a given commodity.⁸¹ The more complicated a product—a specialty piece of farm equipment, for example, that needed detailed description for the user and an ongoing service relationship with the firm as opposed to generic clay bricks—the greater the benefit from increased communication.⁸² Those firms that were significantly bolstered by the new capabilities

⁷⁸ Alexander James Field, “The Magnetic Telegraph, Price and Quantity Data, and the New Management of Capital,” *The Journal of Economic History*, 52.2 (1992): 401-413, 412.

⁷⁹ The American rail system was comprised primarily of single tracks (as opposed to double tracks, which allowed trains to pass the same tracked area in opposite directions or move in the same direction at different speeds without the possibility of collision). The telegraph—and its continuous, rapid communication capabilities—was thus critical to rail’s operation in the U.S.. Furthermore, since many industries relied on rail for the distribution of goods across national markets (such as the meatpacking industry which used up-to-the-moment information about local markets to avoid distribution in locations experiencing surpluses), the telegraph likewise impacted those corners of business. See Field, “The Magnetic Telegraph, Price and Quantity Data, and the New Management of Capital,” 406-409; DuBoff “American Technology and Monopoly,” 575.

⁸⁰ Yates, “The Telegraph’s Effect on Nineteenth Century Markets and Firms,” 149; DuBoff “American Technology and Monopoly,” 573.

⁸¹ Field, “The Magnetic Telegraph,” 405.

⁸² More specifically, we could trace the increased need in communication to what Yates calls “asset specificity” and “complexity of product description,” however, the above suffices for the

of the telegraph began trending toward varying degrees of vertical integration; to realize economies of scale through tight coordination of goods and services over large, even national markets, firms found that they needed to absorb functions that previously occurred as (inefficient and undependable) market transactions, e.g., purchasing raw materials and distribution of goods to consumers.⁸³ The telegraph also enabled firms to exert greater control over expanding operations through various forms of intelligence communications, such as surveillance over dispersed company agents and units or the rapid transmission of strategic price and quantity information; larger firms even developed secret codes to shield proprietary information from prying ears.⁸⁴ Those who had easy access to intelligence over the wires were able to act more quickly and more assuredly than their counterparts, giving them a keen advantage over competitors and leading to greater concentration of power in larger, integrated firms.⁸⁵ Furthermore, as mentioned above, despite the telegraph's potential to equally connect diverse parties in the U.S., the practical use of the wires was engineered to serve the biggest urban markets, where large firms were headquartered. As a result, these companies were again advantaged by the telegraph when they became its preferred users.⁸⁶ In one egregious example

purposes of sketching out the general effects of electronic communication on business. See "The Telegraph's Effect on Nineteenth Century Markets and Firms," 156-157. For more on how the *type* of information passed along the wires, e.g., price and quantity data, affected which industries benefited most from the telegraph, see Field, "The Magnetic Telegraph," 403-405.

⁸³ Yates, "The Telegraph's Effect on Nineteenth Century Markets and Firms," 155, 161.

⁸⁴ The codes often had an additional benefit of shortening messages so as to send cheaper communications. Du Pont, for example, substituted the single word, "habitudme" for the lengthier (and more troubling) "how many were killed?" This is also one of the reasons Western Union's proposal to go into the line leasing business seemed so appealing.

⁸⁵ *Ibid.*, 579.

⁸⁶ *Ibid.*, 581-582 DuBoff also argues that such an arrangement, where telegraph use was best suited to decentralized commercial markets and users, undercut the power of the capitol as a proactive source of governance and intelligence and transformed it into a reactive institution directed by "mechanized" top-down news and decision-making agendas originating from these corporate centers. (582-583); mentions Innis.

that demonstrates how business needs can impact wider forms of mass communication, Western Union came to an understanding with the newly-formed Associated Press whereby the telegraphy company refused service to the AP's competitors in return for favorable news coverage.⁸⁷ Taken together, these factors promoted the concentration of monopolistic power within integrated firms—an organizational arrangement that did not exist before the introduction of electronic communication.⁸⁸ As a result, Western Union would not be the only behemoth birthed by the telegraph. Firms grew to ever-larger proportions, with their needs for internal coordination and communication growing in kind. Historian Glen Porter is noted for remarking, “it was the telegraph which first brought the speed of electronic communication within reach of the potential empire builder.”⁸⁹ As we will see, while the forms of electronic communication used to build and maintain these empires shift over time, the basic need for wide-scale coordination (between suppliers, workers, trustees, distributors, and consumers) in these giant firms remains—and even accelerates.

In addition to building corporate empires, the telegraph also shifted how people understood the function of communication, which would later impact the strategies of audiovisual professionals to promote corporate media use within their firms. According to Carey, “the telegraph was not only a new tool of commerce but also a thing to think with, an agency for the alteration of ideas.”⁹⁰ For him, the telegraph promoted a “transmission model” of communication that understood communication as “a process whereby messages are transmitted

⁸⁷ Ibid., 581-582. See also Jonathan Sterne, *The Audible Past: Cultural Origins of Sound Reproduction* (Durham, NC: Duke University Press (2003): 140 for a brief review of other relevant literature on this point and the place of the telegraph within media history.

⁸⁸ Yates, 161.

⁸⁹ Glenn Porter, *The Rise of Big Business, 1860-1910* (New York, 1973), 43.

⁹⁰ Carey, 157.

and distributed in space for the control of distance and people.”⁹¹ Because of the model’s prevalence, we are in turn “coerced by our traditions into seeing [communication] as a network of power, administration, decision, and control—as a political order.”⁹² In a McLuhanesque turn, the “meaning” of electronic communications becomes “the new possibility to turn space into a domain of geographical and political competition for the most electronically advanced nations.”⁹³ The integrated switched system uniting telegraph and telephone likewise offered the “encephalated [sic] social nervous system” as a structuring metaphor for thinking through ideal modes of empire communications. Although Carey’s discussion is formulated in reference to political agencies, these logics would be adopted and translated by those in AVBC to refer to the expansive capabilities and ideal communication infrastructures of private industry.

Although telegraphy did not operate as what we might today consider a thriving AVBC sector (not least because telegraphy—and its heir, telephony—were both controlled by monopoly rather than a wider network of collaborating and competing institutions), it laid the foundation for patterns in electronic business communication and industrial organization that persisted well beyond the use of the lighting wires. Telegraphy provides an early example in the long history of the development of technologies within profit-based firms to meet business (or military) needs first, with social or entertainment needs of individuals a secondary concern. The history of the telegraph also reveals the extent to which business played a part in the financial and practical development of electronic communication technologies since their origins in the mid-nineteenth century. Inversely, it is now fairly clear how the telegraph impacted the structure of commerce in the United States.

⁹¹ Carey, 13.

⁹² Carey, 27.

⁹³ Carey, 131.

I argue that two shifts are relevant to media studies: 1) the emergence of the nation bound together as a market, its citizens newly recognized as potential consumers of mass goods, and, mirroring the massive growth of this consumer “audience,” 2) the rise of integrated companies geared to this larger market that had significantly greater internal and external communication needs. The industry’s understanding of their expanding national market and the increasing complexity of firms, which demanded regular use of electronic communication, provides some explanation as to the source of support and encouragement for the development of a fully functioning AVBC sector which would flourish several decades after the telegraph became commonplace. Although dots and dashes may not come readily to mind when thinking of audio-visual communication in the media studies sense, and communiqués about inventory price and dispersed agents seem somewhat distant from the training films and public relations programs most readily associated with industrial media, the messages sent over telegraph wires nevertheless generated and fulfilled vital business management needs that would be taken up later by communications with more aurally and visually appealing forms.⁹⁴

One of these very technologies—the “electric speaking telephone” appeared close on the heels of the telegraph. Presented by Alexander Gram Bell to the American Academy of Arts and Sciences in 1876, the telephone followed many of the patterns set by the telegraph. First and foremost, Bell targeted businessmen as the ideal users of his machine (and adjusted his rates accordingly).⁹⁵ As a portent of the economic assistance the telephone would render industry, the first pair of telephones was leased to a banker, Roswell Downer of Boston. Unlike the telegraph,

⁹⁴ For a convincing discussion of the aural nature of telegraphy and its place within the history of audition, see Jonathan Sterne, *The Audible Past*, 137-154.

⁹⁵ George David Smith, *The Anatomy of a Business Strategy: Bell, Western Electric, and the Origins of the American Telephone Industry*, Baltimore: The Johns Hopkins University Press, 1985, 25, 43; *The Wire Devils*, 732. Sterne, *The Audible Past*, 197.

the early telephone had a range of only a few miles, hence it was viewed—initially, at least—as a possible adjunct to telegraphy.⁹⁶ Whereas the telegraph enabled communication across large distances, the telephone offered the opportunity of more intimate (but still masculine) communication between the office, factory, and warehouse.⁹⁷ The telephone also promised business users “private line” capabilities, since no operator was necessary for their use. Yet another shared feature of the two technologies was the business strategy that surrounded them—Bell, too, was hoping for a communications monopoly. Furthermore, both technologies sat at the center of the transition from “artisanal” and individualized invention to rationalized “research and development” that would become the hallmark of corporate strategies of innovation.⁹⁸

What sets the telephone apart from the telegraph, at least for this story, is the corporate communications strategies—aimed towards a public wary of increasingly inescapable cultural connections with social difference and the expansion of control in corporate hands—that provided a foundation for public relations campaigns that became de rigueur in the twentieth century. Not only is AT&T credited with creating the blueprint for corporate-public communications, its use of business media for training, internal communication, human relations, and management is thought to be among the U.S.’s most extensive examples—

⁹⁶ For example, one early proponent of Bell’s invention suggested that the invention could spread electronic communication to smaller communities that could not support the wages of a skilled full-time telegraph operator given their lower demand for its use. In his formulation, patrons would use the simple-to-operate phone to call the nearest telegraph office to order message delivery. See George B. Prescott, *Bell’s Electric Speaking Telephone: Its Invention, Construction, Application, Modification, and History*. Arno Press, New York (reprint 1972) 1984, 46. It would not be until the close of the nineteenth century, however, that telephone use surged in rural areas and homes of the non-elite. See Smith, *The Anatomy of a Business Strategy*, 125. For a discussion of the business appeal of the telephone in urban areas, see Smith, page 25.

⁹⁷ George B. Prescott, *Bell’s Electric Speaking Telephone*, 46-47. On the emphasis telephone companies placed on “serious” masculine uses of the technology (as opposed to women’s “idle talk,” see Sterne, *The Audible Past*, 192-194, 199.

⁹⁸ Sterne, *The Audible Past*, 185-191. Edison’s Menlo Park would become the emblem of this transition.

generating a complex system of production, distribution, and exhibition that scholars are only beginning to trace.⁹⁹ In this spirit, I return below to the telephone years after its adoption as a common business (and leisure) technology, and well after Bell exited the industry birthed by his invention, in order to examine the development of television at AT&T as a case study for understanding the role that media professionals played in promoting the emergent medium. I cede the story of the business telephone, beyond the cursory treatment above—and the development of the industrial giant AT&T—to Leonard Reich, George David Smith, and Robert W. Garnet who, with others, have thoroughly explored its relevance to American and business history.¹⁰⁰ Keeping the telephone, and its forbearer, the telegraph as reminders that industrial film—so often given the honored spot in common understandings of electronic business communication, particularly within media studies—is only part of the story, I now leap ahead once again to explore how the promise of the business market shaped the development of sound recording technologies at the turn of the century.

Dictation Devices and Talking Dolls

In tracing the work of several scholars, we can see that the story of the many sound recording technologies for business in development and on the market in the last two decades of the eighteenth century follows a number of threads established by telegraphy and telephony while introducing several more. Like the telegraph and the telephone, phonograph technology

⁹⁹ See Heidi Solbrig, "The Personnel is Political: Voice and Citizenship in Affirmative Action Videos in the Bell System, 1970 to 1984" in *Films that Work: Studies in Visual Practices of the Industrial Film* eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam Press) 2009.

¹⁰⁰ Leonard S. Reich, *The making of American Industrial research: science and business at GE and Bell, 1876-1926* (New York: Cambridge University Press, 1985); George David Smith, *The anatomy of a business strategy: Bell, Western Electric, and the origins of the American telephone industry*. (Baltimore: Johns Hopkins Press, 1985). Robert W. Garnet, *The telephone enterprise: the evolution of the Bell System's horizontal structure, 1876-1909*. (Baltimore: Johns Hopkins Press, 1985).

was imagined by several of its inventors for the business market, in this instance as an answer to increasing demands of rationalization and modernization in corporate administration. However, these intentions were upended (as well as marketers' attempts to maintain the machine's masculine coding) when it became clear that entertainment uses of the technology would wildly surpass business use. A striking example of overlaps between the histories of business and entertainment technologies, the phonograph's dual purpose helped set the stage for audiovisual professionals' later claims that drawing on the leisure connotations of media technologies could boost the efficacy of corporate and instructional messaging. The phonograph also bears witness to the increasing decentralization of electronic business communication through the installation of individual devices and "office systems" within the architecture of individual firms—a process mirrored by the adoption of entertainment technologies in the home. These processes demanded specific modes of mass production (and reproduction), which impacted the industrial organization of the electronic communication manufacturing business. Furthermore, hopes of mass adoption of business communication technologies fueled the pursuit of the crucial technological affordance that would be bound up in ongoing debates over professionalism at multiple levels of corporate hierarchy for decades to come: ease of use for a diverse, untrained user-base. Although the emphasis on communications systems would waiver in the jump to film, the turn to television revived discourses regarding the value of the "systems approach" as a cornerstone of television workers' promotion efforts.

Thomas Edison can be found in the early pages of any film history. His name usually appears first as the inventor (or, in more accurate histories, the supervisor of invention) of key film technologies, including the kinetoscope (a peephole viewer that helped popularize film as a mass entertainment medium) and the kinetograph (its motion-picture camera counterpart). He

reappears as one of the key agents of the Motion Picture Patents Company, a trust that attempted to control American film production through the enforcement of patent rights. However, despite the inventor's close association with the entertainment industries in contemporary discussions of his importance to media history, he devoted considerable time and resources to working on business technologies. Central to this somewhat submerged history is the phonograph. According to Andre Millard, it was a combination of Edison's success with the electric light in offices and the growing market for business technologies, including the telephone and the typewriter, that led the businessman to pursue industrial uses of his invention first.¹⁰¹

By the mid-1880s, two interests vied for the lead position in the recorded sound market, and both pursued "practical purposes."¹⁰² Although Edison patented a rudimentary tinfoil phonograph in 1877, commercial development of the device languished for almost a decade as he pursued other inventions. Allegedly, it was the successes of the Volta Laboratory Association and Alexander Graham Bell in developing their own sound recording device, the gramophone (marketed primarily as the Dictaphone), that spurred Edison to return to his invention.¹⁰³ Both the phonograph and the gramophone were imagined as dictation devices. "Bankers, merchants, lawyers, and editors" recorded their correspondences on a wax cylinder, which they would hand off to an "office boy" (or woman) to be transcribed at the speed of their capabilities.¹⁰⁴ As such, the major benefits they hoped to offer their users were cheaper communication and

¹⁰¹ Andre Millard, *Edison and the Business of Invention* (Baltimore: Johns Hopkins University Press) 59.

¹⁰² Patrick Feaster "The Artifice of Nineteenth Century Phonographic Business Dictation" *The Velvet Light Trap* 72 (2013): 6.

¹⁰³ Ibid., for more description of the fateful exchange between Volta and Edison, see Millard 65.

¹⁰⁴ "Edison Photographs a Sound." *Macon (GA) Telegraph*, 25 December 1885, 5. Graham's Dictaphone, on the other hand, targeted government workers in the nation's capitol as its first key constituency. Woodbridge, *Dictaphone*, 12-13.

administration, greater flexibility, and increased efficiency. Again, changes in industrial organization shaped and were shaped by these technological affordances.

The eventual establishment of dictating machines as indispensable tools of the “modern office” following World War I was a result of at least three major shifts. First, the turn of the century saw waves of women entering the workforce as low-wage labor. One of the key hopes for dictating machines was thus that they would enable women (and boys) to replace expensive, skilled stenographers, vastly reducing the cost of administrative labor. Simultaneously, the devices promised an additional method for managing risk, since their inventors promoted them as far more reliable than human capital who might get drunk, tired, or demand a raise. (Whether there was a concurrent epidemic of inebriated stenographers is unclear; whatever the case, the bodily and individualized nature of the “risks” outlined by the promotion of the dictation machine emphasizes the easy “manageability” of a standardized, mechanized worker. These discourses concerning the value of the mechanically enhanced worker are explored further in chapter three.) Second—and closely tied to the above—the first two decades of the twentieth century witnessed the rise and popularization of Taylorism and scientific management as a set of theories and practices aiming to reduce costs by increasing efficiency and ease of management through rigid hierarchy and division of labor. The dictating machine promised to rationalize the office by dividing—and thus simplifying—the diverse tasks of a skilled stenographer so unskilled workers could mechanistically and “efficiently” perform a single duty as the extent of their job.¹⁰⁵ This also meant that the labor supply for firms could be more easily managed, since

¹⁰⁵ Millard 267.

menial workers could be quickly replaced if their work was unsatisfactory.¹⁰⁶ Just as phonographs and Dictaphones cut down on the potentially “wasteful” flexibility of the stenographer who often organized his own time and tasks, they introduced greater flexibility for executives who could record their correspondences at their convenience—and at whatever speed they desired—rather than attempt to collaborate with a stenographer who might be otherwise engaged.¹⁰⁷ As we will see, re-organizing the temporality of labor in favor of the most elite workers will be a hallmark of AVBC’s promotion of its value. Last, as I have already discussed above, beginning with the development of the telegraph and the railroad, American firms expanded to national markets, which resulted in ever-increasing administrative needs. By mechanizing communication, recording machines promised to significantly serve and contribute to these expansions. Like the telegraph, the phonograph can thus lay some claim to the restructuring of labor in the American office—in this instance as a communication technology taking on the sheen of those technologies that so devastatingly replicated human activities.

Of course, the promises and the realities of business dictation were not the same. Especially early in the machines’ development, persistent difficulties plagued their adoption for business purposes. With the phonograph, occasional recalibrations were an inescapable fact of the delicate machine’s use.¹⁰⁸ Furthermore, given their reliance on potentially leaky batteries, the machines could be as messy as they were fragile. Even after the expenditure of significant sums for care and upkeep, there was no guarantee that workers would welcome the new devices (there is evidence that they did not, even within Edison’s own organization) or be able to manage the

¹⁰⁶ As one Edison ad puts it “It is easy to replace a typewriter operator, but a competent stenographer is hard to find.” “Ten reasons why Edison’s Phonograph is Superior to Andy Stenographer,” *Phonogram* 3, nos. 3-4 (1983): 410.

¹⁰⁷ Millard 267.

¹⁰⁸ The machine’s complexity and the cost of ongoing care was yet another reason Edison precluded the home market. Millard 79.

complex machines to create their own intelligible recordings.¹⁰⁹ As a last barrier to the device's adoption, editing dictations mid-composition could range from difficult to impossible, making them impractical as a replacement for a critically-thinking stenographer.¹¹⁰

Many of the phonograph's most trenchant problems were a consequence of the ever-increasing size of American industry, his intended consumer base. Edison planned to manufacture his device on a mass scale for a diverse group of users, none of whom were experts in electronic communication technologies. The phonograph holds the honor of being the first technology to go into (somewhat) mass production at Edison's famed West Orange complex. The American system of manufacture that Edison chose for the phonograph directly opposed a traditional "craft" method of production whereby a single expert craftsman understood and controlled the full production process of a given item. At West Orange, Edison devoted the expertise of his inventors and craftsmen to the design of interchangeable parts and the precision machines to make them by.¹¹¹ As a result, he hoped to staff his factory—the Phonograph Works—with unskilled labor, doing for his factory what he hoped the phonograph would accomplish for the office. However, and unfortunately for Edison, the precision machines were themselves difficult to operate and required constant adjustment and intensive training for their operators.¹¹² In conjunction with setbacks in technical development in the lab, production of the

¹⁰⁹ For a detailed discussion of the difficulties faced by the machine's earliest users, see Millard 79-81. For more on the quality of sound reproduction possible with the machines, see Emily Thompson. On the reluctance of TAE employees to use the machines, see Millard, 264.

¹¹⁰ Feister proposes this as an as-yet unexplored area affecting the adoption of the machine in his recent essay, "The Artifice of Nineteenth Century Phonographic Business Dictation."

¹¹¹ Millard 75, 77-78.

¹¹² *Ibid.*, 77.

phonograph stalled; at the end of the decade, it was still too delicate a device for the methods of mass production he believed would make it profitable.¹¹³

The second major problem caused by the intended scale of Edison's operations was the breadth and diversity of users that he imagined for each machine. The phonograph was a far cry from the telegraph, barred from lay users by a design and practical system of use that demanded expert operation. In the normal scope of use, a phonograph could be employed by an executive, a typist, and an office manager working on its upkeep and care; dust, vibration, and anything less than gentle treatment of the device as it moved between users compromised its functioning.¹¹⁴ As Millard puts it, "the slightest mechanical failure brought this technological revolution in the workplace to a halt."¹¹⁵ Compounding Edison's difficulties was a company built like a franchise in which a far-flung set of decentralized salesmen were able to span vast geographical distances, but were difficult to manage and instruct in proper care of the fragile machines. Ironically, the scale of industry that Edison believed would make his machine a success doomed it—at least temporarily. When the machine was completely redesigned (1912-1916), the primary criterion for the new device was ease of use and a sturdy structure that could withstand careless, casual use.¹¹⁶ As we will see, the need to appeal to non-expert (equipment) users becomes a mandate of equipment designed for industrial (and other institutional) use throughout the twentieth century.

Before the total overhaul from the phonograph to the 1916 Ediphone, Edison's laboratories developed a technological solution to its problems that helped manage problems of

¹¹³ In 1888, Edison sold his interest in the machine to Jesse Lippincott, a businessman who had already purchased the American Gramophone Company in the hopes of creating his own electronic communications monopoly. Lippincott also saw business as the primary target for the machines. See Millard, 79.

¹¹⁴ Ibid.

¹¹⁵ Ibid., 254.

¹¹⁶ Ibid., 265.

scale—both in regard to the complexity of machines for mass production and the need to serve diverse (and potentially careless) users. Instead of a single device that could fulfill multiple functions—and would be used by different groups of workers, he offered business a total office system, wherein even the technology was subject to an efficient Taylorist division of labor. Three different devices calibrated to gendered hierarchical roles—a dictating machine (male executives), a transcribing machine for playback and typing (female typists), and a cylinder shaver which did the dirty work of erasing messages for reuse (office boys)—and a free consultation that advised businesses how they could adapt the machines to their operations (and adapt their operations to the machines) comprised the Edison dictation system.¹¹⁷ By dividing the labor of dictation into three specialized machines, each became easier to manufacture using mass production methods.¹¹⁸ Furthermore, the interactions between machines and their intended users also became simplified, since a particular class of users would generally only interact with a single machine and its smaller cluster of affordances. In addition to ensuring good scientific management practices, such a system also maintained gendered and classed labor hierarchies based on assumed capabilities and affinities. Coupled with the machines themselves, key to the system's operation was the formation of a central dictation department—generally staffed with low-wage female typists—within each of the businesses that adopted it. According to Millard, the Edison system thus provides an example of how communication technologies can directly restructure office work. We can also understand the development of the machine as the convergence of new American manufacture strategies and the expansion of corporate communication—the technical needs of mass production were just as important as the end users' needs and capabilities in shaping a devices' development. In the context of the development of

¹¹⁷ Ibid., 262.

¹¹⁸ Ibid.

AVBC, I argue that we can also continue to trace the commitment to a systems approach to mediating the corporation that accounts for the total operations of the company and its varied users.

Following the lead of the telephone, the phonograph offers another early installment in the process whereby centralized technologies accessible to business users only through a technical expert (the telegraph) made way for technologies intended for direct use by people at many different levels of the office hierarchy (and perceived skill). Although simplification of the machine's functions and the user's potential interactions created a device that was manageable for mass production, successful mass *re*production of content—for business—would remain out of reach for the wax cylinder.¹¹⁹ Some of this may have been due to technical constraints. Unlike the gramophone developed by Emile Berliner (available to the public in 1895) that used flat disks that could be easily stamped in a mass production process, any duplication of content on wax cylinders proceeded only through two cumbersome techniques. Either performers repeated their work ad nauseum while workers in the recording studio arranged multiple machines to record at the same time, or cut cylinders were copied through a difficult pantograph process that produced inferior sound.¹²⁰ However, although processes of duplication were riddled with difficulties, they were not enough to stop the production of wax cylinders for coin-in-the-slot machines that were growing in popularity as entertainment novelties. Edison redirected major resources from the manufacture of the business phonograph to the production of public parlor machines for entertainment in the 1890s.¹²¹ While people experimented with recorded sound in social arenas—whether using coin-in-the-slot machines, creating records at home, or purchasing

¹¹⁹ Sterne 212.

¹²⁰ Millard 85, Feaster 8.

¹²¹ Millard 86.

cylinders and disks with pre-recorded content—the business phonograph remained a device substituting for inter-personal communication; any sort of publishing industry for business remained undeveloped.¹²²

The tensions between the phonograph's development as a machine for business and its circulation as an entertainment medium are well documented. On the one hand, we can track the production of machines for distinct uses depending alternating perceptions of growing markets. As mentioned above, the phonograph and gramophone both targeted business users as their primary customers until the coin-in-the-slot business appeared to be a more lucrative alternative—at least in the short term—in the 1890s.¹²³ Then, with the rise of scientific management in the earliest years of the twentieth century, developers and manufacturers perceived dictating machines once again as a viable investment—often manufactured simultaneously with machines targeted to entertainment uses. This perspective shows how the development of business and entertainment machines are bound up in corporate strategies of innovation and the management of weak-performing products. On the other hand—and closely tied to the above—we can explore precisely how particular technological innovations were used to manage the transitions between these two markets, where overlaps may persist, and how gendered coding of the machine helped define them in relation to one another. In the first

¹²² For description of the slow process through which the phonograph and recorded sound was made sense of see Sterne 196-214. A notable later exception to what we might call the “publishing industry” is a film that Edison himself made to promote his dictating machine. Sterne reads the film as evidence that the machines might not have been as easy to use and popular as Edison's other literature suggests. I propose reading it as an early example of industrial film, institutional advertising, using compatible technologies—a topic that I return to anon.

¹²³ Feaster disagrees that mere difficulties were the only reason that people turned to entertainment uses, since entertainment devices also had their shortcomings. See Feaster, pages 8-10, for more on the potential factors that lead to alternating success between entertainment and industrial uses.

instance, the separation of the phonograph's features into a three-part system for office use is a good example of how entertainment and business phonographs diverged as they matured.¹²⁴ Likewise, Edison's attempt to market his entertainment phonograph as a business tool when he reentered the industrial market in 1905 demonstrates that these distinctions were not always so neat. In fact, one of the key ways developers attempted to solidify the function of their machines was through marketing that used gender to define proper use. Sterne has shown how—similar to the telephone—early phonograph producers attempted to enforce an understanding of the machine as a “serious” business tool, rather than a frivolous (feminine) social device.¹²⁵ Of course, the phonograph's quick adoption as an entertainment technology upended manufactures' assumptions regarding the damage social uses would inflict on the technology. As such, the phonograph also shows how the participants in what we might consider the shadowy roots of AVBC had difficulty both policing their products and predicting their potential uses when it came to the fine line between business and entertainment technologies. As we will see, overlaps between institutional and entertainment media shape the growth of both sectors throughout the history of industrial media; eventually, the shadowy line between labor and leisure media technologies would be an asset, not a liability. Likewise, the gendering of labor technologies is a key mechanism through which meaning becomes articulated to labor technologies and practices—a point that reemerges full force in a later chapter.

When attempting to sketch out the place of the phonograph in the formation of the industrial media sector, we may consider the dictating machine in the same context as other

¹²⁴ See Emily Thompson on flexible notions of fidelity linked to machine's intended use, Millard (85) on changes in size and styling, and Feaster (12-13) on practices such as editing that developed around one sector's use of the technology and not the others.

¹²⁵ Sterne 199. The persistent patterns of gendered labor technologies will reemerge in a later chapter.

electronic communication technologies that contribute primarily to shifts in industrial organization, logistical control and the development of certain patterns of labor. The phonograph also follows the lead of its predecessors in terms of its development at the hands of a few powerful interests (Bell, Edison, Lippencott), orientation towards business needs, and ultimate ambition (communications monopoly). Where it diverged was in the use of the decentralized technology by non-experts and the incorporation of mass production manufacturing techniques to meet the expanding needs of AVBC. Although entertainment uses of the phonograph might have hinted at the potential market for industrial publishing, such a fate was not to be realized by the phonograph. For the distribution of prerecorded industry fare at a nation-wide scale—what I mark as the maturation of the development of the AVBC sector under investigation here—business would have to wait for film and its companions, e.g., slides and slide films.

Before moving on to a discussion of film, one last sound technology deserves a brief mention. Wireless and its progenitor radio were both established publicly as technological possibilities after the introduction of film. Marconi's famous demonstration of the America's Cup Yacht races in New York occurred in 1899, after cinema had installed itself as an entertainment novelty a few years earlier in 1894. However, it would take a decade or two of experimenting with film before institutional uses were widely made of the medium. Despite its debut at a sports event, wireless would be identified as a tool of business and government almost immediately.

Part of the relatively quick orientation of wireless towards industrial uses is no doubt the parallels formed between the newer mode of communication and telegraphy (after all the adjective "wireless" could be understood as modifying "telegraphy" just as easily as "communication"). Like telegraphy, wireless was often imagined—in its ideal, fullest

realization—as a point-to-point system of communication whereby all participants of a given communication were known to each other. Of course, the technology did not allow for such tight control over wireless signals, though tuning and codes would help control the unwanted spread of messages to some degree. As Susan Douglas details, many of the early inventor-entrepreneurs of wireless systems (Guglielmo Marconi, Reginald Fessenden, Lee De Forest) pursued commercial uses of the ether, using the affordances of telegraphy as a structuring logic; wireless could fulfill needs for communication at a distance—without the wires. Wireless enabled Morse-coded communications to conquer the seas and inhospitable terrain—places wires could not travel. While Marconi’s ultimate aim was nothing short of a monopoly—in direct competition with wired telegraphy—spanning the British Empire, his short-term plan focused on commercial and naval ship-to-ship and ship-to-shore communication and the establishment of a transatlantic channel.¹²⁶ Fessenden also targeted government and maritime uses, focusing on the U.S. Signal Corps, the navy, and other governments.¹²⁷ World War I—when the U.S. government commandeered all wireless systems—demonstrated the value of the communication technology to national security (and even birthed the government’s hopes to maintain control of the systems after the war). The first major American corporation to heavily invest in wireless technology, the United Fruit Company, did so in collaboration with Lee De Forest, who promised the firm communication over land and sea impossible to populate with wires.¹²⁸ De Forest also contracted with at least one newspaper, recalling the important role telegraphy played for the consolidation of news powers.¹²⁹

¹²⁶ Douglass 66-68.

¹²⁷ *Ibid.*, 82

¹²⁸ *Ibid.*, 95-97.

¹²⁹ *Ibid.*, 94

Though the technologies may seem far afield in terms of their final development, government and commercial users and uses of wireless would directly shape the direction of radio. As has been well documented, when the government realized it would not be able to maintain control over wireless technologies following the end of the First World War, it helped engineer complete American control over U.S. systems by aiding to some degree the formation of the Radio Corporation of America, an oligopoly that together held all of the vital patents for what would soon be called radio.

When RCA's members (General Electric, American Telegraph and Telephone, Westinghouse, United Fruit) began their trust in 1919, radio's final form—at least as it would develop commercially in the twentieth century—was still undetermined. Although 1910 witnessed amateur operators overtake the navy and commercial users as the biggest group of wireless users—a sector of use that continued to grow despite the two-year hiatus required by the U.S. government's ban on amateur transmissions during World War I—control gradually shifted to commercial interests through a series of policy decisions regarding licensing, frequency assignments, station power allowances, and restriction of content.¹³⁰ Although the close of World War I saw a healthy mix of amateur and commercial stations, by 1922 the regulatory tide began turning towards commercial interests when the Interstate Commerce Commission developed two classes of licenses, placing amateurs on an inferior frequency and prohibiting them from playing music, delivering news, and providing other forms of entertainment that they collectively

¹³⁰ Michele Hilmes *Radio Voices: American Broadcasting 1922-1952* (Minneapolis: University of Minnesota Press, 1997): 44-50; Douglas 207, Susan Smulyan, "Twisting the Dial" in *Selling Radio: The Commercialization of American Broadcasting, 1920-1934* (Washington, DC: Smithsonian Books, 1994): 93-124. Robert McChesney, *Telecommunications, Mass Media, and Democracy: The Battle for the Control of U.S. Broadcasting, 1928-1935* (New York: Oxford University Press, 1993).

pioneered.¹³¹ As Michele Hilmes points out, in 1923, though a quarter of non-amateur stations were affiliated with educational institutions, churches, city government, and other non-profit uses, 75 percent of the more powerful, class B stations were operated by commercial interests.¹³² In these instances, stations offered entertainment and information, hoping it served as indirect advertising for the station's parent company. A notable example often invoked in discussions of early radio is Joseph Conrad's KDKA station. Begun as an amateur hobby (in his garage under the call numbers 8XK), the station transformed into a commercial station in the 1921 when Westinghouse (his employer) asked him to program a station with regular offerings in the hopes of enticing potential listeners to purchase Westinghouse-made receivers.¹³³ Other commercial stations were not always so closely tied to the radio industry and included department stores, banks, newspapers, and theaters.¹³⁴ The commercial model instituted in the early days of the "radio age"—whereby business interests used and produced entertainment content aimed at the public to indirectly promote their company—is far afield of the rest of the business communication technologies outlined above and this project's primary focus on media directed to and employed by a laboring audience. However, radio does help establish how commercial interests were to take part in broadcasting up through the development of television, a process covered at great length and detail by others.¹³⁵ The establishment of radio as a primarily commercial medium becomes relevant to present concerns when we consider that a significant segment of the industrial media sector—that begins in earnest with film—was heavily invested in the production of commercials for television. While the industrial use of broadcasting and film

¹³¹ Hilmes 45

¹³² Hilmes 44-45; Michele Hilmes *Only Connect: A Cultural History of Broadcasting in the United States* Third ed. (Boston: Wadsworth Cengage Learning, 2011).

¹³³ Hilmes 43-45.

¹³⁴ Ibid.

¹³⁵ See, for example, footnote 65.

as public relations and promotion will be treated at length in the next chapter, it is useful to allude to here as a reminder of the diverse ways in which electronic communication technologies became suited to the evolving needs of business. The transition from wireless to radio also provides another example of how industry functions as a key target for the early development and funding of new technologies, and the persistent dream of a communications monopoly.

Screening Business

While many of the above technologies were imagined primarily as logistical and, ideally, system-based-media that could control expanding company operations at a distance at almost instantaneous speeds (“instantaneous” being itself socially constructed, shifting as technologies enabled increasingly faster information exchange)—these uses go on something of a hiatus in the context of film, when the focus of AVBC shifts to publishing and more diverse “audiences,” including the public, school children, and workers of all stripes. What occurs instead is the story of a dedicated group of people trying to establish a cultural production industry to compete with—and, in the most optimistic reports, overtake—the commercial entertainment film industry. While their efforts result in the formation of dozens of trade magazines, professional organizations, and film festivals, their most lasting contribution to the mediated corporation is their alternative vision of the power, purpose, and potential scope of screen images.

The origins of film have been well documented. Proto-cinematic developments—furthered along by the likes of Eadweard Muybridge, Etienne Jules Marey and George Eastman—were often positioned as novelties, with entertainment uses at the forefront of inventor’s promotions.¹³⁶ The invention of cinema proper—as we would come to recognize in its

¹³⁶ On the development of early cinema, see Brian Winston *Technologies of Seeing*. (London: BFI, 2008); Charles Musser, *The Emergence of Cinema: The American Screen to 1907* (Berkeley: University of California Press, 1994); and “Re-Newing Old Technologies: Astonishment, Second

35mm form—is often attributed to W. K. L. Dickson, who developed the kinetograph (camera) and kinetoscope (peep-show viewing device) under the direction of Thomas Edison. Unlike his investments in the phonograph, Edison pursued film as a commercial entertainment device—as would the many other inventors and businessmen who worked on the medium in the U.S. and Europe in the early 1890s.¹³⁷ An explosion of interest in the possibilities of motion pictures led to wide experimentation with different technologies, exhibition practices, and patent lawsuits on both sides of the Atlantic. Throughout this early period, entertainment uses of the medium predominated—from kinetoscope parlors to shorts projected between vaudeville acts—building to the mass (theatrical) medium that coalesced in the silent era.

If the origins of commercial cinema have been well covered by scholars, industrial film has yet to enjoy the same attention. Here, I must turn to my own primary document research into the trade magazines and industrial films of the period—read through a production cultures framework—in order to trace how these dispersed sites of activity attempted to construct AVBC as both a thriving production sector and a professional culture. According to the industry's own self-mythologizing projects, the illustrious honor of first “industrial film” may belong to Dewar's. The origin story is hazy; in 1894—or between 1896 and 1900—the whisky maker projected *Dewar's Its Scotch*, a film featuring Scotchmen dancing the Highland Fling in front of the company's name, on the wall of an office building—or a 40-ft billboard—along

Nature, and the Uncanny in Technology from the Previous Turn-of -the-Century” in *Rethinking Media Change The Aesthetics of Transition* eds. David Thorburn and Henry Jenkins (Cambridge: MIT Press 2003): 39-59.

¹³⁷ Mast and Kavin 13. In fact, one of the reasons that Edison decided against projection in the early development of film was his fear that there would be no way to induce patrons to pay to watch a film. The Lumieres, who patented their multi-fuction cinematograph (camera, processor, projector) in 1884, proved Edison incorrect when they began projecting films for a paying audience.

Broadway.¹³⁸ Although potentially more reminiscent of a television commercial or a pre-show “minute movie” than the narrative and process-based sponsored films that incorporated their sponsor’s name and products within plots of various complexities (see the next chapter), understanding *Dewar’s Its Scotch* as the “first industrial” is nonetheless useful for analyzing how AVBC attempted to position itself within the context of commercial cinema. According to the writers of *Business Screen*, the film was projected by none other than Edwin S. Porter, Edison employee and esteemed pioneer of narrative film techniques (most notably in 1903’s cross-cutting western *The Great Train Robbery*).¹³⁹ Though an auspicious beginning, industrial film would not become a dedicated film production sector for over decade (or two, depending on when one dates Dewar’s entrance).

I have chosen to use the story of International Harvester (IHC) as a case study, since it provides an example of how film worked its way in to industrial operations in the very early 1910s (and the company’s archives, under the care of the Wisconsin Historical Society, are openly accessible and many of their films still exist). One of the first major companies to make sustained use of film as part of their sales operations, International Harvester began selling farm equipment under the name McCormick Harvesting Machine Company in the mid-nineteenth century. There is evidence that the company used popular screen amusements for the benefit of their workers as early as April 1910, and their own venture into the production of films for advertising was not far behind.¹⁴⁰ August of that same year saw the premier of what appears to

¹³⁸ “Early History of Sales Film Dates Implement Company Sales Pix to 1911,” *Business Screen*, 14, no. 4 (1954): 10; “Camera—Action—Sales,” Report to Executives, *Business Week* (May 27, 1939), 38. “The Birth of the Sales Film,” *Business Screen* 1, no. 4. (1938): 17.

¹³⁹ “The Birth of the Sales Film,” 17.

¹⁴⁰ Mary Lathrop Goss, “Dedication of the Deering Works Club House” *The Harvester World*, 1, no. 7, (1910): 25. Steriopticon and vaudeville presentation were part of the dedication.

be IHC's first film, *Romance of the Reaper* (1910).¹⁴¹ The film was developed by IHC's newly established Service Bureau which was designed to distribute educational information about agricultural techniques, scientific farming, and, of course, IHC products. Comprising 5,000 feet of "delightfully instructive" footage of factories and manufacturing operations, the film was part of a larger presentation that included 200 colored slides and a narration performed by IHC employee George Frederick Wheeler who traveled across the country delivering his lecture to schools, colleges, fair goers, farm institutes, corn and poultry shows, teachers institutes, and Chautauquas.¹⁴² A year—or two—after the success of *Romance of the Reaper*, IHC commissioned a stand-alone narrative film for the purposes of advertising their products to the public.¹⁴³ *Back to the Old Farm* (1911 or 1912) follows George Randall, a young city real-estate agent who accepts an invitation to visit the farm he grew up on as a child. The film juxtaposes the grueling manual labor of Randall's remembered childhood with the miracle of modern electric farm machinery that he sees on his visit. The film concludes with Randall's decision to stay on the old farm—which may have as much to do with the machinery as with a moonlit elopement with his childhood sweetheart (romantically tinted sepia).¹⁴⁴ Although the Harvester name was effaced in advertisements for the film, IHC products were the unabashed stars of the modern farming sequences.¹⁴⁵ With the success of *Back to the Old Farm* secured after more than a year of enthusiastic showings, IHC's advertising department permanently installed motion

¹⁴¹ This should not be confused with IHC's 5-reel centennial film under the same name (1931).

¹⁴² Quote from "IHC Service Bureau" *The Harvester World*, 1, no 12 (1910): 5. See also "Keep up the Service" *The Harvester World*, 2 no. 3, (1910): 20.

¹⁴³ See, for examples, *The Harvester World*, 2, no 14 (1911): 2, 6, 17. IHC materials almost always list the date of *Back to the Old Farm* as 1911, though no evidence of the film's distribution exists prior to 1912.

¹⁴⁴ This film can be accessed at the WHS. The original no longer exists, but a 1940s version with an additional intro and a verbal narration preserves the original (if watched without sound).

¹⁴⁵ See, for example: "Four-a-week Essany" advertisement. *The Moving Picture World* 935 vol. 13, 1912; "Photoplays From Essany's: Some Coming Features," 8, no. 5 (1912): 173.

pictures—such as *Making Hay with New Machines* and *Evolution of Harvesting* (both 1913)—as a regular part of their campaigns and customer outreach efforts.¹⁴⁶ Though ground-breaking in some respects, e.g., their choice to embed their products within a narrative film, IHC's production practices can be considered representative of other major companies—such as General Electric and Ford—who had also experimented intermittently with motion pictures in the first decade of the twentieth century but waited until the early mid-1910s to employ them in any significant or sustained way.¹⁴⁷ By the 1920s, International Harvester had developed a fairly formal protocol for the distribution of their sponsored films (that would last until they shifted their attention to circulating training film for the war effort). Upon completion, the films would spend their first year at the company's branch houses so that dealers maintained the privilege of debuting the features at a series of annual events (primarily in the winter, when farm schedules were less busy). In their second year, films were distributed far and wide to schools, civic organizations, and other institutions.¹⁴⁸

Like the Dewar's film, *Back to the Old Farm* claims commercial cinema heritage; as IHC is proud to note, the film was produced by Essanay, the American film studio ensconced in silent film history for its associations with Charlie Chaplin. While the illustrious lineage of *Dewers* and *Reaper* may seem a happy accident, the film's connections with commercial film production indicates the extent to which industrial film made use of pre-existing film industry infrastructure before developing its own dedicated sector. Included in this early history are other storied firms

¹⁴⁶ "A Warning" *The Harvester World*, 3, no. 3 (1912): 17. In a retrospective piece in *Business Screen*, the film is identified as key to the development of a motion picture department within the firm.

¹⁴⁷ See, for example, "Those wonderful First 30 years," *Business Screen* 33 (1973): 19.

¹⁴⁸ *The Harvester World*, an internal magazine, provides a good, though imperfect regarding the distribution practices of the company's salesmen. Although it appears that the company requested audience numbers in exchange for free prints, those numbers have not remained with the collection. Wisconsin Historical Society, McCormick-International Harvester Collection.

such as Vitograph, Universal and Pathé.¹⁴⁹ Even in the case of the pioneering International Harvester, it would be a few years after *Back to the Old Farm* before Frank W. Heiskell, the Assistant Manager of the Advertising Department who oversaw the production of the film, used his experience to found IHC's motion picture department.¹⁵⁰ The remainder of this section thus turns to the development of the key facets of this sector which institutionalized the production and exhibition of industrial film: production studios, distribution outfits and the creation of audiences and users, trade journals, film festivals, professional conferences, and membership organizations. As Michele Hilmes has noted, examining these dispersed sites can help us better account for industrial output and authorship historically; while this chapter is more interested in is the authorship of the sector itself rather than in its varied texts (an analysis that comes later), this methodological point nevertheless stands.¹⁵¹

After these early experiments, the development of the nontheatrical sector proceeded at a frustrating pace—at least for those writing in the trades who hoped to take advantage of the new industry. One of the primary hindrances to robust studio formation was a lack of guaranteed profits due to uncertainties of distribution and available audiences. In part, it was believed that without the organization of stable exhibition spaces under development in the theatrical sector, businessmen were hesitant to enter an untested field.¹⁵² Producers cast their nets widely, creating

¹⁴⁹ In fact, yet another source claims Vitograph's "Adventures of Billiken," created by J. Alexaner Leggett for Monash Sales Company, as the first industrial (placed at around 1909). See "The Pioneer Industrial Film Man," *Educational Film Magazine* 1, no. 1, (1919): 30.

¹⁵⁰ "The Birth of the Sales Film," *Business Screen* 11, no. 4 (1938): 17.

¹⁵¹ Michele Hilmes, "Nailing Mercury: The Problem of Media Industry Historiography" in *Media Industries: History, Theory, and Method*, eds. Alisa Perren and Jennifer Holt. Malden, Mass.: Wiley-Blackwell, 2008: 24.

¹⁵² Dolph Eastman "How Shall We Break the Deadlock," *Educational Film Magazine* 6, no. 4 (1921): 3-4. A similar logic operated within the educational sector, where interested parties, such as the Rockefeller Foundation, believed that the best way to strengthen the sector and encourage higher levels of participation by studios and producers was through creating and increasing

films that straddled generic definitions, such as a film about the production of steel that could be classified as both educational and industrial, so they could be shown to different audiences across a wide variety of institutions, e.g., schools, workplaces, state fairs, civic centers, and churches. As a result, although my focus here rests primarily on AVBC, overlaps between subindustries appeared occasionally in the various sector supports described below. Even with this flexibility, however, distribution circuits were slow in forming.

Not everyone, of course, was motivated by profit. During WWI, the U.S. government, already a keen adopter of moving image technology for military uses and public promotion, hoped films could motivate workers in munitions and equipment factories to achieve higher rates of production. Its Ordnance Department created an Industrial Education Section charged with creating and distributing films “linking worker to warrior” by showing how factory production affected the war effort. Not only did the program reportedly achieve its production goals, it set up a rudimentary exhibition circuit across 3,000 – 4,000 plants, most of which had not been outfitted for projection or affiliated with local theaters before the initiative.¹⁵³ Combined with circuits developed by other interests—the American Red Cross, churches, schools, agricultural state fairs—a set of overlapping exhibition networks began to emerge in the teens and twenties. Likewise, several studios began to identify industrials as part or all of their focus. One of the earliest devoted specifically to business films, Industrial Moving Picture Company, became

audience demand. See Victoria Cain, “‘An Indirect Influence Upon Industry’: Rockefeller Philanthropies and the Development of Educational Film in the United States, 1935-1953.” *Learning with the Lights Off*, 236-236. Likewise, the limited economic promise of educational film production opened space for sponsored film use in classrooms, since the industrial and organizational producers of the films had incentive other than profiting directly from the sale or rental of film. See Orgeron, Orgeron, and Streible, “A History of Learning with the Lights Off,” 44.

¹⁵³ C.H. Moore, “Importance of the Film in Industrial Education,” *Educational Film Magazine*, 1, no. 2 (1919): 30.

Rothacker Film Manufacturing Company in 1916. Burton Homes Films, C.L. Venard Productions, Wilding Productions, Leggett-Gruen Corporation, Altas Film Co., and Films-of-Business also devoted resources to industrial film production in the teens. However, as late as 1921, the industrial and wider non-theatrical press continued to decry the immature state of the field. Their demands:

the bringing together of all those seriously interested in the working out of the problems, laying out a definite and well-considered program, engaging in numerous tests and experiments, formulating standards of production and practice, organizing systems of distribution, evolving methods of exhibition, and placing the entire scheme of visualized education on sound economic basis.¹⁵⁴

In short, they wanted a fully-functioning, profitable sector and what they saw before them did not yet meet the mark. Clearly, the vision of industrial film proponents could be as grand as the electronic communication monopolists that preceded them. What may be more surprising is that the scale of their economic ambitions were not too far from each other either. As Dolph Eastman, editor of *Educational Film Magazine*—one of those boundary-crossing sector supports—proclaims in his inaugural issue,

it is not at all improbable that within a comparatively few years...not thousands but millions of schools, colleges, churches, associations, community centers, clubs, asylums, prisons, hospitals, industrial organizations, and even homes, will have their 'movies'...In gradually attaining this goal we shall be building up a market infinitely greater in extent and in possibilities for industrial exploitation than any existing market for motion pictures. Long before this goal will have been reached the present theatrical market will have been relegated to second place. And although it is conceivable that government may participate in this renaissance of learning, of the arts and sciences, of religion, of the humanities, of a new civilization, in fact the commercial potentialities of such a world-wide market are colossal and stretch beyond our present vision.¹⁵⁵

Here we might pause to consider the scope and purpose of trade journals in the context of media industry “ecosystems.” As Eric Hoyt points out, we must understand the trade press as a

¹⁵⁴ Dolph Eastman, “How Shall We Break the Deadlock,” 4.

¹⁵⁵ Dolph Eastman, “Educational Film Magazine,” *Educational Film Magazine*, 1, no. 1 (1919): 6.

confluence of differently-motivated and sometimes competing actors trying to stake their claim to industry knowledge and oversight: equipment manufacturers, film producers, distributors, exhibitors and competing publishers.¹⁵⁶ In the context of nontheatrical film, I would add sponsors and labs to this list as well, and note that “exhibitors” is far more diverse than in the theatrical sector. In any case, the trade papers, by providing a space where diverse actors could assert their vision for the proper shape and function of AVBC, become an important site of authorship for the growing sector and its professional culture.

As the 1920s progressed, other firms were drawn into this vision of expansive possibilities. In 1921 Harry Levey—“The Griffith of the Industrial Picture”—created National Non-Theatrical Motion Pictures, Inc., a film exchange designed for nontheatrical producers so that they “now have a definite market for their productions and through this organization can realize returns on their negative investment.”¹⁵⁷ Clear from its name, Levey’s company served the wider non-theatrical market; industrial films were often folded into this larger general sector while diverse institutions attempted to secure the viability of educational and informational pictures. Indeed, one of the earliest sources of trade information geared to industrial interests was *Educational Film Magazine (EFM)*, which began publishing soon after WWI’s conclusion lifted restrictions on paper and pulp use.¹⁵⁸ Beginning in 1919, *EFM* targeted the entire non-theatrical sector, with emphasis on film use in educational institutions. Each issue contained a range of special-interest sections grouped loosely around genre or institutional affiliation, e.g., social

¹⁵⁶ Eric Hoyt, “Lenses for Lantern: Data Mining, Visualization, and Excavating Film History’s Neglected Sources,” *Film History* 26.2 (2014): 155-156.

¹⁵⁷ For Levey’s distinguished moniker, see C.H. Moore, “Importance of the Film in Industrial Education,” 30. The quote comes from “Announcement,” *Educational Film Magazine* 5, no. 6 (1921): np; see also page 11 of the same issue.

¹⁵⁸ Dolph Eastman, “Our First Anniversary—and our Future,” *Educational Film Magazine* 3, no. 5 (1920): 5.

welfare, agriculture, The Red Cross, governmental, religious, or travel-scenic. Among these, and often placed last, was “Industrial”—“devoted to the interests of executives, department Heads, advertising managers, and sales managers of industrial concerns.”¹⁵⁹ Yet another key actor in the development of non-theatrical distribution circuits was the Bureau of Commercial Economics (*BCE*), a nongovernmental organization that collected and circulated film prints donated by business, manufacturing, newsreel outfits, churches, civic groups, government and trade associations.¹⁶⁰ According to its founder, the *BCE* audience reached 34 million people in 1920. As these sector supports grew stronger, so did the production studios. While entertainment outfits like Universal and Paramount continued to create films for businesses, the 1920s also saw more New York and Chicago-based studios, including Caravel Films, William J. Ganz, Harry Levey Service Corporation, and the Chicago Film Laboratory add their names to the industrial film roster.

The industrial sector news items sandwiched together in a single issue of *EFM* suggests the diversity of industrial film production in this period: a statement on the success of public screenings by nautical companies at the New York Marine Exposition begins a column that includes reports on instructional films about high-tension magnets, the cherry industry, and sanitation in dairy farming; an announcement of a US Department of Labor film “When Women Work” sits atop a notice for salesman training films within the Rexall Drug Company; and an announcement of an annual road school sponsored by the Wisconsin Highway Commission precedes a call to industrial film producers to consider the significant potential of the Chinese

¹⁵⁹ “Industrial Section” *Educational Film Magazine* 1, no. 1 (1919): 29.

¹⁶⁰ Sean Savage, “The Eye Beholds: Silent Era Industrial Films and the bureau of Commercial Economics,” master’s thesis, New York University, 2006. See also Orgeron, Orgeron, and Streible, “A History of Learning with the Lights Off,” 54.

market for American manufactured goods that could be opened up by the medium of film.¹⁶¹

This activity in the 1920s continued through the following decades, and, boosted by diverse government demand during WWII, developed into a mature sector in the late 1940s and 1950s.

The most notable milestone for AVBC in the 1930s may be the introduction of *Business Screen* in 1938. A trade journal dedicated solely to industry, *Business Screen* would serve as a central source of shared knowledge, information exchange, and intelligence gathering for AVBC for the next three and a half decades.¹⁶² Ott H. Coelin, the journal's founder and long-time editor, also served as the Vice President for a magazine calibrated to K-12 education, *See and Hear: The Journal on Audio-Visual Learning*—yet another indication of the overlaps between industrial and other non-theatrical sectors.¹⁶³ *Business Screen* published its first volume for a growth industry. Almost thirty production studios—still focused in New York and Chicago, but with a few representatives in Hollywood and Detroit—appeared in advertisements and feature stories in its first six issues. The journal focused much of its early years on successful film campaigns through articles including “Technicolor Tells the Story of Steel,” “Food and Films: How Motion Pictures & Slidefilms Serve this Basic American Industry,” and “The World Fairs’ Best Salesman.”¹⁶⁴ *Business Screen* also provided ample advice for readers in the form of pieces

¹⁶¹ “Industrial Film Notes,” *Educational Film Magazine* 5, no. 3 (1921): 25-26.

¹⁶² Under different names, i.e., *Business and Home TV Screen*, *Computer Pictures*, the journal actually ran until 1995. However, its keen relevance to the industrial film sector can be dated up through the 1970s and its first name change (1978), which closely coincided with a decrease in publication rate.

¹⁶³ Coelin also founded the American Archives of the Factual Film at Iowa State University of Science and Technology in 1974, a large collection of non-theatrical business and educational 16mm films. The collection was later absorbed by the Library of Congress due to budgetary constraints that challenged the University's ability to care for its more than 25,000 films. For more on the appeal of (often free to rent) sponsored films as classroom films, see Orgeron, Orgeron, and Streible, “A History of Learning with the Lights Off,” 45.

¹⁶⁴ “Technicolor,” *Business Screen* 1, no. 1 (1938): 20-21; “Food,” *Business Screen* 2, no. 3 (1940): 11-16; “Fair,” *Business Screen* 1, no. 8 (1939): 17-18.

such as “Visualize your Markets” and “The ABC’s of Business Film Making.”¹⁶⁵ Even in its first few volumes, the journal spent significant energy historicizing and legitimizing the field through articles like “General Electric: A Visual Pioneer,” “Were these the first Advertising Films?” and “The Birth of the Sales Film,” that sought the origins of industrial film, and which I cited at the beginning of this section.¹⁶⁶ Reviews of current releases and new equipment, letters to the editor, news briefs, and advertisements comprised the rest of *Business Screen*’s early content. Although not yet the instrument of information gathering and field coordination for AVBC it would become in the late forties and beyond, *Business Screen* nevertheless marked the beginning of the field’s maturation by providing a reliable site for communication, theorization, promotion, and economic exchange.

As with the First World War, the government’s need for massive coordination of resources, workers, soldiers, and cooperative citizens facilitated the strengthening of industrial networks of communication. Kirsten Ostherr, in her work on health films, identifies the “mass-mediated social experience” of World War II propaganda films as the catalyst for the formation of a reliable audience for “educational” non-theatrical film.¹⁶⁷ It was also the war that scraped away the last suspicions linked to the medium’s early low-culture status by proving the efficacy of film as a “technology of national betterment” that could win wars and improve global living standards.¹⁶⁸ In addition to the creation of a ready and willing audience, government and military

¹⁶⁵ “Markets” *Business Screen* 2, no. 4 (1940): 11; “ABCs” 1, no. 4 (1938): 13, 28.

¹⁶⁶ “Pioneer” *Business Screen* 1, no. 5 (1939) 17, 42; “The First?” *Business Screen* 1, no. 8 (1939): 20; “The Birth of the Sales Film,” 17.

¹⁶⁷ Kirsten Ostherr, “Health Films, Cold War, and the Production of Patriotic Audiences: *The Body Fights Bacteria* (1948),” in *Useful Cinema*, eds. Charles Acland and Haidee Wasson (Durham NC: Duke University Press, 2011) 104. See also Orgeron, Orgeron, and Streible. “The History of Learning with the Lights Off,” 41, where the authors show how WWII “brought not only respectability to the educational motion picture but a testing ground for efficiency.”

¹⁶⁸ Ibid, 107.

initiatives during wartime generated and solidified networks of 16mm film use. Gregory Waller's research shows how the use of 16mm film—the dominant non-theatrical gauge—rose sharply in the early 1940s, both for the overseas training and entertainment of troops and for indoctrination in schools, churches, and factories on the domestic front. Underpinning the thousands of screenings for domestic audiences was a loosely coordinated system of distribution and exhibition, whereby state agencies called on owners of 16mm projectors—whether individuals or institutions—to lend their machines to local screenings supporting Treasury Drives and other initiatives. This wholesale mobilization of screening resources drew together projectors, prints, and exhibition spaces that would be vital to the continuing success of the non-theatrical sector.¹⁶⁹ However, while the war may have been a boon to distribution networks, it was not as kind to production—of industrial films or projection equipment. According to Ott Coelin in an editorial discussing the industrial film sector's response to the wartime needs of 1942, "100%" of producer's efforts were redirected from advertising films to war films—as per the request of the War Production Board.¹⁷⁰ Given these and other restrictions, the early 1940s were lean years for many in the industry. The "visual dealer," for example, who sold equipment and film, was "hard hit by wartime drains on stock and personnel," but "served the nation well" through the distribution of government and wartime films and the maintenance of pre-existing projection equipment.¹⁷¹ While much more can be written on the precise effects of the war on the formation of AVBC, these few broad arcs are clear. As a result of wartime conditions, despite the enthusiasm of the government and its audience, it was not until the immediate post-war period of reconversion that the U.S. saw the full manifestation of sector supports, including film

¹⁶⁹ Gregory A. Waller, "Projecting the Promise of 16mm, 1935 – 45," *Useful Cinema*. Charles R. Acland and Haidee Wasson, eds. Durham: Duke University Press (2011): 135-137.

¹⁷⁰ Editorial, *Business Screen* 4, no. 6 (1942): 6.

¹⁷¹ "News of the Associations" *Business Screen* 5 no. 4 (1943): 36.

festivals and awards, professional organizations and their conferences, and systematic surveys of the field and other intelligence gathering operations.

Prior to the development of dedicated film festivals, industrial films were represented occasionally on the ballots of young international festivals. *Business Screen* begins following festival news in 1947, paying closest attention to the (documentary) International Film Festival in Edinburgh and the International Exhibit of Cinematographic Arts in Venice. By 1950, the journal encouraged their readers to participate, providing information regarding submissions processes and how to decide which of the two festivals is most appropriate for their productions.¹⁷² In some instances, pictures competed in educational or industrial categories in more general festivals; the 1947 Films of the World Festival, for example, awarded *Clean Waters*—which linked public health concerns to the dangers of pollution—the top honor in its Industrial-Sponsored program unit.¹⁷³ In 1949, the Cleveland Film Festival became the first widely reported festival dedicated to educational and industrial films. Initiated as a small experiment by the Cleveland Film Council, the first festival screened safety and training films, labor films, religious films, and educational films designed for children and adults to an over-capacity audience that tripled their expected attendance of 200 people.¹⁷⁴ Upon its initial success, the festival became a highly anticipated annual event that incorporated “Oscars” (always printed in quotation marks) for the best entries.¹⁷⁵ Other dedicated festivals followed close behind. The Stanford Film Council and the Ferguson Library began an educational film festival in 1950, and

¹⁷² Irene A. Wright, “Government’s Interest in Film Festivals,” *Business Screen* 11, no. 8 (1950): 8, 10.

¹⁷³ “14 Festival Awards to Sponsored Pictures,” *Business Screen* 8, no. 8 (1947): 25.

¹⁷⁴ “Cleveland’s Festival Surprise Hit,” *Business Screen* 5, no. 9 (1948): 8, 48.

¹⁷⁵ “Highlights of Cleveland’s recent Second Annual Film Festival” *Business Screen* 10, no. 5 (1949): 28A.

Boston and Toledo both began annual festivals in 1951.¹⁷⁶ International industrial film festivals developed a few years later. One of the largest, the still-in-operation International Advertising Film Festival sponsored by International Screen Advertising Services began in Venice in 1954; it would later move to France, its current home, where it was renamed the Cannes Lions International Festival of Creativity. Other festivals, such as the Belgian Ministry of Labor's 1959 International Industrial and Labor Film Festival in Antwerp carved out more specific niches in the growing festival market. Towards the end of the decade, high festival activity led to the 1957 creation of the Committee on International Non-theatrical Events (CINE), a coordinating agency designed to help American outfits submit to international festivals. As part of this mission, CINE awarded top films "Golden Eagles"—still being distributed today—to provide prestige to American entries. As demonstrated by CINE and its festival companions, what began in isolated pockets in the late 1940s matured a wide-scale sector support within a decade.

The accelerated growth of film festivals following World War II was tied directly to one of the persistent concerns of the nontheatrical sector—distribution. Given the heterogeneity of audiences and outlets outside of the theatrical circuit, filmmakers sought every advantage that could help market their film products or their production services. According to Irene A. Wright, Attestation Officer of the U.S. Department of State and Chairwoman of the Committee on Audio and Visual Materials under President Truman, although film producers enjoyed the prestige awarded by participation in international film festivals, it was the "public relations" possibilities—the networking and foreign press marketing that could open up international

¹⁷⁶ "Ferguson Library Extends Civic Film interest in Stanford, Conn." *Business Screen* 11, no. 5 (1950):10; "Toledo Chamber of Commerce to Sponsor Business Film Festival" *Business Screen* 13, no. 7 (1952): 4; "Boston Holds First Annual Film Festival" *Business Screen* 12, no.4 (1951): 24.

distribution markets—that held the most value for participants.¹⁷⁷ This period also saw rapid growth in 16mm film libraries that handled educational film and, as a subgenre, industrials, quadrupling in number from 1949-1959.¹⁷⁸ Much like the other sector supports that developed in this era, film festivals and awards helped solidify industrial film as a functioning business sector, particularly in terms of distribution. Other supports similarly helped establish spaces for common trade practices and rituals dedicated to alternative filmmaking.

One of these was the growth in professional trade organizations and conferences in the 1940s and beyond. As John Caldwell has demonstrated with regards to contemporary commercial media industries, trade spaces and rituals provide “contact zones” that “help the industry create a sense of willed affinity among disparate affiliates: a common symbolic identity that keeps the largely imaginary concept of a unitary industry intact.”¹⁷⁹ The value of this common identity lies in its ability to foster consensus and trust, smoothing relations in an otherwise highly risky, unstable industry. Furthermore, though Caldwell’s concerns lie with the current commercial sector, the qualities of the early industrial sector—wildly heterogeneous, geographically dispersed—meant its need for these types of consensus and identity-forming rituals was considerable. In short, the same mechanisms that sustain a highly risky but mature industry are perhaps just as likely to emerge in the highly unstable environment of fledgling sector development. We might consider, for example, the difficulties filmmakers incurred securing reliable distribution and the effect this had on the willingness of producers to enter unproven submarkets or create films within certain genres—a chicken and egg situation that

¹⁷⁷ Irene A. Wright, “Government’s Interest in Film Festivals,” 10.

¹⁷⁸ This point is demonstrated in Orgeron, Orgeron, and Streible, “A History of Learning with the Lights Off” 48.

¹⁷⁹ John Thornton Caldwell, *Production Culture: Industrial Reflexivity and Critical Practice in Film and Television* (Durham: Duke University Press, 2008): 70.

needed one party to commit to industrial film (either as its users or producers) in order to escape the deadlock created by hesitant filmmakers and unsure users. The “confidence and solidarity” that trade events attempt to engender in the diverse agents in attendance thus becomes vital to securing all parties’ faith—and thus participation—in the continued operation of the sector, a process that may be even more important in new industries than established ones.¹⁸⁰

Although industrial film’s major trade associations were formed at least a decade before film festivals became major facets of the industry, lean wartime years prevented their growth and stabilization prior to the late 1940s and early 1950s. One of the earliest associations to include industrial players shared interests with those in the educational sector. Though late in terms of education sector supports, the National Association of Visual Education Dealers (NAVED) was almost unique in the industrial sector when it was founded in 1939.¹⁸¹ Efforts to conduct major gatherings were stymied by war restrictions that included regulations on travel, resulting in their first large (non-regional) convention being held years after their formation, in 1946.¹⁸² Centered in Chicago like much of the rest of the industry, NAVED’s conferences mainly featured panels about the state of the field, and, in 1946 and beyond, exhibits by a range of sponsors—equipment dealers, producers, and labs—showcasing their products to potential clients.¹⁸³ Their first combined conference and trade show—reportedly enjoyed by 891 participants from 27 states and

¹⁸⁰ Ibid., 89.

¹⁸¹ Several organizations preceded NAVED on the educational side: the National Academy for Visual Instruction, American Educational Motion Picture Association, Society for Visual Education, the National Academy of Visual Instruction, the Visual Instruction Association of America, and the National Education Association Department of Visual Instruction all got their start in the late teens and early twenties. For more on the development of the sector supports in the education sector, see Orgeron, Orgeron, and Streible, “A History of Learning with the Lights Off,” 3-66. Trade information from page 27.

¹⁸² “The Fifth Midwest Forum” *Business Screen* 3, no. 2 (1943): 41.

¹⁸³ Wm. F. Kruse, “Audio Visual Trade Review,” *Educational Screen*, September (1949): 328-29.

6 countries—including forums on dealer-manufacturer relationships, dealer publicity, new equipment, the standardization of 16mm projection services, and running efficient film libraries.¹⁸⁴ Just a few years earlier, NAVED offered further support to the burgeoning industrial and (somewhat more established) educational sectors by offering print damage insurance to borrowers from circulating film libraries.¹⁸⁵ In 1949, NAVED partnered with another trade association, the Allied Non-Theatrical Film Association (ANFA) to hold a late-summer joint conference, again in the Windy City. Although educators were concerned that the affiliation with ANFA—also formed in 1939, but with the primary goals of combating piracy, ensuring favorable legislation, and working more closely with the commercial sector—would overwhelm educators’ interests with more industrial concerns, the meeting was declared a success and attendees voted to combine their efforts under the new acronym NAVA (National Audio Visual Association).¹⁸⁶ Though the organization would undergo a number of name changes throughout its long life, it persists today as “the association representing the commercial audiovisual industry worldwide.”¹⁸⁷

Yet another key trade association for AVBC was the Industrial Audio-Visual Association (IAVA), an organization wherein membership was designated by company rather than by individual. Lead in its early years by employees of industrial giants such as Swift and Company, Kraft Food Company, General Motors, Santa Fe Lines, and Standard Oil Company, IAVA began

¹⁸⁴ “National Visual Dealers Convention and Trade Show” *Business Screen* 7, no. 6 (1946): 28-29.

¹⁸⁵ “NAVED Insures Films” *Business Screen* 4, no. 8 (1944): 26.

¹⁸⁶ Wm. F. Kruse, “Audio Visual Trade Review” *Educational Screen* (Sept 1949): 328; “NAVED” *Educational Screen* (Sept 1949): 294, 330.

¹⁸⁷ “About Us” [infocomm.org](http://www.infocomm.org/cps/rde/xchg/infocomm/hs.xsl/21960.htm) <http://www.infocomm.org/cps/rde/xchg/infocomm/hs.xsl/21960.htm>, accessed September 22, 2013. NAVA changed its name to the International Communications Industry Association in 1983 and then to InfoComm International (the name it had already given its yearly conference) in 2005.

holding its first annual meetings in 1947.¹⁸⁸ Like the early conferences of NAVED, their meetings featured both panel discussions and demonstrations of new equipment, albeit in terms far more targeted to the specific needs of industrial filmmakers. For example, in their fourth annual meeting, the main event was an extensive simulation exercise that recalls the cohesion-inducing function of the special events (bake-offs, shoot-outs, and others) of contemporary trade shows. In the 1950 version of this trade conference ritual, all conference participants were given a scenario relating to a “mythical corporation” “facing losses in prestige and profits.” The “corporation officials and advisors” were charged with studying multiple facets of their operations, and seeking solutions using visual tools to improve relations with employees, customers, stockholders, and dealers.¹⁸⁹ IAVA also featured social and ritualistic events, such as luncheons and dinners, tours, new member inductions, and votes on leadership that enabled members to confirm alliances and build the trust that could facilitate the ongoing development of AVBC across diverse and far-flung interests.

In addition to these conferences and associations, the immediate post-war years saw the increasing use of knowledge-gathering mechanisms such as surveys and yearly reviews that attempted to stabilize information and communication flows within the sector. Within the educational film sector, overlapping with industrial media in regard to certain texts, audiences, and exhibition practices, scholars estimate organizations and government agencies produced thousands of catalogs and directories targeted towards teachers and schools. As Orgeron, Orgeron, and Streible point out, these resources were necessary to make films accessible to teachers, both in terms of providing information on availability and content as well as—and

¹⁸⁸ “Industrial Audio-Visual Association Holds Annual Meeting” *Business Screen* 9, no. 2 (1948): 19.

¹⁸⁹ “Industrial Audio-Visual Association Elects Board” *Business Screen* 11, no. 2 (1950): 28.

perhaps more importantly—offering pedagogical advice as to how to best incorporate movies as teaching tools into traditional lessons.¹⁹⁰ Within the industrial sector more narrowly, *Business Screen* published several annual reviews for their readership at different points in the magazine's run. As examples, their National Survey of Film Production Resources in the U.S. and Canada included extensive coverage of production companies and labs by geographical location, experience, services, facilities, recent productions and clients while their Annual Review of Equipment featured technical and pricing details for products distributed by major equipment manufacturers.¹⁹¹ In addition to these more traditional informational resources concerning production studios, equipment, and film indexes—which also appeared outside of the annual reviews in smaller, semi-regular installments—*Business Screen* published regular features under the titles “Business Screen Executive” and “Men Who Make Pictures” that detailed labor and managerial shifts in the industry through short profiles that detailed featured workers' labor history, expertise, and future plans. By defining achievement, demarcating specific paths to success, and making geographically dispersed individuals “known” to each other, these profiles helped strengthen the “imagined community” of AVBC workers.¹⁹² Combined, these sources not only served as marketing for the companies and individuals involved, they foster stability in the sector by establishing a community based on trust and relatively open circuits of information exchange.¹⁹³

¹⁹⁰ Orgeron, Orgeron, and Streible, “A History of Learning with the Lights Off,” 40.

¹⁹¹ See, for example, “1955 Audio-Visual Projection, Tape Recording and Related Equipment including Projection Screens and Film Handling Accessories” *Business Screen* 15, no. 8 (1955): 1A-22A.

¹⁹² Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism*.

¹⁹³ check bus hists I've written, there has to be something about the nature of information.

These types of informational resources also serve a governing function, policing the behavior of those who hope to be included in the informational community. Such a double movement is clearly evident in the introduction to the 1951 *Business Screen* production review. Exclaiming “Take note, Hollywood,” the piece both celebrates the state of the industry as a mostly accomplished fact—technically sophisticated, finically responsible, prolific—at the same time it exhibits anxiety over possible future accomplishments. Using a metaphor of plant life (and not the industrial kind), the article links participation in community standards and practices with the increasing strength of the overall sector; on the one hand, “the tiny seed of professional status...becomes a sturdy, growing plant as the membership of the Industrial Audio-Visual Association steady increases,” while on the other, “The ‘weeding out’ of those who infest the fringes of this growing and fruitful field of endeavor [by refusing to include them in informational campaigns] is an editorial responsibility and an unquestioned service both to the sponsor and to the qualified producer.”¹⁹⁴ These policing efforts become even more visible in the article when *Business Screen* also attempts to push less-established producers away from the fatted calf of government contracts, presumably to protect vested interests (and the major sponsors of the magazine):

*It is most certainly evident from this Review that there is no need to set up new production resources, duplicating scarce technical personnel, for any national government production purpose, with all these concerns available to lend their experience, physical plants, and proven security reputations to the needs of our country in either war or peacetime. [emphasis in original]*¹⁹⁵

Likewise, embedded within the article’s celebration of the business media sector’s rising “‘industry’ stature” is “A Check-List for Producer and Sponsor Responsibility in the Production

¹⁹⁴ Sub-Committee on Sponsor-Producer Responsibilities of the Films Committee of the Association of National Advertisers, “A Check-List for Producer and Sponsor Responsibility in the Production of Motion Pictures,” *Business Screen* 12, no. 2 (1951): 25.

¹⁹⁵ *Ibid.*, 27, emphasis in original.

of Motion Pictures,” a roughly 60-item list delineating the proper roles of film producers and their film sponsor counterparts. Created by the Sub-Committee on Sponsor-Producer Responsibilities of the Films Committee of the Association of National Advertisers, the list covers five phases of the film production process (planning, script, production, prints, and distribution), contrasting the responsibilities of the producer, e.g., “Study Sponsor’s Problems” and “Arrange Approval Showings at Designated Intervals,” with the “proper” work of the sponsor, e.g., “Adopt Reasonable Schedules and Deadlines” and “Arrange for good projection.”¹⁹⁶ Such a list—attached as it is to the annual review’s laudatory preamble on the accomplishments of the industry—suggests to the reader that both individual and sector success hinges on participation in community standards. Taken as a whole, the collection and distribution of sector-specific knowledge can be understood as fulfilling multiple stabilizing functions in the development of the sub-industry: making business communication more accessible, providing contact details for individuals and institutions, marketing members, establishing a community of laborers, promoting standards, and policing participant behavior.

(Televisual, Cultural, Professional) Networks as System Communications

In contrast to the examples of business communication technologies that began this chapter, much of above discussion of film addresses the content publishing side of the industry rather than the development of the equipment itself. In part, this is due to the early development of cinema as an entertainment medium rather than an industrial technology; as I have noted, it was not until the teens—almost two decades after film’s invention—that it was seen as a viable business tool. Furthermore, a shift in content (or its intended uses) rather than a shift in technology led to the take-up of film by business interests. AVBC’s focus on publishing and the

¹⁹⁶ Ibid., 26.

importance of sector supports created a template for the corporate television subindustry that would get its start in the late 1960s and early 1970s. In order to promote the development of television within the corporation—and build their own professional identity and production culture—media professionals situated television as the convergence of industrial film sector’s focus on textual production, distribution, and exhibition with the logistical control capabilities of earlier technologies (e.g., the telegraph). While production cultures scholarship has addressed the ways in which professionals work on their identities and authorship to create surplus value for media industries, here I am interested in how professionals worked over the very idea of communication in order to claim value for their employers.¹⁹⁷ I am less interested in specific texts (again, which come later), but in the development of a way of thinking about and with media that made those texts and their uses possible.

The promotion of television for business did not come quickly to the industrial film sector supports mentioned above. Often figured as an extension of broadcast radio, most early discussions of television understand it not as a tool for internal industrial communication, but as a commercial medium for reaching the public. The potential disruptive force of the new medium on the developing industrial film sector was diffused through articles that oscillated between positioning the “ballyhoo” around television as overly eager—suggesting television should be considered a viable but “‘future’ interest”—and by painting the new medium as one with a big problem (not enough content) that only business film could solve.¹⁹⁸ Even RCA, which had a

¹⁹⁷ See, for example, Vicki Mayer, *Below the Line: Producers and Production Studies in the New Television Economy*. Durham: Duke University Press, 2011 and Derek Johnson, *Media Franchising: Creative License and Collaboration in the Culture Industries*. New York: New York University Press, 2013.

¹⁹⁸ “Camera Eye” *Business Screen* 1, no. 6 (1939): 10; “Technical Production, Projection, Equipment, Development” *Business Screen* 1, no. 6 (1939): 27. Another major problem that helped diffuse the threat of television was qualified staffing shortages. In “Chicagoans Take to

clear stake in the proliferation of television technology, promoted its product as a commercial medium for the home. Evidence of this stance appeared in a 1947 two-page spread that toured RCA's audio-visual communication facilities for the readers of *Business Screen*. Throughout the company's lavish facilities, which even included a local broadcasting system linking 19 buildings over 92 acres, television appeared only once, in a small mock living room space—complete with flowing drapes and an ambitious mid-century wallpaper—designed for the limited purpose of showing “video programs” and holding sales merchandising meetings. Rather than promote television for meetings and trainings, the technology was articulated to the feminine domestic sphere through the architecture the firm built to house it, its promoted uses, and the inclusion of an all-female audience in its depiction. Although the technical limitations of television for large audiences might suggest itself as the reason 16mm was the gold standard in all of RCA's other screening facilities, this was the same year RCA introduced its “Large Screen Theatre Television” which magnified a 15 inch screen to 18 x 24 feet.¹⁹⁹ Furthermore, boardroom areas, which held only a limited number of participants, could easily be served by a television's small screen. The narrow range of uses and audiences for television in this instance thus suggests the persistence of larger cultural frameworks promoted by the industry for understanding the relationship of “television”—a feminine, commercial, and domestic broadcast medium operating as an extension of radio—to film—a versatile technology, often used as a masculinized instrument of labor, that could operate as effectively on the sales desk as it could to train employees. These divisions between film and television—at least as they were constructed

Television: A Progress Report on Telecasting in the Midwest,” authors discuss the limited base of skilled technicians for local station and the attendant value of cooperation through training initiatives for *everyone* in the audio-visual industry; stronger television operations mean more opportunities for business film producers to exhibit their product. *Business Screen* 8, no. 8 (1947): 18-21, 32.

¹⁹⁹ “Large Screen Theatre Television” *Business Screen* 8, no. 7 (1947): 41.

within sector supports—would continue for some time, as film professionals attempted to protect their industry in the face of competition from newcomers and new technologies.

AVBC's engagement with television proper began largely as fairly isolated in-house systems for some of the country's largest firms. The very first entrants to the field used the two-inch tape that quickly became the broadcast standard after Ampex introduced it in 1956. Although fit for network operations, however, the large format tape still presented difficulties for institutional use. According to Dick Van Deusen, who worked at Prudential throughout the development of television, without smaller formats and dramatically expensive playback machines, the company "had no easy way of getting [tape] distributed."²⁰⁰ Instead, they used tape to record and edit and then—like the broadcast industry itself—used 16mm film kinescopes to distribute audiovisual materials throughout the company. When developments in tape technology led to cheaper, easier-to-use smaller format tape in the second half of the 1960s, business (as well as schools, government agencies, and other institutional users) began experimenting in earnest with the new medium.²⁰¹ From there, use expanded exponentially, not least due to the development of cartridges and cassettes. Between 1973 and 1977, the "private television industry" doubled until it included over 700 business and non-profits.²⁰² According to one study, 75 private networks—defined by the study as "six or more locations away from the

²⁰⁰ Interview with the author.

²⁰¹ According to one of my interviewees who worked at Prudential during the rise of corporate television, that company—one of the first in the field—used 2-inch broadcast-quality tape (as did other early entrants did when nothing else was available). Without smaller formats and dramatically expensive playback machine, however, the company "had no easy way of getting it distributed." Instead, they used tape to record and edit and then—like the broadcast industry itself—used 16mm film kinescopes to distribute audiovisual materials throughout the company.

²⁰² For broad (and brief) overviews on the early development of institutional video, see John A. Bunyan, James C. Crimmins, and N. Kyri Watson, *Practical Video: The Manager's Guide to Applications* (White Plains, N.Y.: Knowledge Industry Publications, Inc.): 1-8. This publisher in particular was singled out by one of my interviewees for its targeted publications relevant to corporate communications.

main office receiving programs”—were in operation as of 1978. These included some of the country’s largest companies: Ford, Xerox, Pepsi, Coca Cola, Merrill Lynch, various insurance companies, and Burroughs.²⁰³ Given the heterogeneity of the private television industry in these growth years, I have chosen a case study that examines how one of the most powerful, resource-rich, and communication savvy American companies understood the promise of television and organized itself to make use of the new medium. No stranger to sponsored and industrial film—or system communications, for that matter—my chosen company is AT&T.

According to John Sheahan, a writer/director for AT&T’s television unit and archival corporate documents from the television operations files, the company first became curious about the affordances of closed circuit television systems “as an effective manner of training and informing employees” in 1963.²⁰⁴ While these sources provide a good sense of the progression of television within the firm, more helpfully, perhaps, they show how those within television operations attempted to promote the value of television and their profession to their corporate employers. I trace both of these threads below. While some experimentation across the Bell system occurred in the early 1960s, this interest crystallized in a Closed Circuit Television Committee in 1965 that traced the status and early successes of television in the company. Their conference report provided suggestions to AT&T member companies that had not yet developed television as to how they might design and make use of systems in the future. The report’s list of suggested uses was extensive and in some instances invoked the part of the company that would benefit (in parenthesis):

SUGGESTED USES FOR CLOSED-CIRCUIT TELEVISION – INTERNAL USE

- Training programs for all departments and all levels of employees

²⁰³ Citation of study mentioned in Practical video (11).

²⁰⁴ “Earliest Ref. to TV” c1966, 1. John Sheahan Personal Papers (JSP), lent to the author.

- Procedures for handling toll reports (Traffic)
- Service representatives training on billing, collections, etc.
- Transmission maintenance (Engineering)
- Coin telephone training (Marketing)
- Handling and loading computer tapes (Accounting)
- Use and care of tools (Plant)
- Yellow page sales technique
- Safe operation of heavy construction equipment (Plant)
- Review of floor care maintenance (Building Service)
- Introduction of new products and service information (Marketing)
- General employee information and announcements
- Policy and organizational announcements (Executive)
- Special events requiring live, on-the-spot recordings (All Depts.)
- Personal evaluation for employee and executives appearing before outside groups and on television (Marketing – Speakers, Trainers)
- Introduction of Departmental practices and interpretations [sic] (All Depts.)
- Public Relations Programs and proposed film projects – script readings
- Trend Reports
- Budget Reviews
- Review of Annual Meeting and status reports
- Press releases
- Special Safety messages (Medical Dept., etc.)
- Regional meetings, (All Depts.)
- Tariff changes (Marketing)
- General information of extreme importance to the business (Garlinghouse-Scanlon Report)
- Multi-location meetings
- Presentations of special programs.²⁰⁵

I return to these uses below. The report also indicated priorities for forthcoming research (e.g., budget allocations, equipment, and “labor relations aspects”).²⁰⁶ Because of AT&T’s size and unique structure (comprising Bell Labs, Long Lines, Western Electric, and its many associated companies that provided local exchanges across the country), it was imperative that the development of television be somewhat centralized, since lack of standards could present significant problems for distribution. As such, the report also established that a studio would be constructed at AT&T headquarters “for the purpose of experimenting with and evaluating new

²⁰⁵ “Earliest Ref. to TV,” 4.

²⁰⁶ “Earliest Ref. to TV,” 3.

equipment and studying the problems of producing and distributing video tapes and closed circuit programs.”²⁰⁷ The conference also established that Public Relations Departments would oversee the development of television within each associated company, which would have lasting effects on the shape, size, and health of television operations. According to internal documents, PR was chosen as the home for television in order to avoid redundancy in talent in facilities for the production of audiovisuals. It was also in PR that the interest in television originated. In a little over ten years, AT&T and its associates could boast over 70 TV facilities across the country with an annual output of over 3,000 live and taped projects.²⁰⁸

The rapid expansion of television at AT&T may have been facilitated by its corporate characteristics, a couple of them unique. First and foremost, AT&T, by virtue of its Long Lines business, had open access to a distribution mechanism that spanned the country, allowing for live, simultaneous “broadcasts.” According to Sheahan, the company made use of its Long Lines network when they were not being used by the television networks—conveniently, of course, during working hours.²⁰⁹ Furthermore, not only did AT&T own the infrastructure for networking, its promoters within the company used AT&T’s own corporate identity to argue for its expansion and its development as a “system”

Luckily, such a broad concept of media responsibility is not new to our business. We have long believed in ‘end to end responsibility’ regarding the nationwide telephone network to avoid duplication, insure compatibility and maintain a coordinated growth for the best communications service to all. That same principal was applied to this television communications system within the company. It was to be a corporate resource that’s planned and managed as such.²¹⁰

²⁰⁷ “Industrial TV in the Bell System (Early History),” c1976, 2-3. JSP.

²⁰⁸ Paul Lowry, Speech given to NAB-ITVA conference (D.C.) on the theme, “Industrial Television – An Awakening Giant” Washington D.C., c1975, 5. JSP.

²⁰⁹ Interview with the author. John Sheahan, Producer, AT&T and Johnson and Johnson, University of Wisconsin Madison, October 25, 2014.

²¹⁰ Paul W. Lowry “Where Television Belongs within the Corporate Structure” Speech given at NITA Conference, NYC (Oct. 13, 1976): 6. JSP.

Although an extreme case, AT&T's focus on the "network" as an ideal scaffold for developing system communications would reoccur both throughout the company's own history, e.g., with the coming of internet communications, and across the industrial television sector. Although this terminology became prevalent with the development of videotape cassette distribution, I discuss these "narrowcast networks" in depth in chapter five when I turn to satellite communications. In the context of the current chapter, we might best understand the focus on networking as a renewal of the earlier AVBC focus on transmission systems of communication as control over expansive empires.

As mentioned above, the positioning of television within PR also guaranteed the fledgling project more resources than it would have likely received had it been placed elsewhere, e.g., in training and education, where budgets are more sensitive to the ups and downs of the market.²¹¹ From 1968-1975, AT&T spent \$2 million to create two major studios in New York and New Jersey. Over the next two years, they invested another \$1.1 million in an additional studio at Basking Ridge and a distribution system. After figuring in the costs of modernization and replaced equipment, AT&T had spent about \$4 million on television by 1980 (about \$11.5 million in 2014 dollars), a figure that does not include the costs of associated companies' facilities.²¹² As part of the institutionalization of television within PR, the company also experimented with staffing, their training, and organization. Internal documents suggested a staff

²¹¹ Interviews with producers across several different companies indicates that the placement of television—which might be in public relations, human relations, education, training, or elsewhere—significantly impacts how it is understood within the company and how it is funded. From my very small and non-representative sample size, it does appear that television under PR departments tended to be the best funded.

²¹² Bob Quickstad, quoted in "AT&T Corporate Television," annotated script, c1979, JSP. The video was the first in a series of "video reports...concerning the future of management of television in the Bell system" (1).

of seven would be sufficient to run a mid-size studio (a TV Administrator, Program Director, Engineering Director, three Production Assistants (two cameramen and a technician), and a Secretary (also the receptionist, script and teleprompter typist, and record clerk).²¹³ While “commercial studio experience” was desirable for the directors, no other specifications were made as to professionalization. A working organizational chart published in the company’s quarterly Media Center Kit reveals far more people involved in television at headquarters. 22 people spread across two studios form the largest branch of the “Film/TV/NJ Community Relations” department (housed in PR). The other two branches, film (nine people) and NJ community relations (five people) make up less than half of the unit. Although five television operations employees are women (there are ten total in the unit), all serve in clerk or administrative and other assistant roles. While it is difficult to know if these proportions are indicative of larger trends, Sheahan, who was sensitive to issues of gender and racial representation in the industry during our interview, noted that very few women (and African Americans) worked in television in its early years; as we will see in coming chapters, gender becomes structural to how the industry defines itself against commercial television. Freelance, non-union labor was also endemic to the industry and enabled studios to run on fewer employees than normally necessary for their high degree of output.²¹⁴

As may be surmised by the lengthy list of video uses reproduced above, the programming that came out of AT&T and its associated companies was incredibly varied. The first reported use of television was a 1963 transmission of informational films from AT&T’s audiovisual

²¹³ According to “Why They Won: Behind-the-Scenes Look at 1977 Industrial TV Award Winners” *Videography* 1977, reproduced in *The Media Center Kit*, staffs tended to range between 3-40 people per studio.

²¹⁴ And, according to a couple of interviews, provided the industry with added creativity and expertise, resources particularly important for smaller “shops” that might run with a skeleton crew of only two or three people.

center to employees in a nearby traffic operating room via closed circuit television. By 1977, Ed Block, Senior Vice President of PR, reflected on the ubiquity of television at AT&T:

Virtually every department of our company has made use of television in some way. Construction Plans, Engineering, HRD [Human Resource Development] and others regularly use TV for messages to their field counterparts. And, on the local company level, Division Managers frequently make videotape reports to their people results, attitudes and training.²¹⁵

Those in the television operations department undertook the work of continuously developing new programs. These included local projects like the *Management Forum Series*—interactive panel discussions, conferences, and lectures telecast live to lunchtime audiences in New Jersey and New York as well as system-wide programs like *RSVP* (Regularly Scheduled Video Programming).²¹⁶ *RSVP*, a monthly series of several different 20-minute “departmental magazines” targeted different areas of the company and was “aimed at first line managers in that the subject matter would be job oriented, show ‘n’ tell, problem solving, sharing information especially chosen for its visual impact.”²¹⁷ Other programs, like the *Discussion Catalyst Module*, were designed to be used in conjunction with other instructional materials. According to Lowry, this made for more effective teaching by “allowing the discussion to cover a more particular or timely application. Our experience tell us that this mode (video & discussion face to face) is the most effective use of video.”²¹⁸ CCTV was used to transmit “major policy telecasts” live system-wide and, in some instances, television was even used to promote itself—videotapes were understood as an effective medium for selling management on the new technology.²¹⁹ Together,

²¹⁵ “Block CCTV Circuit Presentation,” 3/29/77, 6. JSP.

²¹⁶ “CCTV Notes,” “195” *Publication*, (June 1977): 1. Distributed in *The Media Center Kit*. JSP.

²¹⁷ Lowry, “Awakening Giant,” 7.

²¹⁸ Lowry, “Awakening Giant,” 8.

²¹⁹ “Block CCTV Circuit Presentation,” 4; “AT&T Corporate Television.”

these uses point to television producers' attempts to establish the medium's flexibility both with regards to its content and aims, and its varied exhibition practices.

In describing the quality of productions he was involved in, Sheahan noted a wide discrepancy in the ambition of various projects while emphasizing the ties between his work and that of the commercial media sector. On the low end were educational training videos using 1-inch color tape and AT&T employees as the actors. As Sheahan describes one project in particular:

One I'll never forget is we produced a series of lectures on statistics. Oh my god it was boring. [...] Listening to a lecture on Bernoulli's theorem on videotape is like—Starbucks didn't exist then, you couldn't drink enough coffee. But that's what it was.²²⁰

On the opposite end of the spectrum were narratively complex programs that used commercial talent and special location shooting. From my discussions with Sheahan, it appears that AT&T (and Johnson & Johnson, where Sheahan worked for the majority of his career) used bigger-budget productions when facing immediate and severe crises. Perhaps the biggest of these in the history of the company was the antitrust lawsuit that resulted in the breakup of the Bell System in 1984. Sheahan called his work for the trial “probably the biggest program I ever did.” Mandatory viewing for all Bell System managers, the program consisted of five or six 40-minute modules all relating to the issue of discovery (a lawsuit's pre-trial phase during which time each side can request information/evidence from the other through a variety of mechanisms). In describing the program, Sheahan draws on the production's associations with the commercial sector in order to demonstrate its size and significance:

Nobody had ever heard of discovery, I had no idea what discovery was. [...] So we produced a mock trial, antitrust trial. And it was *big*. One of the advantages of working in the New York metropolitan area is that we had access—well they still do—to actors, set

²²⁰ Interview with the author. John Sheahan, Producer, AT&T and Johnson and Johnson, University of Wisconsin Madison, October 25, 2014.

designers (because we used freelancers for the most part). We used the same people that the networks were using. For instance, the set designer that we used. He did *The MacNeil Report*. He did a lot of news sets in New York. He designed this beautiful courtroom that we had built at a scene shop in New York. And we auditioned all of the actors. And the director of our show did *This Old House*, was the director of *This Old House* out of WGBH in Boston. His name was Bill. And I was a producer. So we were using all the same kinds of people and it was a big project.²²¹

Sheahan use a similar logic when describing another of his major projects, a video designed to respond to a rise in employee alcoholism and suicide following the relocation of AT&T's HR department from New York City to Greensboro, North Carolina. As he describes the project's goals and its production history, he intermixes references to commercial entertainment alongside a discussion of the value the program held for him both artistically and personally.

The stats were unbelievable. So they asked me to work with the corporate psychiatrist. And so I went to work with him and we wrote a script and I actually went to a private psychiatric clinic in New Jersey to be as if I was in recovery—to be with them to learn. And there was everything from a 10-year-old to an 80-year-old. I mean it was amazing. Alcoholic! So I had to write the script and then produce and direct the show and we hired actors. And the show starts out in a bar you know. But again we built all these sets, we had all these sets built, cast all these actors and actresses and that was to show management that there were things that could be done. There were employee assistance programs that could be—that you could take advantage of, ok. And that was really a fun show for me. Because we didn't really get to do—it wasn't typical industrial television. We got to deal with actors and we got to do multi-camera shoots. It was like doing a soap opera or something. And I loved doing that.²²²

While this description gives us a sense of corporate television by defining this project in opposition—"it wasn't typical industrial television"—it also indicates the extent to which the industrial and commercial media continuously overlapped one another. The comparison also enables Sheahan to demonstrate his own professionalism and creativity, and suggests some of the value corporate communications held for him and why he might be invested in its growth.

²²¹ Ibid.

²²² Ibid.

In addition to program experimentation, AVBC television professionals spent much of the early years of corporate television discussing and promoting the medium's distinguishing value. Of the benefits industrial professionals ascribed to television, three recur extensively: economy (speed and cost), "impact," and extensibility. Video was faster (and cheaper) than film in part because playback capabilities removed the need for developing. Described as "instant" and "immediate," videotape allowed producers to edit (after the development of special tape editing technologies) and reshoot on the spot. Van Deusen compares this to existing film practices, even suggesting that video enables a sort of responsiveness to the process of filmmaking that gives the producer additional power (and creativity) over the outcome of the program:

You can see what you shot right away. In film, you get the rushes. Process the film you get the rush back, maybe a few hours later maybe a day later maybe a couple of days later depending on where you're shooting. With video you don't have to do that. You can immediately look at the result and say I don't like that shot we can reshoot it right now because I can see that it didn't work. Or you can reedit. You can alter the truth if you wish.²²³

The emphasis on speed and ease appears throughout AT&T documents, including clippings and correspondence circulated to television operation employees via a quarterly Media Center Kit that contained information on best practices, new and ongoing media projects, new technologies, and the state of the field.²²⁴ In addition to the time savings of instant playback, users commented on the ability to avoid spending resources training projectionists, securing projectors and screens, and finding suitably dark screening rooms, as well as the ability of tape to enable "scheduling off-the job viewing sessions" and to save the precious (read: expensive) time of executives who

²²³ Dick Van Deusen, Founder, National Industrial Television Association. Telephone, August 25, 2014.

²²⁴ "Industrial TV in the Bell System;" "TV That Competes with the Office Grapevine," *Business Week* (March 14, 1977), reproduced in *The Media Center Kit*; "AT&T Corporate Television."

could both access and disseminate information out to the field more quickly.²²⁵ Jerry Marlow, who worked as a consultant and researcher in the corporate television industry, dramatized the special virtues of video as a mechanism to manage the “velocity of resources” in a letter sent to AT&T offering his services,

There is a single power of video from which all of its present benefit derive, and from which many potential benefits will be realized. Video has the power both to create intangible resources where there are none, and to move at a phenomenal velocity, a corporation’s existing intangible resources.²²⁶

Marlow’s “intangible resources” were “everything non-material that contributes to the profitable functioning of the corporation and to the well-being of the corporation’s personnel, customers and stockholders and to the well-being of society at large”—knowledge, information, motivation, legislation and governmental regulations, and even employee emotions.²²⁷ While Marlow emphasized the cost-saving potential of this velocity by comparing video to capital and other commodities, others ventured to make more explicit claims on the cost-saving capabilities of tape—either by pricing the cost-per-viewer (e.g., “a little over \$1 per head”) or by comparing costs with alternative methods of communication (e.g., “Video conferencing saves close to a million dollars yearly in time, travel and efficiency”).²²⁸ As I will discuss in chapter four, these understandings of the speed, thrift, and overall efficiency of video expanded exponentially with the coming of cassettes and cartridges. Here, however, we might read the emphasis on time and space in the context of empire discourse. As Carey points out, controlling space comes in large part through temporal efficiencies in “reducing signaling time” between operations. Though “radically extended” by computing, “the penetration of time, the use of time as a mechanism of

²²⁵ “Industrial TV in the Bell System,” 1; “AT&T Corporate Television,” 4-5.

²²⁶ Jerry Marlow, letter to G. B. Santos, May 20, 1977, 3. Reproduced in *The Media Center Kit*.

²²⁷ Marlow, 3-5.

²²⁸ “Block CCTV Circuit Presentation,” 4; “TV That Competes,” 51.

control, the opening of time to commerce and politics” was an understanding of time, efficiency, and empire made possible by the telegraph and, I argue, enlivened and extended by AVBC professionals discussions and use of television’s spatial systems (networking).

In addition to enabling efficient communication, television was promoted by AVBC professionals as offering a particular and in some cases peculiar impact on its audience because of the labor-leisure agnosticism of the technology—the very attribute that earlier inventors like Edison worked so hard to efface. Broadly, television was described as “pleasant” and “more personal” than other forms of corporate communication.²²⁹ While these formulations draw vaguely on television’s associations with the intimate domestic sphere, others were far more explicit in their claims that companies could take advantage of workers’ pre-existing media habits and their relationship to television. An early history of AT&T’s television operations even posited “more and more new employees had been brought up on television and were used to receiving much of their information in this manner,” making television the logical avenue for corporate communications.²³⁰ Ron Brown, who produced video for several companies, including Amway confirmed the desirable “impact” that arose from television’s ability to span both spheres:

The fact about television: television was something that everybody had in their home. You couldn’t show film, for example, in your home; you had have to have a big 16mm projector and people didn’t have those. But television, they saw it at home, they saw it at work. [...] Obviously it was not the same type of thing, but they had a very similar impact.²³¹

When I asked Brown what kind of impact, he continued, describing the appeal of television for both working audiences and corporations considering their audiovisual operations:

²²⁹ “Industrial TV in the Bell System,” 3.

²³⁰ “Industrial TV in the Bell System,” 1.

²³¹ Interview with the author. Ron Brown, President, MERES, Telephone. September 22, 2014.

I think television at that time had a certain mystique to it. There wasn't a whole lot—there wasn't 150, 200 cable channels to watch (of which you might actually watch 3 or 4). And if it was on television it somehow had *a material level of authenticity* or something to it. [...] It's not a brochure you have to read. That you can put it on the shelf and not look at. You almost had to look at it before you threw it on the shelf. [...] Up till then everything was print and along comes this crazy medium where you can actually see the person talking to you; it just had that something new and different.²³²

Here, television is understood as both more authentic and more fundamentally appealing as a medium. The visual elements of television, in effect, *demand* employees take notice. Brown's comments are supported by Ed Block's promotion of television within AT&T as a means of reaching workers on their own terms, "Employees who don't read publications, or want 'straight talk,' have to be reached in ways that match their experience. Television and 'Face to Face' meetings offer two possible answers to this problem."²³³ Block likewise suggested that television had incredible authority and believability that would be useful (and perhaps *too* useful) to corporate communicators:

Because television is so powerful, and so widely watched and believed, any program broadcast comes across with the ring of authority. Just as children rush out to buy Super Wheaties if Captain Kangaroo says so, employees regard anything they see on the tube as company policy. Which is good in a sense, but which also means that we have to be very careful that anything that goes out on the TV network, particularly of a policy or practice nature, is very carefully checked.²³⁴

The special efficacy of television appeared again in materials circulated via the AT&T Media Center Kit where Vincent B. Bray, the internal communications manager at Metropolitan Life claimed television "has credibility [...] People tend to think that if they are seeing it, it happened. And TV can do so many things print can't. It can be more moving and dramatic."²³⁵ As will

²³² Ibid., My emphasis.

²³³ "Block CCTV Circuit Presentation," 1.

²³⁴ "Block CCTV Circuit Presentation," 9.

²³⁵ "TV That Competes," 49, 51.

become clear in the following chapters, television's association with the home, entertainment, and visuality become regular hallmarks of AVBC's discourses of pedagogy and efficacy.

The extensibility of video offers the third affordance routinely promoted in AT&T materials. Here I refer to extensibility both in the sense that users were interested in developing massive media *systems* that could be continuously developed and expanded in the future and in that videotape—in part due to its speed and cost—could reach a far more extensive user group. Combined, these two understandings of video constructed the medium as a corporate communications tool that could expand alongside the business as both a tool of logistical control and a mechanism of distribution for cultural and instructional materials. As new markets opened up, employee ranks swelled (or shifted, necessitating retraining), and new client bases emerged, television was incorporated in visions of corporate communication that emphasizes an “always and everywhere accessible” model wherein any space—and any audience—could be reached by organizational directives and corporate messaging. On the one hand, this view of television promoted the technology as a keen distribution mechanism; as one executive argued,

I think you will agree that television will have a profound effect on corporate communications. Today, a videotape produced at AT&T can find its way into any number of locations, before all kinds of audiences, edited into any number of other programs.²³⁶

In this instance, television could even disrupt and reconfigure traditional information architectures—that is, schools and training centers: “The classroom had come to the employee at last.”²³⁷ Indeed, as Ron Brown and others have noted, the coming of cassettes in particular enabled companies to reach larger, untouched audiences given the ease and ubiquity of the technology as a domestic medium. On the other, television was posited against other media as a

²³⁶ “Block CCTV Circuit Presentation,” 8.

²³⁷ “Industrial TV in the Bell System,” 1.

two-way communication technology that allowed the voices of all employees to be heard across the company. On the local scale, television as “discussion catalyst...encourages viewers to become sources as well as recipients of communication.”²³⁸ More broadly, however, executives pitched television as even more revolutionary in its effect on the chain of corporate communications, as is evident in this annotated script from for a television program starring and narrated by Assistant Vice President of PR at AT&T, Bob Quicksted:

Television, with its ~~unique~~ special capabilities, was being called upon to do far more than provide information to large employee audiences through the traditional top-down, one-way approach. Rather, television was, and is, filling some new and immediate employee communications needs which help extend the vision, perception and knowledge of ^{^employees at} all levels of employees ...and it's doing it from top down, horizontally, bottom up...one way and two way. This, I believe, is a much broader approach to employee communications.²³⁹

This “broader approach” often became aligned with large systems, including the “nervous system”—also, of course, a metaphor of the telegraph.²⁴⁰ As mentioned above, in part, this systems approach arose out of technological necessity for compatibility across users and producers.²⁴¹ The appeal to a systems approach was also used to differentiate television from film and, in the eternal quest of AVBC, demonstrate the value of television to management. Linc Shirley, columnist for *Back Stage*, touches on both these issues in a tongue-in-cheek treatment of the value of industrial television as explained by his “guardian angel,”

Guardian Angel (GA): Everything will be [different] from here on. You're thinking in *fragments* not *systems*. You're still looking out from the same old point of view. *Up* from the *bottom*. Typical of the *supplier*. When you start to look at the situation out from the board rooms of *top management*, you see a tremendous change has taken place. If Cronkite and Carson have achieved a delivery system to the consumer—

²³⁸ Marlow, 4.

²³⁹ Marlow, 3-4.

²⁴⁰ Lowry, “An Awakening Giant,” 9.

²⁴¹ Lowry, “Where Television Belongs,” 4.

one through news, the other in the area of social culture—this new video technology can be set up to serve the *corporation's* executive suite. Management can use its own communications network to channel the sales, information, training, hiring, and marketing thrusts of the corporation's operations.

Linc: I think I'm getting a glimmer: I shouldn't try to sell a 'film job' to a middle management staff man in a corporation. You want me to make an end-run around that middle management buyer of film and go straight to the Board Room where the *big* decision are made and where the *big* money is spent. You want me to sell top management a communications delivery system to help it achieve its strategic objectives, both short and long range, by selling it a private video network information delivery system.

GA: Now you've got the idea. All you film people have been running around trying to sell your studios with a film here and a film there. Meanwhile, the video equipment people were selling *hardware* to the corporate Audio/Visual Departments. Nobody was selling the software to help management solve its problems over the long haul.²⁴²

The "systems" approach—based in the extensibility of tape networks and undergirded by the efficiency of their cost and speed—both established television as a radically new approach to *publishing-based* corporate communication and provided a mechanism by which audiovisual professionals could demonstrate their value to the functioning of the entire company.²⁴³

Despite the ways in which AVBC men tailored their promotion of television to longstanding fantasies of communication and empire, according to my discussions with several

²⁴² Linc Shirley, "An Era Passes" *Back Stage* (July 8, 1977): 14. Reproduced in *The Media Center Kit*.

²⁴³ We can look at AT&T to see just how different this approach might be from film. The small film section of the PR department did not create their own films. Instead, like all but the very largest companies, they contracted with industrial film studios to commission the materials they wanted. The Bell System's *The Big Bounce* (1960), for example—a film I discuss in chapter five for its treatment of satellite communications—was produced by Jerry Fairbanks Productions, a very prolific industrial film studio. Rather than an ongoing series of ad hoc projects, television was identified as an opportunity to build a permanent and consistent mechanism of media demand and distribution.

former industrial television men, securing management's recognition of the value of communications was a persistent struggle. However, even when discussing historical perspectives on the subordinate position of industrial television within corporate operations, both Brown and Van Deusen continue to assert their own professionalism, understanding of the industry, and the high quality of their work.

Ron Brown:

There was always a disconnect between industrial television production, which was very good, but the people in marketing and advertising when they wanted to have a commercial produced to go outside to an agency and get it produced, when in fact they had in house people who were very well qualified that could do the same thing. [...] When we talked to people at other companies somehow industrial television is always looked down at as some sort of child or something and if you wanted something really good produced, you went to an agency outside and they did it and that way [...] People who worked in industrial television were just as good as the people who worked outside but the perception was not there.

The feeling was everything in house couldn't be good enough and had to be done outside [...] I really don't know where the perception came from. They go out and get really good stuff and in house [...] they didn't really see how good it had gotten.²⁴⁴

Dick Van Deusen:

One of the big issues that we had and still have, was selling management on the value of what we're doing and that is a continuous problem. I did a long white paper not too long ago [...] it's a huge document that I sold for \$250 a copy, believe it or not. *Driving success: The media manager's guide to proving value*. That's an issue that sold. [...]

I can see it now. My wife is doing casting where corporate people don't want to spend the money for good talent or they don't want to spend it on a special production effect or they don't want to spend it. I talked to a lot of producers—the white paper on that one, a little research paper on where the industry is going—projects are crimping; they don't want to spend money on results.²⁴⁵

Van Deusen's mention of his white paper (and the hefty price people were willing to pay for it) also points to the value that AVBC professionals found in attempts to pool and share knowledge in their efforts to demonstrate their value to management. In speeches given by AT&T's Paul

²⁴⁴ Interview with the author. Ron Brown, President, MERES, Telephone. September 22, 2014.

²⁴⁵ Interview with the author. Dick Van Deusen, Founder, National Industrial Television Association. Telephone, August 25, 2014.

Lowry at two different Industrial Television Association (ITVA) conferences, he explicitly instructs the audience of industrial television professionals on how to build their identities within the corporation in order to establish the importance of television. In short, he suggests that listeners focus on their relationship to business and the corporation before their identity as media producers and even proposes developing new vocabularies to reflect their unique position:

We are NOT commercial television or even a poor cousin to education television. We are, in fact, business men and women whose “second language” happens to be this powerful medium of television. Our responsibility is to that which pays our salary. The productions we make are official communications documents of the companies for which we work. Sure it’s understandable to want to relate to our glamorous cousins and emulate their facilities and techniques. But I think it’s very important that we emphasize and retain that unique identity as business persons both for those inside and outside our companies. For no matter how good we are tweeking [sic] knobs or aiming cameras or pushing buttons, we are a means to a business end...not the end in itself.

Frankly, I think we should do away with every commercial television term now guarded so faithfully by our employees who came from that medium. Producer/directors are ‘translators’ in my mind. They translate communications objectives into measurable problem solving programs.²⁴⁶

In a second speech, Lowry aligns business television not with industrial film, its closest corollary, but with the more mundane and, perhaps, specialized technologies of office work in order to assert its logical place within corporate structures and logics:

CCTV is the application of television’s widest technological capabilities (now or in the future) to my company’s broadest communications needs for the purpose of helping the company reach its corporate goals through more efficient communications. This defines Corporate Television as a problem solver, a tool of the business like a computer, telephone or the copy machine. It’s an investment which should bring a measurable return.²⁴⁷

²⁴⁶ Lowry, “Awakening Giant,” 2, 4.

²⁴⁷ “Where Television Belongs,” 3. These comments are reinforced in an early history of television at AT&T (author unknown) that insists, “Industrial TV is not a Toy Its an invaluable tool for management that should be engineered, budgeted, operated and used like any other essential part of the business.” “Television in the Bell System,” 4.

The characterization of television as an “investment” was further supported in remarks by Lowry and others who emphasized the need to “establish procedures for the prioritizing of TV projects so that the medium is used where it’s most needed and most profitable.”²⁴⁸ In short, they believed this would support increased funding for television operations; television could be “sold” to the top brass “as a cost effective communicator by making our programs as close to the revenue producing elements of our business as possible. For only by doing this could those future requests for studio improvement dollars be justified.”²⁴⁹ While these strategies appear to have had some utility in persuading AT&T of the value of television given the medium’s success in that company, a different tactic—the systems approach mentioned above—may have ultimately helped the development of television across AT&T’s expansive operations.

Lowry concludes his discussion of CCTV (reproduced above), noting, “Such a broad definition with its implied organizational size might bring a few charges of ‘empire building.’” Of course, however, this is precisely what he hoped to achieve with television within AT&T—and his key suggestion for his listeners. Across both of his presentations to ITVA membership, Lowry suggests locating ways to systematically incorporate television into the daily, ongoing operation of the corporation “so that television gets formalized into a regularly scheduled, recognized and dependable flow and source of information; valuable information.”²⁵⁰ The commercial entertainment sector—as a model of scheduling and access—becomes useful to industrial television once again. Lowry details this strategy, noting that it is a way to even recruit others to help build the infrastructure for corporate communication networks:

In the early developmental stages of television, the hardware element of the medium seemed quite out of place within the department. It was also quite new for us to ‘serve’

²⁴⁸ Quickstad, in “AT&T Corporate Television,” 8.

²⁴⁹ Lowrey, “Awakening Giant,” 5.

²⁵⁰ Lowry, “Awakening Giant,” 7.

the communications needs of other departments. For those used to publishing the company magazines, newspapers, and management bulletins, it seemed that the production of training tapes and other specialized information programs did not fit within our responsibility. However, our benevolence of the rest of the company in helping them use the medium had a very selfish motive as well. For the more training sections, departments and individuals received their information via the medium, the more TV sets and video players would get purchased. And, since company news or policy information could not by itself develop a broad distribution capability, any player or set purchased was a potential outlet for broad corporate information.”²⁵¹

Lowry adds later in his speech, “if you are to develop a mass medium distribution network you must either establish all the outlets (player/receivers) yourself or help the specialized departments communicate via the medium so they help establish the media value and network along with you.”²⁵² This “systems approach”—even if adopted in part to ensure technical compatibility—also helped strengthen the legitimacy of television by establishing operations across the company and bringing more people—audiences and producers—into the remit of industrial audiovisual communications. More straightforwardly, this appeal—by supporting others’ use of television technologies and by producing relevant and diverse content that encouraged increased consumption of corporate television at every possible point in industrial operations—attempted to secure literal buy in from the many departments television served.²⁵³

The other approach taken by television’s operatives in securing a future for the medium was building television into pre-existing and future work architectures. While companies certainly accommodated cinematic technologies in boardrooms and employee environments, television was literally wired into buildings and their electronic systems as they were constructed

²⁵¹ Lowry, “Where television belongs,” 6.

²⁵² Lowry, “Where television belongs,” 6.

²⁵³ Quickstad, in “AT&T Corporate Television,” follows his discussion of the value of television with a proposal for a cost allocation plan to fund it outside of the PR department; in short, Quickstad’s discussion of television’s value was a direct appeal to management to fund the medium. Another presentation suggests that it was not the outlets, but increased programming that induced the Bell Systems companies to contribute to funding television operations. “Block CCTV Circuit Presentation,” 5.

and renovated. Lowry's emphasis on television as an endlessly flexible signal that can be "transmitted, recorded, duplicated, translated, retrieved, stored, processed, manipulated" anytime and anywhere—given the right conditions—dramatically separates television from film at the same time it allows him to push for more intricate systems of distribution and exhibition.²⁵⁴ According to Lowry, a "natural outcome" of these possibilities for exponentially higher accessibility of corporate communications—when an employee might switch on a set to tune in to a scheduled program or simply choose a program to start at their convenience—is "the configuration of some viewing locations which match corporate buildings."²⁵⁵ The construction of televisual work architectures reorganized the spatial relations between workers on both highly local and expansively regional scales. On the one hand, television operations experimented with highly localized projects like "conversation areas" that imagined a sort of water cooler effect wherein employees came together not for office gossip and relaxation, but to tune in to the company message:

These are areas within departmental space made up of four to five chairs, a coffee table, a television set wired to the cable system, a telephone, a rack for company publications and, perhaps, a coffee maker. The cable system will carry several channels of tape, live and/or text information ranging from company stock quotes to live management programs with call-in questions from the phone. Normally the set would be tuned to the character generated news. However, this would be supported by scheduled tapes of a policy or departmental nature. RSVP tapes [explained above] would be perfect on these channels.²⁵⁶

On the other hand, companies like AT&T contracted with consulting firms that engineered facilities spanning multiple buildings. Around the same time AT&T experimented with its conversation areas, the company established the "450 Room," a management training facility in their Basking Ridge, New Jersey headquarters that connected via CCTV to their 195 Broadway

²⁵⁴ Lowry, "Where television belongs," 2.

²⁵⁵ Lowry, "Awakening Giant," 9.

²⁵⁶ Lowry, "Awakening Giant," 9.

building in New York City. (The room even featured an ‘electronic blackboard’ which transferred anything an instructor wrote in one location to the board in the other location.) More formalized than an impromptu gathering space, the connected classrooms enabled AT&T to more directly control the flow of information (and spread the knowledge of “distinguished” speakers) between two key facilities and groups of employees.²⁵⁷ In the late 1970s, television was increasingly incorporated into AT&T buildings—in boardrooms, auditoriums, meeting and conference rooms, classrooms, offices, and even dormitories—and combined with other communication technologies, such as teleconferencing and noise control systems for open spaces.²⁵⁸

As mentioned above, by positioning television as a system that needed to be physically integrated into the workplace, television workers were able to further incorporate themselves into company operations and demonstrate their professional expertise. Sheahan, who eventually became responsible for developing television infrastructures for Johnson & Johnson uses his experience wiring the building to contrast his knowledge and forward-thinking insight against one of the most famous architects of the late 20th century as well as his boss. In describing the need for raceways (tubes that carry cables throughout a building) to be drawn into architectural plans, Sheahan notes, “architects back in those days didn’t think about those things—I *will tell you right now* I.M. Pei [who designed the J&J headquarters building] didn’t think about it in our building, and I was very much involved in the local area network in our building.”²⁵⁹ He continues, describing the challenges he overcame to install the network (which linked computers

²⁵⁷ “Projects for ‘Ma Bell’ are Many and Diverse” *Wilke Report* (Winter 1977): 1. Reproduced in *The Wilke Papers*, ed. Richard E. Van Deusen, 92, 95.

²⁵⁸ “Projects for ‘Ma Bell,’” 1, 4. [Page 4 can be found on page 95 in *The Wilke Papers*].

²⁵⁹ Interview with the author. John Sheahan, Producer, AT&T and Johnson and Johnson, University of Wisconsin Madison, October 25, 2014. Emphasis his.

and allowed for the distribution of two or three AT&T channels—as well as the three networks, which were key to nimble PR reactions to breaking news—from the PR office to major public areas, selected offices, and the conference room):

[My boss] said we don't need computers at everybody's desk because real professionals don't use computers. So what do you think: the senior managers in our department and were former newspapermen—and I swear to god this is true—had manual underwriter typewriters or, if they were really progressive, a Selectric. And I had to have my computer outside of my office. I had to go outside my office to type. That lasted about two years and we got everybody computers, but *if you think about the mindset*. And I lived through all that and I literally got the local area network put in the PR Department without his knowledge.²⁶⁰

Sheahan's anecdote both demonstrated the challenges he faced in institutionalizing television (and other technologies) and the professional expertise that enabled him to accomplish the task against the odds. While the association of television with infrastructure enabled media workers to position themselves as experts in yet another field of corporate operations, it also opened up space for a potentially new kind of media worker, the "Communication Facilities Consultant" or "AV Consultant."

Both titles were used by Hubert Wilke, who founded his own consulting firm in 1965 and eventually worked with dozens of Fortune 500 companies throughout the 1970s and 80s, including AT&T.²⁶¹ Wilke's company, aptly called "Hubert Wilke, Inc.," advised large corporations (primarily in the U.S., though he also worked in Europe and, for a period, in the Middle East) on how they could best incorporate audiovisuals into the space and technological infrastructure of the company. Under the company's purview were spatial plans (room size and height, power and environmental control needs, and ideal speaker and screen locations), the

²⁶⁰ Ibid.

²⁶¹ In my discussions with former professionals, "Fortune 500"—or, even more often, the "Fortune 100" and "Fortune 50"—was used as a shorthand label of value to indicate the importance, size, and resources of a mediated company (and therefore the sophistication and complexity of their communication needs).

“visual and aural environment” (seating patterns, screen dimensions, speaker numbers, light levels), equipment (“a total A/V system”: slides, filmstrips, film, television, recording and speaker systems, remote control, projection), audio control (speech intelligibility, noise control, voice transmission, audio reproduction), paging and music distribution, television and film studios, electronic distribution (e.g., switching controls for CCTV, CATV, MATV, and two-way television, computer graphics), surveillance and electronic security, data transmission and translation for multi-language discussion, and in-house production facilities.²⁶² For AT&T, Wilke completed dozens of projects throughout the company’s various holdings helping wire boardrooms, classrooms, labs, and even elaborate shareholders meetings.²⁶³ While the extent to which television and its ancillary technologies actually spurred a reconfiguration of the architectures of work deserves a longer discussion not possible here, television’s system possibilities nevertheless opened up new specialization opportunities for media laborers in the corporate sector. These professionals, in turn, further promoted the establishment of television in the context of their own personal and professional goals.

Because Wilke was a consultant—the firm did not actually install equipment, they only offered companies a plan for how they might best integrate media; it was up to the client to secure and select construction bids on the plans—he worked closely with many industrial television professionals. Even more, he actually worked or crossed paths with some of the very men I have quoted above. At least as far as my interviews have so far indicated, the business audiovisual sector, with regards to the subfield of television, was small and intimate, and many of the people who worked for the largest companies—especially in the early years—personally

²⁶² “Hubert Wilke, Inc.: History and Modus Operandi,” Reproduced in *The Wilke Papers*, ed. Richard E. Van Deusen, 6-8.

²⁶³ “Projects for ‘Ma Bell,’” 4.

knew each other. Much like in industrial film, sector supports provided an arena for television workers to meet each other, establish their identities, and trade useful information. I asked Dick Van Deusen, one of the founders of the National Industrial Television Association (NITA), about the factors that lead to the establishment of the professional organization. He responded,

We began these associations because we were starting in this whole television thing and we needed other people to talk to. Actually, the instigator on the east coast was the Memorex tape salesman who was selling tape to all of us and said “why don’t you all get together and talk about what you’re doing? So we did. [...] We had 35 members in the first year. And a conference in New York. The ITS [a similar organization] was begun by Fireman’s Fund in California, another insurance company. [...] They were coming in from the west coast, we were in the east coast with something very much in common so we just merged the two groups together. We had a big merger meeting there in New York and created ITVA which at one point had 12,000 members worldwide. It was fairly incredible...that was in about 1980-85.²⁶⁴

The unexpected catalyst for the professional organization (a tape salesman) further underlines the complicated stakes that different groups had in the success of television in the corporate sector. Van Deusen later referred to the organization’s purpose as “networking, industrial networking,” adding half-jokingly, “probably illegal these days,” alluding to the complicated economies of corporate knowledge.²⁶⁵ Sheahan describes the value the organization had for him:

[It was] “unbelievable, in my opinion, because—and Dick [Van Deusen] would tell you—they were people who had our job. Dick was at Prudential I was at J&J. I knew everybody, they were all friends. We got together twice a year and we talked about emerging technologies, we talked about programming, we talked about budgeting we talked about some of the challenges that we had.”²⁶⁶

For both men, the organization served as a source of information and problem-solving to help them succeed in their home institutions. Further, according to Van Deusen, it provided them a

²⁶⁴ Interview with the author. Dick Van Deusen, Founder, National Industrial Television Association. Telephone, August 25, 2014.

²⁶⁵ Ibid.

²⁶⁶ Interview with the author. John Sheahan, Producer, AT&T and Johnson and Johnson, University of Wisconsin Madison, October 25, 2014.

space to work as a group on the key issue of selling management on the value of television communications.

Like the film industry, the corporate television industry gave rise to its own set of professional trade magazines, awards and festivals, and several other professional organizations. Television applications both became more specialized and more broadly incorporated into a wide range of corporate activities, e.g., human resources. As television grew, so did its sector supports. Given the heterogeneity of the industry as it matured, however, I will reserve further discussion for my remaining chapters, each of which investigates a different use of television and allows for greater specificity than the general introduction to television's emergence in the corporate I have sketched here.

Conclusion

Several pre-histories of corporate television are possible. In order to trace the roots of the audio-visual publishing industries one could position industrial film as an offshoot of the larger genre of educational film. The recent editors of *Learning with the Lights Off* do just this. Though their focus remains primarily trained on formal and informal sites of learning (classrooms, museums, public health screenings), they position industrial film—particularly sponsored films for citizens and students—within a larger framework of films that teach. While clear overlaps between educational and industrial film exist, some of which are mentioned above (studios, trade publications, equipment manufacturers, exhibition spaces, distributors, and, of course, films), business media deserves attention as a specific sector of production, use, and set of institutional cultures and ambitions. Certainly, tracing the relationship between industrial and educational film is essential to understanding how one of the biggest sectors of business media production (film) developed in relation to similar practices occurring within the wider context of

institutional media use (and these tensions will recur throughout the next four chapters). However, when we break industrial media away from its relation to educational or useful film, we can pursue a second, longer lineage for corporate television—electronic communication technologies for business.

Thoughts of media and empire tend to turn on the “media imperialism” wrought by commercial entertainment or the logistical control enabled by technologies like the telegraph. What scholars are only beginning to address is how companies have used media to strengthen and scale their own infrastructures (e.g., by (re)training employees or managing their emotions, capacities, and relationships). Within this context, industrial television occupies an important transitional position; it represents the convergence of both logistical technologies, e.g., videoconferencing, and content production and distribution, e.g., training tapes (not to mention television’s own place in commercial entertainment empires). In essence, television binds together industrial publishing and logistical systems; in so doing it not only incorporates televisual and broadcasting modes, e.g., the “network” into corporate communication, it facilitates a way of thinking about (and literally building) the ideal mediated corporation in a manner advantageous to the development of computer communications.

In following David Hesmondhalgh and other scholars, I understand (industrial) media production cultures as a particularly ripe for analysis given their involvement in the “production of social meaning.”²⁶⁷ We must account for how corporate media professionals have themselves contributed to mediating and extending corporate empires at the same time they build up the infrastructures of their own industry, AVBC. While I attend to AVBC film and video in later chapters, here I have been most interested in outlining a second mode of industrial productivity

²⁶⁷ David Hesmondhalgh, *The Culture Industries*. (London: Sage Publications, Ltd., 2007): 12.

running parallel to the first where participants' texts are not training films or corporate communiqués but endless, relentless treatises promoting their own value and arguing for their proper function and form.

To understand the wide range of discourses available to media professionals to describe and promote televisual technologies within the context of industry, we must move beyond the low-hanging fruit of sponsored and training films to look at how, ever since it first became a possibility in the mid-1800s, electronic communication was situated as a solution to business problems, e.g., expanding markets, controlling the workforce, and increasing efficiencies. A longer historical view helps uncover larger frameworks for determining how technology becomes valued and meaningful to business interests (and who does the work of creating that value). It also reveals continuities in how fine-grained distinctions in entertainment and business uses of technologies—often filtered through the lens of gender—marked cultural understandings of media technologies since the telephone.

A focus on business specifically also points to an understudied influence on the development of media technologies and practices. Just as the development of new communication technologies such as the telegraph enabled new modes of business organization, business organizational structures—e.g., loose networks of traveling salesmen working towards national expansions of markets in post-war reconversion—encouraged the proliferation of technologies with particular capabilities, e.g., the mass replication of content and portability possible with the VHS. As we will see, industrial needs for expansion also supported particular modes of distribution and exhibition, which—though they did spread capitalist ideologies—were first and foremost concerned with smoothing the paths of commodity distribution.

Given its expansive timeframe, this chapter offers only a brief sketch of these relationships between the communication needs and desires of capitalism, industrial organizational structures, media technologies, mass manufacturing processes, evolving cultural contexts, and the development of the corporate audio-visual publishing and media communications sector. Before turning to the further development and incorporation of television into the boardrooms, central offices, training centers, and cafeterias of American business, however, the next chapter pursues an unlikely detour: business television in the home.

Chapter Two

Broadcasting Business to the Home

While we tend to focus on endings—moments of closure—as key sites of ideological import, beginnings are no less fraught. How we tend to remember one of television’s primary origin stories—its debut to the mass American public at the New York World’s fair in 1939—has shaped how we have continued to account for the medium, its ambitions, authors, audiences, and even its aesthetics. When popular histories point to the World’s Fair as the site of television’s birth, they tend to emphasize television’s place as the centerpiece of the RCA exhibit.²⁶⁸ This allows the fair to foreshadow the route television broadcasting would take in the immediate postwar era: a medium controlled primarily by the networks, of which NBC—owned by RCA at the time—was paramount. This persistent association of television with RCA and NBC also positions the medium squarely as a popular entertainment technology. While these histories of television are compelling and well accounted for, they nevertheless obscure alternative paths traveled by TV in its youth. Reading the fair differently, however, enables us to recuperate these other routes.

Returning to “The World of Tomorrow” (the fair’s motto), I suggest we attend to what was actually being shown on television—a remarkable absence in many treatments of the fair. In addition to live broadcasts from the fairgrounds and closed-circuit setups that enabled people to see themselves on TV, sets in the RCA building showed 11 hours of film per week. Those 11

²⁶⁸ Television appeared in other exhibits, including Westinghouse’s, as well.

hours, a full half of their schedule, were comprised of industrial films, government films, and episodes of *The March of Time*, a popular documentary-style newsreel.²⁶⁹ *Business Screen*, a major trade magazine, estimated that by the end of the fair, the station had shown hundreds of industrial films.²⁷⁰ This means that the *dominant* form of filmed programming, and a large portion of general programming on television in its first high-profile months, was sponsored films. Sponsored films are programs produced by a variety of civic, educational, and industrial institutions to achieve varied goals. For the government, this might mean encouraging different constituencies to participate in programs, such as a USDA campaign asking farmers to participate in a tick eradication campaign, while for business and industry, sponsored films often had the main goal of cultivating viewer goodwill and what we might call today brand awareness.²⁷¹

In the 1930s, sponsored films were becoming an increasingly important part of fair exhibitions. While the Century of Progress—the fair held in Chicago from 1933-34—spread films across 43 company exhibits, the World of Tomorrow featured somewhere between 500 and 600 films, the majority of them in sound and 35mm.²⁷² Sponsored films were also used to promoted the fair itself. A relatively well-known entry in this genre, *The Middleton Family at the New York World's Fair*, served as publicity for both the fair and the exhibit of the film's sponsor, Westinghouse. In it, a middle class, middle-American family visits the fair (in part because the

²⁶⁹ Robert Seymour, Jr. "Television Provides Audiences with Motion Pictures" *Business Screen* 2, no. 5 (1940): 16.

²⁷⁰ "Films via Television: NBC, Don Lee, Zenith Programs Bring Sponsored Films to Audiences." *Business Screen*, 15. Volume 2 1939.

²⁷¹ See, for example, Jennifer Zwarich, "The Bureaucratic Activist: Federal Filmmakers and Social Change in the U.S. Department of Agriculture's Tick Eradication Campaign," *The Moving Image* 9.1 (Spring 2009): 19-53.

²⁷² William Bird, *"Better Living": Advertising, Media, and the New Vocabulary of Business Leadership, 1935-1955*. (Evanston, IL: Northwestern University Press, 1999): 122, 137.

young son of the family feels his job prospects are hopeless and needs to see the opportunities being developed by business and industry, in part to visit their grandmother). For subplot, Babs, the daughter of the family, who is dating her effeminate communist abstract-art-loving professor (Nicolas Marakoff), finds that her high school sweetheart (Jim Treadway) is working the Westinghouse fair exhibit as a researcher of industrial progress. (Though the film is 55 minutes long, the runtime was apparently not sufficient to allow the Middletons to ever leave the Westinghouse pavilion.) While father and son tour modern marvels of industry (including television) and grandmother and mother learn about those advances relevant to their own lives (dishwashers), the Marakoff-Treadwell plotline allows for a debate between big business and its detractors. To the victor goes the spoils; the film ends with Babs and Treadwell staring tearfully at the Westinghouse pavilion as fireworks erupt. Using a technique common to sponsored films, *The Middleton Family* makes the benefits of industry legible through individualized experiences. The plot also leaves significant room for the reinforcement of gender norms and the demonstration and process images so common to other types of industrial films that posit industry as a scientific engine of progress. Although the sponsored films hosted by the fair would have varied considerably in terms of their plots, aesthetics, and incorporation into other exhibit materials, it is likely that many exhibited similar approaches to positioning business as the key to “better living;” indeed, William Bird suggests that the 1939 fair was a key turning point in corporate speech in which companies increasingly moved away from “demonstration” to “dramatization” to sell themselves to the American public.²⁷³

For many fairgoers being introduced to television, then, the marvel of the new medium would have been interlaced *not* with Hollywood and entertainment programming, but with the

²⁷³ Bird, 135.

tropes of industrial and civic progress, corporate goodwill, and national expansion so often found in the period's sponsored films.²⁷⁴ In following these overlaps over the next 50 years, the next four chapters argue that, from the moment of its christening under the watch of RCA (and others), the medium of television has *always* been understood by practitioners as potential tool of corporate communication. And furthermore, although we often consider television as an entertainment medium, corporate communication projects have been constitutive of the development of television, its evolving meanings and its technical capabilities.

Although this project is invested in relating the story of industrial television as it developed on the shop floor, behind boardroom doors, and at company cantinas and dealer showrooms, it will begin by looking at one of the first sites in which corporations paid special attention to the special capabilities of television: the home. While discussions of (network) television as a commercial medium financed in its early years by the advertising and sponsorship dollars of Texaco, Kraft, Philco, Goodyear, and Alcoa animate early histories of television broadcasting, analyses of the “commercial” side of the medium tend to focus on how networks worked with (or contracted) sponsors to create star-studded entertainment for the home audience. This telling of the story of early television keeps entertainment giants—the pre-existing radio networks, Hollywood, and Broadway—(not to mention the most powerful and resource-rich sponsors) at its center. This chapter expands these discussions while pointing to the intersections between institutional and popular media by exploring how institutional media producers and users—agents almost wholly absent from histories of the television's emergence—added to

²⁷⁴ And, of course, the sorts of discourses present in these sponsored films would be useful to RCA in their attempts to link the value of corporate leadership and its ties to progress with their newest marvel, which at that time had a very uncertain future

discursive struggles regarding the possibilities and potential of the new medium while helping to shape early programming strategies.

Throughout the 1940s, the industrial film sector closely watched the development of commercial television. With the penetration of sets in American homes still in its infancy and control over programming, distribution, and new legal and labor relations in flux, business and industry identified opportunities for participation in the new medium along four major lines: sponsoring glamorous entertainment fare, producing commercials for sponsored programming, supplying sponsored and educational film to fill up a gaping broadcast schedule, and broadcasting demonstration and direct sales programs on local stations. This chapter follows the latter two of these threads—those which have not received significant attention elsewhere—to identify 1) how and why domestic television—particularly network affiliates and local independent stations—became an avenue for industrial content, 2) how the industrial sector came to understand the public relations, selling and distribution capabilities of commercial television, and 3) the role domestic television played in the ongoing operations of the industrial film sector. In moving beyond the in-house confines of the corporation to the general audience viewing in their homes, this chapter addresses intersections between the histories of industrial film and commercial entertainment that have yet to be fully recognized. Further, it attends to two perennial omissions in broadcast histories written from within media and cultural studies: the development of non-network content and the local station programming strategies employed by both network affiliates and independent stations. As I show, these intersections between commercial distribution, mass entertainment, and the industrial sector offered American business a unique opportunity to contribute to the establishment of a new medium and experiment with the utility of television as a domestic communication technology.

Networks, Early Television, and Liveness

The early years of television, as with any new medium, were defined by struggles over the meaning and capabilities of the technology as well as its ownership and oversight. While significant scholarship attends to the diverse agents and institutions that hoped to gain some measure of this discursive, material, economic, and/or legislative control over television as it made its way into the home of consumers and citizens, at least one key set of intermediaries is routinely left out of these discussions: industrial film producers. In what follows, I will draw first on secondary literature to trace how commercial broadcasting interests and government agents shaped programming norms in the earliest decades of television. In turning to my own original research—drawing on trade journals and contemporaneous accounts—I outline how independent and affiliate stations were often engaged in diverse programs that exceeded the bounds of these norms. I then argue that industrial film producers targeting local stations participated in, exploited, and overturned these norms to position themselves as the natural inheritors of the broadcast schedule.

Unlike radio, which was developed and “fine tuned” in part through the efforts and experimentations of amateurs who could find ready access to early wireless technologies, experiments with television occurred behind the closed doors of established researchers and manufacturers. Television thus emerged from the collaborative and competitive efforts of a limited number of inventors, manufacturing firms, networks, and trade organizations, including Philo T. Farnsworth, Edward Howard Armstrong, Vladimir Zworykin, DuMont, RCA, Philco, Zenith, NBC, CBS, the Radio Manufacturers Association, and the Federal Communications

Commission (FCC).²⁷⁵ The more controlled nature of television's invention, however, did not shorten the time of its initial development. Although experiments with television began in the 1920s, it was not until July 1, 1941—a date chosen by the FCC—that commercial television debuted. While some network-owned stations that had been running on a non-profit experimental basis began seeking advertisers to support their programming, a series of delays restricted mass entry into the broadcasting field and increasingly tightened network control over the airwaves.

First, soon after the U.S. entry into World War II, the newly-formed War Production Board arrested the expansion of television for the duration.²⁷⁶ The few stations that had begun operations were permitted to continue broadcasting. Of the seven of these that managed to outlast the war, all were controlled by network and broadcast interests (NBC, CBS, DuMont, Don Lee), major manufacturers (General Electric, Philco), or the film industry (Balaban & Katz, a film exhibition firm). Although more parties entered broadcasting at the war's end, station construction and the proliferation of sets remained lethargic in part due to a persistent set of technological and policy hurdles.²⁷⁷ Though only 50 stations were on the air in 1948, interference across the limited 13-channel VHF spectrum made proper reception difficult in major media markets with several competing stations. Realizing that unchecked, current practices for assigning licenses would lead to visual and aural chaos, the FCC put a moratorium on new television licenses, the so-called "freeze." The 58 stations with active construction permits were allowed to proceed with their plans but all further construction was put on hold. What was first imagined as a six to nine month period of reflection and reorganization became a four-year

²⁷⁵ For more on the struggles between these collaborators and competitors, see "An Idea Whose Time Had Come" in Gary R. Edgerton, *The Columbia History of American Television*. New York: Columbia University Press, 2007: 3-59.

²⁷⁶ For more on the development of television for the war, see Edgerton, 68-74.

²⁷⁷ Frank Sturcken, *Live Television: The Golden Age of 1946-1958 in New York* (Jefferson: McFarland (1990): 15; Boddy, 47.

debate over the ideal relationship between VHF and UHF licenses, frequency set-asides for educational broadcasters, and color television. As William Boddy suggests, the terminology of “freeze” obscures the frenzied activity of the years between 1948 and 1952; the number of stations in operation more than doubled, the infrastructure for interconnected national broadcasting was founded, and the number of homes with television skyrocketed from .4 % to 34%.²⁷⁸ For those who entered television before the freeze—like those who had entered before the war—the period represented a tremendous opportunity to develop programming and build audiences with little to no competition. Of the 63 markets served by stations during the freeze, almost two thirds had only a single station and only eleven markets could boast of three or more stations.²⁷⁹ Again, participation in this development was wildly uneven. Of the 108 television license holders given the opportunity to dominate four of the most crucial early years of American television, 82% held radio licenses while another 16% were equipment manufacturers.²⁸⁰ And since the FCC designed its new allocation system to disrupt the fewest pre-existing channel assignments possible, those advantaged by the pre-freeze VHF arrangements not only maintained their powerful position; according to dissenting commissioner Robert F. Jones, they received a “tremendous windfall” as a result of the freeze and ensuing technological decisions.²⁸¹

The conditions of the freeze period thus enabled the networks to scaffold network television broadcasting onto the pre-existing radio affiliate structure. Not only did networks own

²⁷⁸ Boddy, *Fifties Television*, 51; Jonathan Sterne, “Television Under Construction: American Television and the Problem of Distribution, 1926-62,” *Media, Culture, and Society* 21, no. 4 (1999): 515.

²⁷⁹ Boddy, *Fifties Television*, 51.

²⁸⁰ Robert Pepper, “The Pre-Freeze Television stations,” in Lawrence W. Lichty and Malachi C. Toppings, eds., *American Broadcasting: A Source Book On the History of Radio and Television* (New York: Hastings House, 1971): 143, 144.

²⁸¹ Quoted in Boddy, *Fifties Television*, 54; For more on the Freeze, see body, 49-54.

some of the most powerful VHF station licenses in the largest markets, NBC's radio affiliates acquired key VHF licenses that expanded the network's range far beyond its owned-and-operated stations (O&Os) and made affiliation the most desirable choice for new station owners.²⁸² As Robert Vianello explains it, post-freeze station owners had a choice: either they could remain independent, which meant high levels of local production and cheap syndicated fare (and tougher competition), or they could affiliate with the networks that had already developed a relatively sophisticated array of desirable programming.²⁸³ As Jonathan Sterne points out, by 1951, the networks could also claim the (infra)structural possibility of reaching the majority of American households, which supported their attempts to promote television broadcasting as a mass commercial medium and gain the support of national advertisers.²⁸⁴ Given the financial, infrastructural, and programmatic support of the networks, affiliation offered the most appealing choice for many of those hoping to enter commercial broadcasting.

The dominance of the networks and the national affiliate structure dramatically impacted the shape television programming would take, particularly in prime time—between 7:00 and 10:30pm—when American homes switched on double the number of television sets compared to other periods.²⁸⁵ Due to the appeal of glossy network programming (to audiences and advertisers alike)—and the roughness of local production by comparison—the networks enjoyed high clearance rates for their programming. That is, affiliates often chose to air programming offered by networks rather than produce their own programming or, as it became available in the fifties,

²⁸² Boddy, *Fifties Television* 59. Boddy notes that in the five years between 1948 and 1953, NBC could count most existing stations among their affiliates.

²⁸³ Robert Vianello, "The Rise of the Telefilm and the Network's Hegemony Over the Motion Picture Industry," in *American Television: New Dimensions in History and Theory* ed. Nick Browne (Chur, Switzerland: Harwood Academic Publishers, 1994): 7.

²⁸⁴ Sterne, "Television Under Construction," 503.

²⁸⁵ Boddy, *Fifties Television*, 121.

fill out their schedule with filmed and syndicated fare. “Option time” also contributed to high clearance rates of network programming. Under option time rules, affiliates agreed to air network programming, sight unseen, during certain times of the day, in return for receiving the networks’ popular prime time programs.²⁸⁶ As a final inducement to clear network programs, affiliates obtained a higher percentage of advertising revenue the more network programming they accepted.²⁸⁷

While the primacy of network control in these key time slots and the widespread practice of affiliation meant the programming decisions made by NBC and CBS determined most people’s after-dinner viewing possibilities, it was the regulatory and competitive environment in which the networks found themselves that shaped how the big two chose to program. As Michele Hilmes demonstrates, early on in their tenure, networks borrowed from a strategy developed in their radio days that emphasized the value of live programming as broadcasting’s ideal aesthetic form.²⁸⁸ This carried several benefits for the networks. First, given their infrastructural strength and their focus on interconnection, only the networks could boast the ability to transmit live across the entire country. As a corollary, by emphasizing live transmission in their schedule, the

²⁸⁶ Controversial for its resemblance to the already banned block-booking practices of the film industry which, like option time, facilitated vertical integration by enabling producers and distributors of programming undue control over their exhibitors, option time went through a series of prohibitions, revisions, and reinstatements during its tenure in radio and television broadcasting. After the FCC reversed its 1941 ban on the practice, option time persisted on television up through 1963, requiring affiliates to clear 3 hours of network programming in each of three daytime segments: morning, afternoon, and evening. Although breaking option time into daily segments was intended to provide affiliates with more control over their schedules, 3 hours in prime time was enough for networks to control almost all of the most valuable (i.e. highly viewed and highly lucrative) programming periods. See, for example, Boddy, “The Economics of Television Networking,” 113-131; “Television Option Time is Banned” *The Lewiston Daily Sun* May 31, 1963, page 8 (AP).

²⁸⁷ Boddy, *Fifties Television*, 118.

²⁸⁸ Hilmes, *Hollywood and Broadcasting: From Radio to Cable* (Chicago: University of Illinois Press, 1990): 143.

networks were able to exert greater control over the schedules of their affiliates. If affiliated stations wanted to air desirable network programs, they had to broadcast the shows live, exactly when the network (and the program sponsor) desired, rather than rework network and local shows into a program flow potentially more appealing to the affiliate. Second, liveness became a claim to public service programming in accordance with FCC licensing regulations. Because the FCC positioned broadcast content unavailable through other media, e.g., newspapers or records, as hewing closer to public service goals, the networks continued a strategy born in radio that any live content—by virtue of its liveness rather than its inaccessibility in other media—met these standards.²⁸⁹ Third, the competitive threat of Hollywood and the looming possibility of a “celluloid network” of programs produced on film and sold to individual stations reinforced the networks’ preference for live programming.²⁹⁰ Given its high production values and appeal, Hollywood content seriously threatened the networks’ early control over their affiliates by offering a viable programming alternative (and one which did not require affiliates to split their advertising revenue).²⁹¹ The networks’ vocal emphasis on the association between their live programming and the public interest shielded their competitive interest in denigrating filmed programs, helped insulate networks from criticisms of too-tight control over affiliates, and provided cover for their own gradual transition into filmed programming.²⁹²

As a result of the strategic importance of live programming to the networks, live anthology dramas, variety programs and spectacles became the most visible content for the new medium in the early 1950s. Programs like *Kraft Television Theater* (NBC, 1947-1958), *Studio One* (CBS, 1948-1958), and *Philco Playhouse* featured respected actors, established

²⁸⁹ Hilmes, *Hollywood and Broadcasting*, 143.

²⁹⁰ Baughman, 88.

²⁹¹ Hilmes, *Hollywood and Broadcasting*, 148-149.

²⁹² Boddy, *Fifties Television*, 73-76.

producers, playwrights, and directors, and prestige-laden source material—books and plays—in an anthology format that showcased a different story—and a different cast—every week.²⁹³

Drama's comedic counterpart, the vaudeville-style variety show, carved out space in prime time with programs like radio transplant *The Texaco Star Theater* (NBC 1948-1956), *Your Show of Shows* (NBC 1950-1954), and *The Red Skelton Show* (CBS 1953-1970; NBC 1951-1953; 1970-1971). Like anthology dramas, comedy variety shows could boast a stable of impressive talent that had built their stardom elsewhere—figures like Milton Berle, Fred Allen, Groucho Marx, George Burns, Gracie Allen, and Jack Benny.²⁹⁴ Towards the middle of the decade, NBC put forward a third programming strategy based on live performance, high production values, and an air of prestige: the spectacular. Developed by Pat Weaver, head of NBC television before he became president of the network in 1953, spectaculars drew from top flight talent in theater and show business (who would otherwise be unable to participate in serial television) and broadcast in color.²⁹⁵ By promoting programs like *Peter Pan* (1955) and *Inside Beverly Hills* (1956) as specials drawing together talent for a rare, one-time occasion, NBC further demonstrated the value and distinction of the live simulcast available only to networks as the ideal form of broadcast television.

Given the primacy of live programming on network primetime and the interests of the networks in discursively promoting these shows as the best available content for the new medium, the period dominated by live drama and comedy, 1950-1955, acquired its “golden age”

²⁹³ For an overview of live network programming in the medium's early years, see Frank Sturken, *Live Television: The Golden Age of 1946-1958 in New York* (Jefferson, NC: McFarland, 1990).

²⁹⁴ For more on vaudeville's transition to early television, see Edgerton, *American Television*, 113-124.

²⁹⁵ Edgerton, *American Television*, 99. Edgerton also suggests that NBC's decision to air spectaculars in color was part of a strategy to support RCA sales of color receivers (100).

label. However, as Hilmes has shown, this rosy depiction of the early fifties as a period of cutting edge experimentation by top New York theater talent obscures the regulatory and economic reasons behind the networks' interest in liveness, as well as the awkwardness and lackluster ratings and reviews of much early live production.²⁹⁶ In addition, taking anthology drama and prestige programs as the norm of television production in the early fifties effaces the majority of television programs available to viewers during the "golden age." Quiz and game shows, news and public affairs programs, serials borrowed from radio and—as with any new medium—sports were prolific early television genres. Furthermore, not only did sitcoms and crime shows increasingly dominate television ratings, the early 1950s saw the rise of telefilm, with a rapprochement between Hollywood and the networks spurred on by a 1953 merger between United Paramount Theaters and ABC that eventually lead to the rise of studio content produced directly for the networks.²⁹⁷

Although the late forties and early fifties were a key period for the consolidation of network power, focusing solely on the most powerful institutions in early television broadcasting distorts our understanding of early television programming strategies and the diverse shows that graced the screens of many homes at various hours in the day.²⁹⁸ It is important to remember that networks like NBC were only ever in control of the entire broadcast schedules for five stations at most across the country—the maximum number of O&Os that any owner could have under FCC rules. Furthermore, not only does the preoccupation with prime time that dominates discussions of golden era television limit our knowledge of the range of early program forms, it takes for

²⁹⁶ Sturken, *Live Television*, 19, 39; Hilmes, *Hollywood and Broadcasting*, 148.

²⁹⁷ Hilmes, *Hollywood and Broadcasting*, 153.

²⁹⁸ Certainly, the uneven attention devoted to early broadcasters results from the vagaries of historical preservation which, as commonly occurs, protected the interests of powerful institutions far better than their weaker counterparts (affiliate and independent stations); unlike NBC, no central repository holds the early television materials of the diverse freeze-era stations.

granted the networks' understanding of evening viewers—and all that those demographics imply—as their most important audiences.²⁹⁹ Although the networks aimed to posit broadcasting as a national medium bound by their coaxial cables, programming decisions, and advertising reach, the FCC imagined and weakly supported television as a local medium. Despite the power of the networks, local affiliates and, to an even greater degree, independent stations were responsible for significant amounts of programming geared toward the audiences that sat within range of their broadcast signal. As Alexander Russo has already shown in the context of radio, the programming used by local stations—even during radio's so-called “golden age”—was incredibly diverse and determined largely at the local rather than national level.³⁰⁰ The following sections aim to reconstruct a small portion of local television history by exploring the use of industrial film as coarse feed for the gaping maw of early television schedules.

Independents, Affiliates and the Appeal of Film

The early years of post-war television broadcasting demanded high levels of low-budget experimentation from a wide swath of independent and affiliate stations that found themselves with significant portions of airtime to fill. Broadcasters sought to appeal to their local constituency—not least because of FCC demands to cater to local listeners to fulfill licensing requirements—while simultaneously attempting to transform heavy investments in new stations into a profit. As a result, popular genres were those cheap to produce and targeted to local listeners. While many of these early programs were live—fitting squarely into the quickly solidifying “ideal” promoted by the networks—film would also become popular for reasons I will address below. When an assistant general manager for Pittsburgh's WDTV reported on

²⁹⁹ A major exception here is Jennifer Hyland Wang, *Convenient Fictions: The construction of the daytime broadcast audience, 1927-1960*. Unpublished dissertation. 2006.

³⁰⁰ Alexander Russo, *Points on the Dial: Golden Age Radio beyond the Networks*. Durham: Duke University Press, 2010.

“Low Cost Local Programming” to a conference of established and aspiring TV men, he rattled off a list of programs reflecting common programming strategies:

the women’s, women’s-shopper or homemakers show [...] The audience participation show [...] cooking programs; news; a small musical; maybe a couple of guys who can play and sing at the piano and do all sorts of things, which break up the talk schedule during the day. An amateur or teen age or musical program [...] Religious and Chapel programs, civic service shows.³⁰¹

Many of these shows required minimal sets, inexpensive labor (particularly in the case of local labor and adolescents who worked for free under union stipulations) and low levels of planning and rehearsal. Following Tom Gunning, we might even classify some of this early programming under the rubric of “TV of attractions.” Eschewing narrative in favor of (literally) cheap spectacle, programs emphasized the novelty of moving images (or, audiovisual broadcasting) in the home. If Gunning’s “cinema of attractions”—the early form taken by film until about 1906-1907—emphasized the act of showing to “display[] its visibility, willing to rupture a self-enclosed fictional world for a chance to solicit the attention of the spectator,” early television likewise attempted to cultivate a similar relationship with its spectators by directly addressing viewers, inviting their participation in its self-conscious display. A program like Washington D.C.’s WNBW’s self-improvement show for homemakers used spectacle (beauty and fashion advice provided by a former model) and participation (a class of 16 local audience-surrogate “students” that rotated each 13-week programming cycle) to engage home audiences. Its companion program—an exercise program lead by the same host—rendered the station’s request for audience participation even more explicit.³⁰² *Cook’s Corner* with Monty Margette incorporated both audiences and on-set production staff in a casual, intimate address that

³⁰¹ A. Donovan Faust, “Low Cost Local Programming” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 75.

³⁰² Ralph Burgin, “Low Cost Music and Participation Shows Versus Film” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 43-44.

included the reading of viewer letters and criticism during her show, calling fans off-air, and even interacting with the crew during production. The inexpensive spectacle of *Cooks Corner* came from Margeette's notorious (but apparently unstaged) "mishaps" in the kitchen that signaled both her lack of expertise and her sincere willingness to learn for and alongside her viewers.³⁰³ Other stations followed these twin avenues even more extensively, as in the case of a Detroit station that found success "focusing a camera on some playful hamsters with appropriate background music being played" and ABC's suggestion to new stations to involve local viewers (and, more importantly, obtain free programming during a stations' first months when revenues are weak) by holding program pitch contests and hosting local organizations on the air.³⁰⁴ As the ABC producer put it, "If the general public can turn on their television sets and see something—anything—happening that is more interesting or exciting than what is at that moment happening to them, they will usually leave the set on!"³⁰⁵ Indeed, one Chicago-based programmer so was concerned that people (primarily women) would become absorbed in television to the point that they would not be able to complete their regular duties, he suggested programming for "activity periods" wherein the visual display of the television would be reduced and the audio track would take on a more radio-like supremacy, allowing workers to move around the home while the set was switched on without missing too much information.³⁰⁶ Although Gunning's model of cinematic audience participation draws its lineage from the fair and theatergoers who heckled and sang along with performances, as well as the Soviet avant-garde theorists who identified

³⁰³ Mark Williams, "Considering Monty Margeette's Cook's Corner: Oral History and Television History" *Television, History, and American Culture: Feminist Critical Essays*, ed. Mary Beth Haralovich and Lauren Rabinovitz. (Durham: Duke University Press, 1999): 44, 45.

³⁰⁴ Charles F. Holden, "Brass Tacks in TV Production" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 20-21.

³⁰⁵ *Ibid.*, 21.

³⁰⁶ George Heinemann, "Art, Scenic Effects and Camera Techniques" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 103-104.

political possibilities in direct, confrontational engagement, the participation evinced on early television often took a somewhat different path. Although educational, civic, and religious organizations believed the interactive possibilities within television's spectacular mode of address could be used to teach and preach, commercial broadcasters may have been most interested in developing audiences' capacity for loyal consumption—of television programming as well as department store offerings.³⁰⁷ In addition to building a particular type of relationship between audiences and programming—a goal I return to below—the programming strategies of the TV of attractions searched for any and all content that brought in a mass of viewers, at good numbers and at the lowest cost possible.

Although certain genres of programming, e.g. the homemaker show, found routine success under this metric, leading to the regular appearance of certain locally-produced genres across the country's existing television markets, the scale of experimentation undertaken throughout the U.S. allowed for a remarkable variety of on-air programming under the watch of independent and affiliate stations. However, the enthusiasm of television practitioners over their innovative strategies for exploiting the new possibilities of the medium—and their desire to emphasize efforts to meet FCC broadcasting guidelines increasingly trained on an equivalence between liveness and public service—overshadows another routine source of local programming: film. In addition to furnishing stations with polished programming that could compete in prime time with star-studded network entertainment, kinescoped and filmed programs offered a number of other advantages to broadcasters. Film fit flexibly into the broadcasting schedule. While broadcasters might try to program live content back-to-back or in concentrated chunks in order to

³⁰⁷ Likewise, Mimi White mentions “television of attractions” when talking about the exhibitionist aesthetics of home shopping programs, another genre dependant on a particular type of consumptive participation. *Tele-Advising*, 96-97.

economize on the hours they needed to hire production staff and operate expensive equipment, film could be inserted easily into any point of the daily schedule without regard for studio operations.³⁰⁸ For stations like New York's WCBS-TV, using film to fill out odd hours of the schedule also provided an opportunity to target difficult-to-reach audiences while making fringe viewing hours profitable; they found that their "Late, Late Show," which aired feature films at 1:15 or 1:30 am, drew significant audiences of second shift manufacturing workers who otherwise had little opportunity to watch television.³⁰⁹ Furthermore, unlike live programming, film required no expensive studio time for rehearsal, whatever time of day that might concern.

As a second benefit to using recorded material, hamsters aside, film was often the more economical choice. While its cost ranged dramatically, from free to over a thousand dollars a title depending on its source, filmed content—excluding the most expensive Hollywood fare—was often considered a cost-effective alternative to live production.³¹⁰ Furthermore, the variability in film costs could be aligned with differences in airtime rate structures (the amount advertisers paid to "sponsor" or "participate" in station programming); expensive features could be shown weekend evenings when advertisers were prepared to pay the highest rates for commercial buys, the cheapest films could be shown in the early morning and at late night when rates were lowest, and everything in the middle might find a spot in the late afternoon when rates sat between the two poles.³¹¹ In addition to film's low price tag, pre-recorded programming freed broadcasters from high production costs that included studio time, talent, and set design. Film

³⁰⁸ Robert Petranoff, "Low Cost Local Programming" *Thirty-Two Television Talks* (New York: Broadcast Music, Inc., 1955): 168.

³⁰⁹ Craig Lawrence, "Questions and Answers" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 68.

³¹⁰ Jay Faraghan, "Film Buying—Film Cost and Problems of Film Operation" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 126

³¹¹ "TV Clinic Open Forums: Los Angeles," *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 225.

proved so profitable for one station that it ran no local live programming whatsoever—a daring move, considering the FCC’s position on local service, but one enabled by the station’s lack of any competition in its market.³¹² Less bold broadcasters still found film crucial for economically building up schedules or even reaching the ambitious benchmark of 24-hour operations.³¹³

It was not unusual for broadcasters to declare a bright future for film. Although disagreement tempered the enthusiasm of these prognostications, several within the industry believed that film would become increasingly central to the operations of stations at all market levels. For some, the proliferation of television stations across the country meant that soon the reach of live network television would be so expansive that no one sponsor could afford to pay for such an audience; film, on the other hand, could allow advertisers to carve up the country into smaller, more affordable markets.³¹⁴ For others, more stations meant more potential customers for Hollywood film product, and thus a greater incentive for Hollywood to create programming specifically for television; Hollywood could revive its competition with networks, and affiliate and independent stations would benefit from the increase in program offerings.³¹⁵ In either case, estimates concerning the future of film for the average station hovered around 75-80% of the entire schedule. Film was easier, cheaper, more flexible, and fit into broadcasters’ current understandings of the possibilities inherent in the national development of television programming.

³¹² “TV Clinic Open Forums: Los Angeles,” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 227.

³¹³ Faust, 75; Harold Lund, “TV Clinic Open Forums: Los Angeles,” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 241.

³¹⁴ Lund, 241. This anxiety over rising rate costs was informed by ongoing rate increases justified by stations and networks by the continuing increase in set ownership. “Philadelphia Television Outlet Announces New Rates & Terms” *Business Screen* 9, no. 6 (1948): 14.

³¹⁵ “TV Clinic Open Forums: Los Angeles,” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 238 – 239.

Who Will Provide the Programs?³¹⁶

Although Hollywood was often central to discussions of the future of film on television (and remains key in our histories of broadcasting), they were not its only potential suppliers. This section builds on these histories of film on television by examining an alternate avenue of film production and distribution explored through the 1950s, the industrial or “commercial” film.³¹⁷ As I mentioned at the beginning of this chapter, sponsored film was central to public demonstrations of the young medium. Likewise, many of the earliest stations, such as Don Lee’s Pacific Coast chain stations and WBKB in Chicago, used industrials to fill out their schedules resulting in these same sorts of corporate public relations communications providing home viewers’ introduction to the possibilities of television.³¹⁸

Whatever their social and cultural import, however, these histories of early sponsored film on television have left few traces. Whether due to station reticence to discuss programming that might not fit precisely into high-quality local interest programming or the admittedly poor quality (content and condition) of many available industrial films that rendered them unremarkable workhorses, evidence of these shows persists primarily in assorted secondary materials: production studio advertisements and reports championing their television successes, citations for industrial-film-for-TV brochures no longer extant or accessible, journalistic reports promoting free film available to stations, television industry conference question and answer

³¹⁶ This question titled an article in *Business Screen* reflecting on the most likely candidates for filling television’s schedule (unsurprisingly, the magazine’s conclusion was industrial and factual film producers). “Who Will Provide the Programs?” *Business Screen* 6, no. 7 (1945): 18.

³¹⁷ Practitioners within the industrial film industry often refer to their product—whether 90 minute feature films or one-minute spot advertisements. Due to the ambiguities in “commercial,” I stick to “industrial” throughout.

³¹⁸ “Chicagoans Take to Television: A Progress Report on Telecasting in the Midwest” *Business Screen* 8, no. 8 (1947): 20-21; “Films Via Television: N.B.C., Don Lee, Zenith Programs Bring Sponsored Films to Audiences” *Business Screen* 2, no. 2 (1939): 15.

sessions, and, frequently, complaints from station operators regarding the quality or overt commercialism of available industrials.³¹⁹ These sources combined provide a skeletal outline of the place and prevalence of filmed industrials on domestic television.

Industrial films made available to television were ubiquitous, widely seen, strategically used, and even reportedly, on occasion, well liked. Industrial films comprised part of the “flood” of materials received daily by stations from varied interests hoping to secure free airtime for their products.³²⁰ Distributors publicized their steadily increasing stocks of available industrials in trade journals, hoping to appeal to station programmers desiring free film content. Those films that were chosen to air could reach audiences in the tens of millions. *What Makes Us Tick*, an animated short developed by John Sutherland Productions for the New York Stock Exchange introduced an estimated 58 million television viewers (according to promotional figures) to the basic workings of the stock market—and, of course, its vital importance to American progress, job growth, and national security; “owning a share in American industry is like owning a share in

³¹⁹ “Case History of a Successful Business Film: The Story of a Man Street Merchant” *Business Screen* 19, no. 2 (1958): 5; Broadcast Information Bureau, *Directory of Free TV Film*, cited in “Top 100 Advertisers Offering Free Industrial Pix, BIB Directory Shows” *Variety* 194.8 (Apr 28, 1954): 37; “Survey of the use of industrially sponsored motion pictures on television sustaining time” quoted in Carvel Films, “Advertisers and Advertising Agencies” *Business Screen* 15, no. 6 (1954): 1; Association Films, *Free Films for '53* quoted in “Television Free Film Listing Issued by Association Films” *Business Screen* 14, no. 3 (1953): 64; “TV Film Annual: Stations Choose 50 of Best Free Films for TV” *Variety* 207.9 (Jul 31, 1957): 42, 90; “Stations Select 50 Outstanding Free Television Films” *Variety* 210.3 (Mar 19, 1958): 33-34; Robert D. Swezey, “Every Town a Show Town U.S.A.—Yeah?” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 12-13; Jay Faraghan, Film Buying—Film Cost and Problems of Film Operation” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 126; “TV Clinic Open Forums: Chicago” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 221; “Special Evening Bull Session” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 242; Ott Coelin, “Television is the most challenging medium” *Business Screen* 8, no. 8 (1947): 19.

³²⁰ Robert Tincher, “The Job of Integrating TV into the Community” *Thirty-Two Television Talks* (New York: Broadcast Music, Inc., 1955): 114.

the future of our nation.”³²¹ These audience figures may not have been unusual; a 1954 study by the Broadcast Information Bureau estimated that a full third of television households sees any given nationally distributed industrial film as it makes its way around the country.³²² Part of the popularity of industrials no doubt came from how they helped complete film-heavy broadcast schedules or provide “fill” for less competitive broadcast periods.³²³

Perhaps more importantly, industrial films provided a source of free programming to meet stations’ requirements to air material on a “sustaining” basis. As noted above, stations were required by the FCC to serve their local communities. One avenue for meeting this public service requirement was through sustaining—that is, not sponsored—programming; it was believed that a mix of sustaining and commercial programming could offer a wider variety of viewpoints to be represented on the air since, otherwise, topics and ideas controversial to or not popular with commercial sponsors would have little access to the airwaves. Although the industrial films that filled this function for television stations were indeed “sponsored” in one sense—created on behalf of and at the expense of a company—they qualified as sustaining programming since their sponsors did not actually pay for their airtime on a given station; instead, the station subsidized their broadcast. To make their productions appealing to stations as public service, industrial films and their sponsors toned down any overt commercialism or direct advertising elements that similar films showcased in non-theatrical exhibition contexts. Since stations could not recoup the costs of sustaining broadcasts through commercial sponsorship, free film could be a desirable

³²¹ “Case Study of a Successful Business Film: What makes us tick” *Business Screen* 19, no. 3 (1958): 5; the quote is taken from the final rousing moments of the film that align the fate of American progress with its citizens’ willingness to buy stock.

³²² “Top 100 Advertisers Offering Free Industrial Pix, BIB Directory Shows,” 37.

³²³ G. D. Gudebrod, “Motion Pictures for Video” *Business Screen* 6, no. 6 (1945): 18; Fred C. Mueller, “Advantageous Film Buying and Film Programming” *Thirty-Two Television Talks* (New York: Broadcast Music, Inc., 1955): 138; Robert Seymour, Jr. “Television Provides Audiences with Motion Pictures” *Business Screen* 2, no. 5 (1940): 34.

alternative to creating in-house content. As I discuss below, the use of corporate industrials to meet guidelines designed to increase the diversity of views on local airwaves is not unproblematic considering the overwhelming spaces for corporate speech across the dial. Industrials, however, were not wholly unwelcome to audiences, as indicated by reports that they were “accepted by [audiences] without negative reaction” and rated “good” in rudimentary early audience studies.³²⁴

Stations were not the only party with a keen interest in industrials for television. Industrial (“commercial”) film studios—the companies that produced non-theatrical sponsored and educational films discussed in the last chapter—stood to gain much if television could be made an outlet for their product; not only would television offer an easier route to film distribution, a decades-long industry problem, it opened a new avenue for audiovisual advertising and represented the possibility of an unprecedented demand for industrial programming.³²⁵ Heretofore unrecognized in the debates over the merits of live versus filmed programming that structured struggles over control of early television, commercial film interests worked to position film as the natural medium of television and the commercial film sector as the obvious choice as the supplier of that filmed content.

After trotting out many of the same benefits of filmed television cited above—cost, flexibility, ensuring perfect performance, animation and effects, time-shifted rebroadcasts, legal records, less rehearsal, simultaneous distribution beyond the reach of coaxial cables—as well as

³²⁴ Robert Seymour, Jr. “Television Provides Audiences with Motion Pictures” *Business Screen* 2, no. 5 (1940): 16; Mueller, “Advantageous Film Buying and Film Programming,” 138.

³²⁵ On distribution and the television’s ability to transform current practice of small audience screenings to the broadcasting of a program “to the great American public in every city and state in the Union,” see “Postwar Television” *Business Screen* 5, no. 8 (1944): 31. “Who Will Provide the Programs?” *Business Screen* 6, no. 7 (1945): 18; Seymour, Jr. “Television Provides Audiences with Motion Pictures” *Business Screen* 2, no. 5 (1940): 16. “As TV Expands, So Does Market for 16mm Sponsored Films and Spots.” *Business Screen* 10, no. 3 (1949): 32.

a few of their own, including re-use for non-theatrical settings, newsreels, and research after broadcast, discussions of film on television within the industrial film sector turns to its favored question, “who will provide the programs?”³²⁶ Although the answer is always the same—commercial (that is, industrial) filmmakers—the reasons behind this answer vary in some small degree. However, the first and most frequent explanation for the primacy of non-theatrical filmmakers is cost. The scale of production demanded by television, according to this argument, is too great for the high production values of Hollywood product (which would not display properly on the TV screen anyway); what television needs is “not glamorous Hollywood films—but average, workaday films designed especially for commercial television and produced on budgets which fit the economy of a new advertising medium.”³²⁷ In addition to the scale of production, television film costs also needed to adapt to the budgets of advertisers, many of whom were smaller outfits with less money to spend on programming.³²⁸ Likewise, non-theatrical filmmakers enjoyed a unique position where the costs of their products—sponsored films—could be further justified by their “total use potentials” for sponsors; after a sponsored film made its television debut, they could be repurposed and sent along established non-theatrical channels to maximize the sponsor’s return on investment.³²⁹ Another argument for the primacy of commercial filmmakers suggested that their combined resources—experience and facilities—were qualified to match the herculean task of working out the “shortcomings” and locating the

³²⁶ One article even slanders the competition, labeling liveness “of doubtful value”—except, in the instance of sports and news. “Postwar Television” *Business Screen* 5, no. 8 (1944): 31; “Who Will Provide the Programs?” *Business Screen* 6, no. 7 (1945): 18; G. D. Gudebrod, “Motion Pictures for Video” *Business Screen* 6, no. 6 (1945): 18.

³²⁷ G. D. Gudebrod, “Motion Pictures for Video” *Business Screen* 6, no. 6 (1945): 18

³²⁸ Al Zink in “What Price Films for Television?” *Business Screen* 9, no. 4 (1948): 47.

³²⁹ C. J. Durban in “What Price Films for Television?” *Business Screen* 9, no. 4 (1948): 47.

ideal production and projection techniques for television film.³³⁰ Although Hollywood functioned as the industrial sector's favorite foil in these arguments, Broadway and radio occasionally featured as side players quickly dismissed due to their lack of product (Broadway), their inexperience with visual communication (radio), or their lack of familiarity with the specific conventions of filmmaking (both).³³¹ Provided these conditions, an article concluded, "the type of film which non-theatrical producers of the country have long been successfully marketing will, therefore, have the field almost to themselves," adding, "Time may even record television as a medium for disseminating education and information rather than a medium for entertainment."³³² This latter sentiment, reflected elsewhere in discussions of television as a potentially "enormous storehouse of [...] high-grade audio-visual instruction," indicated the optimistic ambitions possible for the industrial media sector in the post-war, pre-freeze period, when the form and function of television was still up for debate.³³³

Producers and distributors pursued the logical conclusion of the sector's claims to future supplier of television content by carving out several avenues of participation in television programming. While some adventurous producers began work on speculative series for syndication—multi-episode programs they could either shop around to sponsors or different local stations—more prudent studios sought series production on a contract basis, assembled or contributed to television film libraries leased or offered free to stations by subscription, and,

³³⁰ Coelin, "Television is the most challenging medium" *Business Screen* 8, no. 8 (1947): 19.

³³¹ "Postwar Television" *Business Screen* 5, no. 8 (1944): 31; "Who Will Provide the Programs?" *Business Screen* 6, no. 7 (1945): 18.

³³² "Postwar Television" *Business Screen* 5, no. 8 (1944): 31.

³³³ "Who Will Provide the Programs?" *Business Screen* 6, no. 7 (1945): 18. In their introduction to *Learning with the Lights Off*, Devin Orgeron, Marsha Orgeron, and Dan Streible likewise mention that producers of educational film also harbored "fantasies of an emerging television market" that could finally keep them in the black. *Learning with the Lights Off: Educational Film in the United States* (Oxford: Oxford University Press, 2011): 51.

most commonly, continued working on a per-job basis for existing and new clients, but with an eye on television distribution alongside the traditional outlets of exploitation.³³⁴ Quite a few also entered filmed television commercial production. Throughout the 1950s, television became increasingly important to the industrial media sector; as “television” or “television applications” became an obligatory skill set added to the boilerplate descriptions on production house letterhead, full-page studio advertisements in outlets like *Business Screen* focused increasingly on qualifications for and accomplishments in television work.³³⁵ Amid this rush to television production, companies attempted to stake out specialties, such as public service films for sustaining hours.³³⁶ Members of the field also worked to police the boundaries of the sector by decrying the low-budget companies with little more than a 16mm camera “springing up everywhere overnight” and chastising advertising agencies—the intermediaries that often negotiated between sponsors and the film production studios that actually created their films or commercials—for looking beyond the boundaries of the established industrial media community

³³⁴ “Commercial Producers Look with Caution on Packaged Programs for Television 10, no.3 (1949): 10; “The Princeton Film Center, Inc. Announces” *Business Screen* 18, no.1 (1957): 147; “What’s Your Trouble” Beeland-King advertisement on their commissioned series; “Offers New Film Library Plan For TV Station Syndication” *Business Screen* 14, no. 3 (1953): 64; “Television Film Assn. Starting Film Library for TV Industry” *Business Screen* 22, no.1 (1961): 183; “Dual-Purpose Commercial Pictures” *Business Screen* 6; “Florez Inc. of Detroit Sets up a Video Department” *Business Screen* 8, no. 6 (1947): 34. With regards to the television film libraries outside of network collections, similar initiatives for “factual film” were taken up by government agencies, such as the US Department of Agriculture, which developed a television film library for loan use under the Washington, D.C. headquartered Motion Picture Service. “Agriculture’s Films for Television.” *Business Screen* 11, no. 4 (1950): 45.

³³⁵ For example, see Wilding’s advertisement, “In the past eleven and a half years” *Business Screen* 9, no. 6 (1948): 9. This summer, part of my Project Arclight work will be figuring out a way to quantify this increase.

³³⁶ “Marathon Scores on Sustaining Television” *Business Screen* 14, no. 2 (1953):72. Even within these specialties firms attempted to distinguish themselves. Sterling-Movies U.S.A., for example—the firm headed in part by Charles Dolan, eventual founder of Cablevision—also worked in public interest programming, but emphasized the distribution side of the business. “Announcing Consolidation” *Business Screen* 17, no. 1 (1956): 1.

for television's filmed programming.³³⁷ For those within the industrial audiovisual sector, television appeared to offer an incredible (and lucrative) opportunity.

And What Will Those Programs Be?

While industrial films on television became an appealing proposition for stations looking for cheap content or trying to meet their public service obligations—and a desirable new avenue of revenue for industrial film firms—corporate sponsors also saw television as an attractive outlet for communicating with the public—whether for public relations or advertising. Television as a distributor of PR-like institutional advertising built on corporate campaigns designed since the massive wave of mergers at the turn of the twentieth century required companies to establish the legitimacy of their incredible scale in the face of anti-trust legislation, greed and secrecy scandals, strikes and unionization battles, and the increasing alienation of workers and consumers.³³⁸ As Roland Marchand demonstrates, the development of the “corporate soul” through institutional advertising and corporate welfare campaigns offered the chief strategy through which American business attempted to win public support for its large-scale ambitions, weather the Depression, and situate itself as a pervasive presence in modern life. Though Marchand's study concludes after big business's reputation gains in World War II, the pursuit of corporate humanity—replete with reputation and personality—persists well after the “good neighbor” campaigns of the 1940s.³³⁹ Though interested in a slightly different claim: not the corporate soul, but its promise to deliver “better living” to consumers—William Bird extends Marchand's primary (but not exclusive) focus on print advertisements to show how business

³³⁷ H. G. Christensen, qtd. in “Christensen Tells Hazards in Tele Film Production” *Business Screen* 6, no. 8 (1945): 36; Ott Coelin, “The Advertising Agency & Films,” *Business Screen* (1939).

³³⁸ Marchand *Creating the Corporate Soul*, 2, 8-9, 22-24.

³³⁹ Indeed, recent Supreme Court decisions granting companies the legal status of “personhood” are one indication of the persistence and power of over a century of such discourses.

leaders turned to radio and the relatively glamorous Hollywood-style production of live anthology dramas like *Cavalcade of America*, to maintain their legitimacy.³⁴⁰ Though Bird does address sponsored television content, his focus remains on entertainment programs airing on the networks—content we might consider more in league with *Kraft Television Theatre* than with more industrially-focused content arising from the “sponsored film” tradition produced first and foremost for non-theatrical distribution networks. Likewise, Anna McCarthy, in *The Citizen Machine*, also takes up DuPont’s *Cavalcade of America* as televisual institutional advertising in addition to tackling the Ford Foundation’s sprawling middlebrow anthology program, *Omnibus*, which proffered a benevolent sort of Cold War corporate governance that “invited viewers to imagine not only how television might be better but also how they themselves might be better if only they seized the chance at self-improvement through culture that it offered.”³⁴¹ Adding to these voices, I argue industrial films—of the more directly didactic sort that would be otherwise shown in non-theatrical settings—aired on television offered a clear continuation of the same opportunities and promises identified by Marchand, Bird, and McCarthy.

To trace the reappearance of these discourses in television’s flirtation with industrial film, we need look no further than one of Marchand’s own examples, the Ford Motor Company. A paradigmatic example of a company invested in substituting a mythicized portrait of the founder—in this instance as a “down-to-earth, homey benefactor of the people”—for the “personality” of the company, Ford was also a prolific producer of industrial film.³⁴² Several of its films were even included on one of the above-mentioned *Variety* lists of best sustaining films

³⁴⁰ William L. Bird, Jr., *Better Living: Advertising, Media and the New Vocabulary of Business Leadership, 1935-1955* (Evanston: Northwestern University Press, 1999): 65-85.

³⁴¹ Anna McCarthy, *The Citizen Machine: Governing by Television in 1950s America*. New York: The New Press, 2010: 122.

³⁴² Marchand, *Creating the Corporate Soul*, 209, 211.

offered free to television stations. One of these, *The American Road*, made on the occasion of the firm's 50th anniversary, shows clearly how the same soulful strategies that animated Ford's print and radio campaigns persisted in film and television. Running between 35 and 43 minutes depending on its cut, *The American Road* combines historical reenactments and archival footage in a loose historical trajectory that begins in the hard days of horse-drawn carriages, pauses on Henry Ford's invention of the quadricycle, moves quickly on to the Model T and its place within American culture, the scientific advancements of mass production, and improvements in working conditions including the \$5 day, and ends with a long reflection that asks after "the man who was chiefly responsible for all this. What was he like?" After six minutes of footage of Ford playing with his grandkids, tinkering on the farm, dancing country dances with his wife, and taking part in a camping trip with other luminaries and hardy men of enterprise, including Thomas Edison, Harvey Firestone, and John Burroughs, the film finishes with a coda that glows over the present state of American motorcar transportation and the changes that cars have wrought in where people live, work, and play. Much like Ford's institutional advertising campaigns of the 1930s, *The American Road* provided the Ford Motor Co. with "character" by aligning the growth of the company with the vision of a man who simultaneously "personified the American credo of individualism and freedom of enterprise" and claimed kin to average everyday folks, country people and factory workers alike.³⁴³ This was a film that employed the "usable past," a strategy which, in the context of corporate public relations campaigns, Bird attributes to advertiser Bruce Barton: history transformed in the service of demonstrating the progress wrought by American

³⁴³ To Ford's name, the film attached the old chestnut, "you can take the boy out of the country but you can't take the country out of the boy." It also attributed winning WWII in part to assembly lines.

business.³⁴⁴ Despite this orientation to the past and all of its talk of quadricycles, Model As, and Lincoln town cars, *The American Road* is not designed to sell a specific product. Instead it, like many other sponsored films that made their way to television, had much broader purposes.

Similar to the goodwill companies hoped to engender in television audiences by providing them with high-quality entertainment that had little or nothing to do with the products or services they offered, sponsored films on television hoped to profit (eventually) from viewers' associations between their names and their entertaining programs.³⁴⁵ An annual publication covering the automotive industry, Ward's Automotive Yearbook, referred to such industrial films as an "Ambassador of Good Will,"

The industrial film is truly a subtle sales weapon. It is sensitive and sensible and wins followers and admirers for a business firm in a very low-pressure manner. For America's automotive manufacturers the 16mm motion picture is a public relations expert [...] it is a promoter with an unlimited store of ideas and wit. Above all, it is a purveyor of good will.³⁴⁶

McCarthy suggests that in the context of public relations, goodwill "referred to a climate or atmosphere rather than an over directive. In order to sustain it, institutional sponsorship needed to be dissociated from persuasion, manipulation, and other paths for accessing the citizen's mind that could be perceived as illiberal or illegitimate, and which might raise the specter of domination."³⁴⁷ Of course, this did not prevent sponsored film producers from drawing on contemporaneous strategies employed by direct advertising television commercials. Emotional appeals in commercials comprise part of the longstanding tradition of the "soft sell." The same blending of "showmanship" with salesmanship in soft sell campaigns designed by advertising

³⁴⁴ Bird, *Better Living*, 22.

³⁴⁵ Though not often characterized as such, sponsored films often strived for (even if they may not have achieved it) high quality production values and quality entertainment.

³⁴⁶ "Ward's Yearbook Calls Film 'Ambassador of Good Will'" *Business Screen* 18, no. 4 (1957): 48.

³⁴⁷ McCarthy, *The Citizen Machine*, 41.

agencies for radio hued close to television strategies that likewise “emphasized humor over didacticism, the aesthetically pleasing over the hyperbolic, and the emotional appeal over the rational.”³⁴⁸ Unlike “hard sell” commercials that provide viewers “reason-why” copy—the specific reasons why purchasing the product in question would improve their lives, the soft sell appealed to a viewer understood to be motivated primarily by emotions rather than reason.³⁴⁹ One manual for writing commercials treats appealing to emotions—including “vanity, security, pleasure, daring, or value”—as a matter of course; another even develops a handy mnemonic device, SALE, for the “four basic selfish motivations which are the “buying urges:” self-preservation, ambition, love, economy.³⁵⁰ In a more contemporary context (and with a far more critical eye), Sut Jhally describes the power and ubiquity of emotional appeals that position commodities as the key to “a deeply desired social life” by establishing consumer products as the

³⁴⁸ Meyers, *A Word from Our Sponsor*, 130.

³⁴⁹ We might also pause here to consider Motivational Research, another popular approach to understanding desire and the selling process. Heavily influenced by Freud, MR distinguished itself from broader emotional soft sell techniques in its understanding of the audience as a group motivated by a drives of which even they are unaware. Used by several prominent advertising agencies in the early 1950s, e.g., Leo Burnett, Foote, Cone & Belding, Weiss & Geller, MR began by accounting for the unconscious desires of buyers. MR often located sex—and the quest for security—at the heart of consumers’ unconscious. Its leading proponent, Vienna-born psychologist Ernest Dichter, made use of a range of research methods unusual for his time—focus groups, “depth interviews,” diaries, and word association—that often ignored consumer’s conscious feelings about using particular branded products to uncover the hidden motivations for people’s day-to-day activities. Using these methods, Dichter determined that consumers linked soap to self-caressing eroticism, cars to a quest for power and virility, and ice in soda to death. As Charles Acland discusses, MR flirted with subliminal messaging, another psychological fad of the era also predicated on an understanding of the audience as driven by their unconscious. These findings translated to commercials through slogans, colors, shape, and movement that exploited these “unconscious” associations. While some MR-supported campaigns found success, like Esso’s famous directive to gasoline buyers to “Put a tiger in your tank,” not everyone was convinced by the “Freud-happy figures” of “motivational mumbo-jumbo,” pointing out that many of its conclusions could be acquired without recourse to the unconscious. Charles Acland, *Swift Viewing: The Popular Life of Subliminal Influence* (Durham, Duke University Press, 2011), 91-110; Charles Adams quoted in Fox, *The Mirror Makers*, 186.

³⁵⁰ Wainwright, *The Television Copywriter*, 94; McMahon, *The Television Commercial*, 50.

media through which to access “the real sources of human happiness—family life, romance and love, sexuality and pleasure, friendship and sociability, leisure and relaxation, independence and control of life.”³⁵¹ For Jhally, this particular “soft sell” mode of dissembling the true product of advertising (a consumer good) is both terrifically ironic—since consumers cannot actually purchase what is being sold, e.g., happiness—and central to maintaining capitalist systems by constantly ginning up and accelerating consumption (at least, of course, until human overconsumption destroys the planet). While the soft sell might be endemic to both commercials and institutional advertising, the latter focused less on purely personal desires and more on institutional relationships and identifications. As McCarthy describes in her analysis of *Cavalcade of America*, “if the goal of regular commercials was to implant a will to purchase in the mind of the consumer, DuPont advertising sought access to a different, less well-charted part of the viewer’s unconscious: the mysterious psychic processes shaping people’s relationships to the economy and the state.”³⁵² Even more than their glossier commercial entertainment cousins, sponsored films on television spent their time extolling the virtue of the firm or its industry and capitalism’s claims to progress and possibility while reinforcing the sponsor’s role as a public service educator in the realms of science, progress, business, society, and innovation. Such films were often most invested in cultivating “followers and admirers,” leaving the cultivation of “consumers” to more direct methods of advertising.

The Economics of Corporate “Education”

Industrial films on television enjoyed bottom-line appeal. Growing circulation numbers (also referred to as the increasing number of television homes) were a staple in reports of

³⁵¹ Sut Jhally, “Advertising at the edge of the apocalypse” in *The Spectacle of Accumulation: Essays in Culture, Media, & Politics*, New York: Peter Lang, 2006: 104.

³⁵² McCarthy, *The Citizen Machine*, 50.

television's advertising potential and often provided a means of (favorable) comparison with other media. In its promotion of television's effectiveness and reach as an advertising medium, NBC noted that television exceeded the circulation numbers of the top ten most popular magazines by 1950.³⁵³ Focusing more on the cost-effectiveness of such massive circulation numbers, a *Business Screen* report on television on the West Coast noted that in comparison to targeted direct-mail campaigns, the "per-person cost" of television "stands up well," and further, "per-impression cost will go down rapidly as sets in use increase."³⁵⁴ As noted above, industrial films on television could reach tens of millions of viewers in only a few hundred screenings—far fewer than needed with the typical small audiences of non-theatrical showings; such circulation numbers were even recycled by production studios in their own advertising campaigns.³⁵⁵ Furthermore, according to a 1949 study by ABC, television not only reached the biggest markets, which held out the best possibilities for a return on sponsor investment, it reached homes primarily found within the middle and lower income brackets, "the *mass* market" so appealing to advertisers of consumer goods.³⁵⁶

Yet another facet of television's economy as a medium of institutional advertising concerned the potential of "double featured" films—programs exhibited both on television and across traditional non-theatrical circuits.³⁵⁷ In its earliest post-war years, television offered a

³⁵³ "Sales Effectiveness of Television is Researched" *Business Screen* 11, no. 7 (1950): 36.

³⁵⁴ Edmund Ker, "Television on the West Coast" *Business Screen* 9, no. 2 (1948): 36.

³⁵⁵ See, for example, the series of ads by John Sutherland Productions titled "Case History of a Successful Business Film" in *Business Screen*, two of which are cited in above footnotes.

³⁵⁶ "Twelve Reasons for Entering Television Given Advertisers by American Broadcasting Company" *Business Screen* 10, no. 1 (1949): 32.

³⁵⁷ "Congratulations Sunbeam" *Business Screen* 13, no.1 (1952): inside cover. As mentioned in the last chapter, the exhibition sites and practices that sit under the umbrella of non-theatrical are incredibly diverse. Schools, civic centers, fairs, churches, workplaces, Chautauquas, prison, and military bases are many, but not all, of the locations in which (sometimes highly-targeted) audiences would come into contact with sponsored films.

potential opportunity for sponsors to squeeze any remaining usefulness from existing product that had already made the rounds in non-theatrical channels by then airing on local stations. Charles J. Durbin, advertising director of U.S. Rubber Company explains the cost-effectiveness of the arrangement, “With the main purpose of the film lying in another direction and the cost of the film charged to a budget other than television, we nevertheless find ourselves with a library of complete television programs.”³⁵⁸ As programming specifically developed for television increased and station operators became more discerning, sponsors were often forced to re-edit films, removing its most “commercial” elements, if they sought broadcast time. By the mid-1950s, most institutional advertising industrial films were produced from the start with both television and the non-theatrical market in mind, removing the additional step of editing for television.³⁵⁹

Under this mode of production, *Clear Iron*, a “double featured” film produced by Marathon TV Newsreel for Budd Company, a manufacturer of stainless steel passenger rail cars, claimed to have “paid for itself in 38 days.”³⁶⁰ Marathon claimed a specialty in “public interest” films designed to be shown on local stations without any cost to the sponsor. In its discussion of the film, *Business Screen* applauded this approach noting, “Television eats up material so fast there is a constant demand for new films. Canny film sponsors who can offer good films and keep their names way in the background are filling the gap.”³⁶¹ And keep the sponsors name in the background *Clear Iron* did. A 14 minute black and white combination newsreel-travelogue-

³⁵⁸ Quoted in “Dual-purpose Commercial Pictures” *Business Screen* 10, no. 1 (1941): 31.

³⁵⁹ Rick Prelinger, *The Field Guide to Sponsored Film* (San Francisco: National Film Preservation Foundation, 2006).

³⁶⁰ “Footnote on Distribution: Marathon Scores on Sustaining Television” *Business Screen* 14, no. 2 (1953): 72.

³⁶¹ “Footnote on Distribution: Marathon Scores on Sustaining Television” *Business Screen* 14, no. 2 (1953): 72.

process film that tells of the building of American empire and identity through rail flashes its sponsors name for about ten seconds at its conclusion.³⁶² Shown as sustaining programming 141 times by 103 stations in the first months of 1953, *Clear Iron*, and by extension the Budd Company, enjoyed over \$35,000 worth of free airtime—“more than the total cost of the film, including prints”—by the estimates of Marathon and the editors of *Business Screen*. Whether this figure is accurate matters less than the way such calculations figure the value of television in relation to traditional non-theatrical screenings. Of course, these more established markets would not lack for *Clear Iron*—even after its television success, the film had a future of several more years as it circulated between clubs, schools, theaters, and, indeed, new stations as they opened.³⁶³ In these latter spaces, the film could address more specialized audiences and continue to accrue audience numbers, attesting to television’s capabilities as an adjunct to traditional distribution strategies to make sponsored film both more flexible and economical.³⁶⁴

The films that made their way to television by way of corporate sponsorship were numerous and incredibly varied. While scholars have increasingly recognized the significance of studying sponsored films along the lines of their sometimes massive audiences, the influence of authoritative exhibition sites on reception (e.g., schools) and media effects, the (high) number of films produced, circulation patterns, and textual questions like auteurism and industrial film as

³⁶² “We wish to thank the many American Railroads and the Budd Company for their cooperation in the making of this film” It should also be noted that the Budd Company is not in the business of selling to consumers—they supply stainless steel railcars to railroad companies—so their institutional work is more oblique.

³⁶³ “Footnote on Distribution: Marathon Scores on Sustaining Television” *Business Screen* 14, no. 2 (1953): 72.

³⁶⁴ In the inverse of this proposition, and as more evidence of the flexibility sponsors and manufacturers identified in “commercial film” distribution networks, Kodak’s discussion of one of its 16mm cameras for recording television noted as its primary use “to enable the recorded programs to be re-used by the sponsor, in film form, for institutional public relations and advertising.” *Educational Screen* (December, 1947): 571.

record of corporate speech, the sheer size of the field of sponsored film makes generalizations—regarding ideological content, modes of address, and even aesthetic style impossible.³⁶⁵ Nor does a restriction to sponsored films that aired on television make the challenge easier. As Rick Prelinger notes in his introduction to the *Field Guide for Sponsored Films*, by the 1950s—the second decade of “the golden age of the sponsored film”—television surpassed all other distribution outlets for sponsored film, with these types of films becoming “omnipresent” on independent and UHF stations.³⁶⁶ However, although this abundance makes large-scale, exhaustive claims impossible, we can nevertheless begin answering the question, what were *some of the things* sponsored films attempted to do when they were not trying to make a sale? Using an unscientific sampling of a dozen films that aired on television in the mid-1950s—a selection guided only by films’ accessibility and evidence that they were shown to television audiences—it becomes possible to begin to dissect some of the specific strategies (invoking desire, gratitude, and trust) that undergirded firms’ attempts to succeed in discovering “the

³⁶⁵ Daniel J. Perkins, “The Sponsored Film: a new dimension in American film research” *Historical Journal of Film, Radio and Television* 2.2 (1982): 137; Rick Prelinger, “Eccentricity, Education, and the Evolution of Corporate Speech: Jim Handy and His Organization,” in *Films that Work: Industrial Film and the Productivity of Media*, eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009): 215. Kirsten Ostherr suggests a broad overview—one I do not attempt here—might be the key to best understanding how these films operated for the many different parties engaged in sponsored films, “This might be the single most important point for scholarship on instructional films: despite the pointed self-interest of the firms that sponsored these productions, non-theatrical films were often treated by exhibitors as somewhat interchangeable, especially within a given subgenre, such as health films...the very ubiquity of the films...coupled with their lack of distinctive stars and their frequent distribution and exhibition en masse, suggests that the significance of these films may only be adequately understood in aggregate.” See Ostherr, “Health Films, Cold War, and the Production of Patriotic Audiences: The body fights bacteria (1948)” *Useful Cinema*, eds. Charles R. Acland and Haidee Wasson (Durham: Duke University Press, 2011): 118.

³⁶⁶ Rick Prelinger, *The Field Guide to Sponsored Film* (San Francisco: National Film Preservation Foundation, 2006): vi-vii.

alchemy of goodwill.”³⁶⁷ In highlighting these three different strategies in turn, I will touch on two major subgenres of sponsored films—the travelogue film and the automotive safety feature—and a handful of previously unexplored texts.³⁶⁸

Any seller worth her salt knows that it is easier to sell a prospect on a product’s benefits rather than its features; a good pitchman instills and plays to consumer desires, translating their goods’ attributes into a cluster of strategies for meeting those desires. Jhally argues we can read advertising as “the dreamlife of the culture”—the product of a “fantasy factory” that “translate[s] our desires (for love, for family, for friendship, for adventure, for sex) into our dreams...taking our desire for human social contact and reconceiving it, reconceptualizing it, connecting it with the world of commodities and then translating it into a form that can be communicated.”³⁶⁹ Institutional advertising may not be too different in its focus on desire (and even its dreamlike quality), particularly since—due to the demands of broadcasters and the FCC—products found themselves at the very margins, if represented at all. Several extant sponsored films screened widely on television (and in other non-theatrical spaces) focus on managing viewers’ desire to participate in some activity enabled by their industry. The subgenre of travelogues sponsored by transportation and fuel companies, films like *Wings to Italy* (1953, Pan American World Airways) for example, focus less on selling specific vacation packages (of course, how much each film focuses on its sponsor as a potential provider of services varies) and more on the experiences, sights, traditions, foods, and goods that different locations offer. Even though *America for Me* (1954, Greyhound) manages to stick one of its silver-bodied buses in a startling

³⁶⁷ Quotation from McCarthy, *The Citizen Machine*, 38.

³⁶⁸ For the filmography of this chapter, see the appendix (the last page in this version). It is unfortunately not always possible to tell when and where these films aired—sort of checking station schedules nationally—since the evidence of their airing often appears in asides in articles or as aggregated information in advertising.

³⁶⁹ Jhally, 104.

number of shots—and its characters are not shy about talking about the great service they get when booking a trip through Greyhound—the film’s biggest sell is the varied American landscape interpreted through the knowledgeable eyes of a schoolteacher traveling the country to undertake research for her Master’s degree. As the characters travel and discuss past Greyhound trips from Texas to New Orleans to Plymouth Rock, the film uses a variety of on-location footage and character dialogue to emphasize the importance of “being there” to fully experience the rich cultural heritage of the U.S. Likewise, although *Caribbean Carousel* (1954, KLM Airlines) mentions the Dutch airline in a calypso jingle that bookends the film (and promises visitors a life of leisure), the majority of its 27 minutes is comprised of semi-experimental footage of the islands—women diving and throwing a beach ball in slow motion, rhythmic shoeshine men and boys breaking into music during a soviet-style montage of their hands and faces in motion, flamingos and their young—with only music and captured sound for its soundtrack. This is perhaps the best example of the dreamlike translation that interests Jhally.

Belgium: Where the Past Meets the Present (1954, California Texas Oil Co. (Caltex)) obscures its origins even further. The film’s treatment of Belgium’s history, traditions, industry, and countryside through extensive travelogue footage and process film becomes a “Where’s Waldo?” for the distinctive Caltex logo, which appears sparingly on background fuel pumps and ships. Like the other films mentioned in this grouping, the film’s emphasis remains on the desirability of experiencing the grandeur and—to varying degrees—the “exoticism” of the Other. Although different in purpose, *What Makes us Tick* similarly hopes to appeal to viewers’ desire to participate rather than purchase, though its foreign land and strange customs are those of the New York Stock Exchange. Certainly, one does buy stocks on the exchange, however, the Sutherland film focuses little on the actual purchase of stocks and far more on what it means as a

citizen to take part in industry's expansion. For each of these films, selling a particular consumer good is less important than instilling a sense of desire in viewers that supports a sponsor's image as a quality intermediary between the audience and its newfound "needs."

In addition to positioning the sponsor as a responsible and capable gatekeeper to new desires, institutional advertising films on television also hoped to instill gratitude in viewers for a long list of life-improving and life-saving innovations pursued by corporations (Bird's promise of "Better Living"). The automotive film subgenre provides numerous examples of these efforts. *Your Safety First* (Automobile Manufacturers of America, 1956), like *The American Road* mentioned above, employed the "usable past" in service of demonstrating "how far we've come" since the early days of automobile travel.³⁷⁰ Created by John Sutherland productions in their signature animation style, the film showcases a *Jetsons*-like future (2000 A.D.) in which a family sits down to an evening program on their 3D home theater system about the history of cars and the evolution of their safety features. Much as *The American Road* established Ford as a kind benefactor to his workers and the entire driving public, city and country folk alike, *Your Safety*

³⁷⁰ This proved to be a highly popular strategy for sponsored films. Another variation on this theme imagined a world where the benefits of industry disappeared overnight or in an instant. *Mr. Withers Stops the Clock* (Air Transport Association, 1956) for example, inserts its viewer in a post-apocalyptic future: cars piled up on the highway, angry horns filling the air, cars abandoned at the airport with their doors opened and their trunks half unloaded, airport restaurants and offices empty, communication equipment that returns only dead silence, planes grounded. Air travel and delivery have become impossible with a host of disastrous consequences: businesses will fail, grandmothers will not be able to see the birth of their grandchildren, and children will miss life-saving operations. The disappearances turn out to be the result of a curmudgeonly ghost in top hat and silver cane—the titular Mr. Withers—who "typifies the ageless forces of reaction who are against everything—all progress." Won over when he realizes it is his own granddaughter who needs to fly for an operation, Mr. Withers relents and even joins the jet-set himself. Recalling the above discussion of inculcating desire, *Business Screen* calls it "an interesting exposition in the technique of importing an idea...a series of ideas...without selling a thing. Of course, if seeing so many airplanes going so many interesting places impels you to take a trip, or your local city council decides to extend its airport runways to 10,000 feet, ATA will concede that the film has served its purpose." Both quotations from "Airports in America's Future" *Business Screen* 17, no. 5 (1956): 67.

First turned the entire automotive industry into a concerned authority working tirelessly of their own volition to improve conditions for everyone. The 3D host of the film jumps into the family's living room to inform them about generous benevolence of the industry:

So you see folks, all of you who are living in the year 2000 are fortunate because through the years the automobile manufacturers have had as their goal *your* safety first. They have constantly improved the quality and safety of automobiles and they will continue in the future as they have in the past to create cars that are more maneuverable, more responsive, more dependable in every situation and easier, more pleasant, and safer for all of us to drive.

In a period that saw mounting concern with the high numbers of traffic accidents and fatalities—public pressure that eventually crystallized in the formation of several safety agencies in the mid 1960s now under the umbrella of the National Highway Traffic Safety Administration—institutional advertising and public service films provided a valuable outlet for the industry to position itself as an important ally in the fight against traffic deaths. A number of films took a slightly different tack, emphasizing individual responsibility for safe driving and positioning. *Look Who's Driving* (Aetna Casualty And Surety Company) uses the “psychological approach” to diagnose emotional problems that interfere with safe driving by turning adults into “children”—a transformation depicted in a playful modern animation style.³⁷¹ Although Charlie Younghead, the *Look Who's Driving's* central character, narrowly escapes death by car—after spending a few minutes in a decidedly afterlifelike purgatory, not everyone in safety films is so lucky. Downright maudlin, *And Then There Were Four* (General Petroleum Corp.; Socony-Vacuum Oil, 1950) uses a narration by James Stewart to emphasize the average, everyday tragedy of a story in which five people leave home in the morning and only four return; the film keeps the identity of the victim secret until the very end when we learn it is the mother of two

³⁷¹ Nancy Lou Blitzen, “Looking into Pictures: Pros and Cons of the Psychological Trend in Films” *Business Screen* 18, no. 6 (1957): 29.

children who now, because of the death of their father a year earlier, must be sent to an orphanage. Replete with scenes of traffic court, drivers' education courses, and fatal crashes superimposed over the worried faces of the potential victims' loved ones, the film places all responsibility for such accidents squarely on the shoulders of careless drivers while simultaneously casting the automotive industry in the role of concerned educator and traffic police. Not only did institutional automobile films hope audiences would be grateful to an industry constantly innovating with their personal safety at heart, sponsors could hope to claim the mantle of public service educator.³⁷² This latter goal dovetails with the longstanding goals of institutional advertising campaigns to justify the presence of large corporations as a fact of modern life on par with the major institutions of government, church, and the family. Although Rudmer Canjels was referring specifically to a series of sponsored films created by the Shell company when he suggested they "may read as exemplary media interfaces that tie some of the key economic and political discourses of the 20th century into a visual rhetoric which systematically links company interests to larger political and societal goals," we can see in this subgenre of automotive safety films a similar move to represent, at least, an articulation between the company's goals and the audiences' concerns.³⁷³ By taking on the responsibility of researcher, educator, and distributor of important, modern information, sponsors justified their increasing sway in American culture and politics and attempted to make citizens grateful for their guidance.

³⁷² Much as companies hoped to build goodwill through their sponsorship of quality entertainment on network schedules, educational industrials across genres—many of which, like *Our Mr. Sun* (Bell Laboratories, 1956) were used extensively in classrooms—provided sponsors with a means to establish their generosity as well as their scientific and cultural authority.

³⁷³ Rudmer Canjels, "Films from Beyond the Well: A Historical Overview of Shell Films," *Films that Work: Industrial Film and the Productivity of Media*, eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press, 2009): 241.

The third facet of “goodwill” strategies apparent in industrial sponsored films on television plays broadly to viewers’ sense of pride in the progress of modernity and its articulation to American identity. As Heidi Solbrig argues in her discussion of corporate motivation films, “Industrial films represent the efforts of capitalism to conflate the national and the corporate, the rational and the human, the technological and the emotional, and (most tellingly perhaps) the personal and the political.”³⁷⁴ In the television films under analysis here, these confluences congeal in an interpellation to viewers to identify with the desires of capitalism.³⁷⁵ Running throughout the films discussed above and others is an emphasis on how corporations and capitalism built America and continue to help it expand and gain power through innovation, scientific progress, and widespread prosperity. This was not implicit, but explicit in several films under analysis. *Clear Iron*, for example, claims “The story of American railroads is the story of American growth,” while *What Makes Us Tick* tells its viewer—as showers of cartoon money transform buildings and machines—that “yesterday’s savings financed the miraculous growth of our railroads, automobiles, airplanes, farm machinery, communications, electric light and power, textiles and countless other industries contributing to a more enjoyable life” and “common stock investments have helped to make our country prosperous and powerful.” In its manipulation of the useful past, *The American Road* emphasizes the value of free enterprise as the system that enables America’s greatest thinkers to provide for its citizens.

³⁷⁴ Heidi Solbrig, *Film and Function: The History of the Industrial Motivation Film, Documentary and the Applications of Communication*, 32.

³⁷⁵ In highly evocative language, McCarthy notes that this is a cross-over goal of both product and institutional advertising, since both are “interested in stimulating the unconscious, triggering the emotions and arousing processes of identification.” *The Citizen Machine*, 50. Here we can see this call to identification persists even in standalone sponsored films (rather than series) distributed on television. What is perhaps remarkable is the extent to which diverse sponsors and producers replicate the same tropes and employ very similar strategies in a larger collaborative project selling capitalism writ large.

Highway Hearing (The Dow Chemical Company, 1956) uses a model town hall meeting—including a film-within-a-film—to explain (and resolve) the debate over the expansion of U.S. highways as a necessary mechanism for the development of local and national businesses (and, of course, safety). This emphasizes the fairness of the American democratic process—here in the service of economic progress—guided by “the best interests of the most people.”³⁷⁶ Taking a more lyrical approach to its particular brew of American exceptionalism based in the country’s empire, *America for Me* wraps its treatment of the country’s wide-open west, New England traditions, and urban powerhouses in the Henry van Dye poem that lent the film its name; recited by the teacher main character, it confirms the distinction between the New World of possibility and expansive future and the Old World of “antiquated things.” Throughout these films and others, America is represented as a uniquely powerful, expansive, beautiful, and fair country with the ideal economic system functioning as a progress-generating machine. Viewers are asked to identify with and take pride in this formulation and in so doing, place trust in the companies that built—and continue to build—this version of the United States.

Given the ubiquity of mid-century industrial film, the above—organized largely through subgenre, a logistical choice rather than a reflection of the inherent qualities of the categorization—offers only a beginning step to understanding sponsored films’ place on television and their role in the continuation of institutional advertising strategies. If, as Patricia

³⁷⁶ Though it may seem odd that a chemical company would sponsor a film about highway construction, Dow stood to benefit from the expansion of American highways due to a weed management chemical it produced to be used in road construction. This emphasis on the fairness of the system also appears far more subtly in films where it is not the main focus. *And Then There Were Four*, for example, smooths over the economic differences between our five main characters. When we transition from the home of an immigrant family to the large townhome of a doctor, Stewart’s narration is careful to explain, “A little ritzier up here on the hill, and that’s ok. Most of ‘em are folks that worked hard, maybe had a little luck and now are enjoying the fruits of their labors.”

Zimmerman insists, “Hollywood films are the home movies of global capital,” what does that mean for sponsored films?³⁷⁷ We might consider how sponsored films fit the bill just as well: they provided companies with the opportunity for self-representation and, as texts, they help analysts see how capitalism—or the American economic system—understood itself or, at least, how it sought to make itself meaningful to its viewers. Furthermore, like home movies, sponsored film has the pesky—or fortuitous—tendency to capture more than it intends. While the above films attempt to generate goodwill by engendering desire, gratitude, and trust—not coincidentally, emotions understood to be central to the selling process—in their prolific scale, they also record content that can be put to other uses.³⁷⁸ Alain P. Michel notes in his research into industrial labor films, “Although the work scene may have been arranged, the background was real;” likewise, the “backgrounds” of sponsored films provide a wealth of potentially valuable information, e.g., travelogues provide slanted anthropological documents as well as environmental records of the landscape.³⁷⁹ Furthermore, due to the inconsistent needs of capitalist ideologies, sponsored films may reveal unique representations trotted out by the exigencies of making a sale. *Helpful Henry* (International Harvester Corporation, 1939), for example, finds humor in setting its hapless know-it-all protagonist, the urban city boy Henry, up against a competent, college-educated country girl—a potentially unusual gender representation—in a film that played to farmers’ sense of pride in and knowledge of their work

³⁷⁷ Quoted in Caroline Frick, *Saving Cinema: The Politics of Preservation* (Oxford: Oxford University Press, 2010): 155. It should be noted that Zimmerman’s primary intention with this aphorism is to increase attention to (properly) amateur film; the industrial film sector is presumably far from her mind.

³⁷⁸ On the “gratitude factor” see Stephen Fox, *The Mirror Makers: A History of Advertising and Its Creators* (New York: Vintage Books, 1984): 212.

³⁷⁹ Alain P. Michel, “Corporate Films of Industrial Work: Renault (1916-1939),” in *Films that Work: Industrial Films and the Productivity of Media* eds. Vinzenz Hediger and Patrick Vonderau (Amsterdam: Amsterdam University Press): 2009, 183.

and, of course, showed a couple of IHC tractors in the meantime. As Jennifer Zwarich reminds readers in her analysis of government-sponsored agricultural films, we must think beyond sponsored films' attempts at governance in order to account for the heterogeneity of these films, their producers, and, in some cases, the legitimate informational, entertainment, and social values they provided viewers.³⁸⁰ Even our current piecemeal understanding of sponsored films on television reveals a slate of early broadcast programming far more diverse than we may have imagined, with much in the factual film genre. Last, although the historical reconstruction of early television has proved a herculean task due to the pervasiveness of live programming, sponsored film provides an opportunity to fill in some of these gaps by recognizing the importance of film to local and independent programming.

From Dramatization to Demonstration³⁸¹

Not all business uses of domestic televisions were so coy in their attempts to transform television into a selling machine. Beyond general goodwill publicity and twenty-minute edutainment programs featuring branded products, several interests pursued television as a direct sales medium. Rather than reusing existing footage or film new programs in the vein of sponsored film, these initiatives profited from a mix of what contemporaries understood as the unique selling capabilities of television—sight, sound, motion, liveness, and immediacy—and their proximity to the holy grail of sales pitches, the live demonstration. The remainder of this chapter traces one of the primary avenues for such uses of television that was often discussed in the same breath as the discussion of sponsored films for broadcast, the shop-at-home show.

³⁸⁰ Zwarich, 25, 45.

³⁸¹ This inverts Bird's instance that companies moved from straight demonstration strategies for selling their goods to a glossier drama-infused method of institutional advertising. This chapter is interested primarily in how these two approaches to television co-existed.

Compared to its narrative program peers, the “home shopping” or shop-at-home show has received little scholarly attention, particularly within the field of media studies. With the notable exception of Anna McCarthy’s excellent but very brief discussion of the spatial politics of *Shopping at Home* and *Let’s Go Teleshopping*, those who have undertaken studies of home shopping television tend to follow several distinct paths afield of the current study’s historical focus on the discursive construction of television as a selling machine.³⁸² While marketing research seeks success strategies for developing direct-sales campaigns or to weigh the implications of the “electronic marketplace” for traditional retailing, sociological analyses tend to focus on the parasocial relationships constructed via home shopping and the psychological motivations that underlie consumer or audience interest in home shopping.³⁸³ Still others examine the discourses and aesthetic strategies that comprise the shows’ programming. These text-based inquires might investigate how hosts employ multiple persuasion techniques to effect sales or how discussions of accessible consumer goods feed into class ideologies and soothe class tensions.³⁸⁴ Despite their differences, all of these strands of home shopping study focus on contemporaneous programming; while this may tell us much about how television continues to function as an “apparatus and agent of consumer culture,” it reveals little about how and why

³⁸² Anna McCarthy, *Ambient Television*, 82-86.

³⁸³ Alvin Eicoff, *Direct Marketing Through Broadcast Media: TV, Radio, Cable, Informercials, Home Shopping, and More* (Chicago: NTC Business Books, 1995); Joseph Alba, John Lynch, Barton Weitz, Chris Janiszewski, Richard Lutz, Alan Sawyer, and Stacy Wood, “Interactive Home Shopping: Consumer, Retailer, and Manufacturer Incentives to Participate in Electronic Marketplace” *Journal of Marketing* 61 (July 1997): 38-53; Juliann Cortese and Alan M. Rubin, “Uses and Gratifications of Television Home Shopping” *Atlantic Journal of Communication* 18 (2010): 89-109; Mimi White, *Tele-Advising: Therapeutic Discourse in American Television* (Chapel Hill: University of North Carolina Press, 1992).

³⁸⁴ Susan L. Kline, “Interactive Media Systems: Influence Strategies in Television Home Shopping” *Text* 25, no. 2 (2005): 201-231; Judi Puritz Cook, “Consumer Culture and Television Home Shopping Programming: An Examination of the Sales Discourse” *Mass Communication & Society* 3, no. 4 (2000): 373-391.

television became articulated to a specific form of direct consumption in the first place.³⁸⁵

Furthermore, while marketers might be more interested in perfecting their direct sales methods, sociologists interested in the cultural functions of audience participation, and textual scholars interested in the material qualities of the programming, none of these analyses attend to how these shows provide a ground for discussions of television's capability as a specific type of sales technology. The following pursues this latter goal by building on and adding to ongoing scholarly conversations regarding television home shopping programs using original primary document research spanning broadcast and industrial trade journals, conference reports, and instruction manuals.

To understand how these home shopping programs were structured, scheduled, and funded, we can turn to the *Kathi Norris Show*, a successful example of the genre that debuted as *Your Television Shopper* on WABD TV, New York City's DuMont Station, in 1948. Although the program soon switched stations to WNBT and its timeslot shifted throughout its several year run, the *Kathi Norris Show* remained a morning program, broadcasting live sometime between 10:00 am and noon Mondays through Fridays to reach its target audience: women homemakers. Initially sustaining and thirty minutes long, within a year, the program went commercial, developed a waiting list for sponsors, and added a second half hour of content.³⁸⁶ Relatively cheap to produce, the program used only two sets, a living room and a kitchen, with much of the programming devised—initially, at least—by Norris herself.³⁸⁷ In the show's mature, 60-minute form, the first half of the program was sponsored by a department store, such as Saks-34th Street,

³⁸⁵ White, *Tele-Advising*, 84.

³⁸⁶ Bruce Robertson, "Kathi's Daytime Success" *Broadcasting/Telecasting* (November 7, 1949): 52/6.

³⁸⁷ The program eventually boasted a staff of seven—including Norris' husband, occasional guest, and the show's producer, Wilbur Stark—though it is unclear what roles each person filled. Robertson, "Kathi's Daytime Success," 52/6.

with the remaining 30 minutes filled with three or four different “participating” sponsors whose wares featured in a minute commercials tucked in the lineup of products Norris promoted throughout her show.³⁸⁸

No known episodes of *Your Television Shopper* or *The Kathi Norris Show* survive. However, contemporaneous coverage of the program provides a fair sense of the program’s structure and narrative logics. After a friendly welcome to her home viewers—aiming to “persuad[e] each member of her audience that Kathi Norris has dropped into *her* living room for a morning call and a second cup of coffee”—the show transitions into a tightly orchestrated flow of product demonstrations, interviews with guests (and demonstrations of *their* wares), live and filmed commercials, and “purely personal chit-chat.”³⁸⁹ A partial outline for a January 31 program indicates the wide array of featured products that might comprise a typical program. From a vacuum cleaner to *Fractured French*, a book of illustrated bilingual puns, 21 different items graced that day’s program. Seven of these were part of “commercials” from participating sponsors. However, since live demonstration by the show host was a common early commercial form and only two participating companies chose to use filmed commercials, these sponsored products were folded seamlessly into the ongoing flow of the program. As one review noted, “It would be difficult for a newcomer to the program’s audience to tell which products are sponsored items on the program and which are not, except for a somewhat more formal treatment of the sponsored wares, with which her regular followers are of course familiar.”³⁹⁰ Alternating between her living room and kitchen sets with frequent visits to the “Good Buy Bar”—an area of the set for specially featured items, including products showcased by her “expert” guests—

³⁸⁸ Edward Stasheff and Rudy Bretz, *The Television Program* second ed. 1956 (first ed. 1951) (New York: Hill and Wang, Inc., 1956): 119.

³⁸⁹ Stasheff and Bretz, *The Television Program*, 119.

³⁹⁰ Robertson, “Kathi’s Daytime Success,” 52/6.

Norris moved through goods with a dizzying associative logic established by her sales patter and smoothed over by her “personality” which took the form of a “personal friend and advisor.”³⁹¹ In one instance, Norris begins a living room segment discussing the utility of a lingerie laundry case for traveling and home before moving into a filmed commercial for Kirkman soap flakes. Working the commercial into her developing flow of products, she extols the value of Kirkman flakes for “washing your ‘dainty things,’” and then picks up her next item, a flexoline laundry line, on which she hangs the slip and stockings that she previously placed in the lingerie case. Her next item—a commercial for Maltex breakfast foods—requires a bit more ingenuity (and a scene change to the kitchen). The notes in her outline suggests Norris chose to emphasize the value of a “good sturdy breakfast” “if you’ve really got a lot of washing to do.”³⁹² Alongside a few sentences about a product’s virtues, every description included item price and retail sales location. This low-frills format trained on moving quickly through a mélange of consumer goods enabled Norris to demonstrate over 4,000 different products over the course of a year.³⁹³

³⁹¹ Stasheff and Bretz, *The Television Program*, 118. The “television personality” was a recurring figure in discussions of early television programming. Station programmers often believed that the personality was a key ingredient in any program’s appeal, including film-based series for which a personality would primarily function (on screen) to introduce the show and integrate commercials. On live television, especially in variety and magazine style programs comprised of heterogeneous segments, the emcee (or “femcee” as women were sometimes called) likewise commonly functioned to provide coherence to the overall program. Kathi Norri’s celebrity took a form in keeping with the gendered nature of her show. News and journalistic features emphasized her role as mother of three and her marriage to her producer. Likewise, Norris emphasized these same identities on her program, occasionally even bringing her husband on camera to demonstrate men’s items. “How TV Sells Women” (27 February, 1950): 57. Television celebrities for film and live programs held further importance off screen as station ambassadors charged with making public appearances to drum up audience support and interest in their programs. See a wide variety of the live-television based presentations in *Twenty-Two Television Talks*, cited above.

³⁹² Stasheff and Bretz, *The Television Program*, 120-121.

³⁹³ Robertson, “Kathi’s Daytime Success,” 52/6.

Although Norris' tortured transitions from one item to the next—as when she moves from a series of food molds for perfectly shaped hamburgers to a live commercial for “no molds needed” Amazo Instant Dessert—seem to suggest a random succession of items linked to one another in only the most casual fashion, almost all of the objects on offer fit within homemakers' assumed cooking, cleaning, and home decorating responsibilities.³⁹⁴ Much like a set of chores taking women from the kitchen to the living room and back again, these product demonstrations—of soaps, cutlery, dishes, home furnishings, and appliances—follow the daily work routines of homemakers as they move throughout the domestic space, implicitly reinforcing women's responsibility to be expert home economists. As David Weinstein points out, the way these types of shop-at-home programs hailed their viewers as “professional consumer[s]” fit squarely into the goals of post-war program producers—as identified by Lynn Spigel—to condition women to understand proper consumption (learned via television) as a significant portion of their homemaker duties.³⁹⁵

The *Kathi Norris Show* was not unique in this appeal to female audiences. Rather, the preponderance of shop-at-home programs—from *Virginia Patterson Shops* and *Kitty Dierken Shops for You* to *Window Shopping* and *KPIX Teleshopper*—targeted women almost exclusively. In so doing, such programs met overlapping needs of several broadcasting interests while reinforcing convenient stereotypes about women's inherent desire to shop.³⁹⁶ Although network programming increasingly dominated primetime viewing hours for affiliates, daytime programming remained—at least for a while—the province of local stations. Easily produced,

³⁹⁴ The exceptions in this “typical” episode are *Fractured French* and another book, *Reducer's Cookbook*, the project of one of Norris' guests.

³⁹⁵ David Weinstein, “Women's Shows and the Selling of Television to Washington, D. C.” *Washington History* 11, no. 1 (Spring/Summer, 1999): 15.

³⁹⁶ “How TV sells Women” *Sponsor* 4, no. 5 (27 February 1950): 27.

shop-at-home shows often emphasized a “fast selling and hard selling” approach to product demonstrations that eschewed the entertainment sequences (dancing, singing, skits) populating other variety or magazine style shows.³⁹⁷ Recalling similar sentiments elsewhere linking the narrow sales goals of shopping programs to sparse production values, Syracuse station WHEN general manager and vice president Paul Adanti explicitly indicated that for all five sales shows on his station, “no attempt is made to entertain—We believe that some people are genuinely interested in information of this kind.”³⁹⁸ Requiring little staffing, few sets, and nominal writing, live shopping programs presented a low-cost strategy for filling daytime hours—particularly when programs were underwritten by local department stores or sponsored by a variety of participating companies that could be seamlessly woven into the show’s content.³⁹⁹ These same “bargain-basement production values” operate today as the cornerstone of shop-at-home television programs’ economic and aesthetic strategies.⁴⁰⁰

Daytime shopping programs also suited post-war social patterns invested in the home as the ideal space for (middle-class, white) women to occupy during the day as well as prevailing divisions of labor that assigned women the role of managing household consumption. From the

³⁹⁷ “Department Store TV” *Sponsor* (April 24 1950): 31.

³⁹⁸ Paul Adanti, “Programming for TV as a Sales Medium” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 87. The unwavering focus on sales—rather than entertainment features that might dilute the show’s goals—was a point of pride for *Shop by Television* Host Ruth Crane. Qtd. in David Weinstein, “Women’s Shows,” 15. Another station employee discussing sales show *Armchair Shopping* on WDSU found the only remarkable stylistic or aesthetic element of the program—which had “very little entertainment in it”—to be the “feminine beauty” of the “rather attractive girl” who hosted. Robert D. Swezey, “TV Clinic Open Forum: Los Angeles” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 211.

³⁹⁹ Two similar demonstration programs that ran on WMAL-TV cost a combined total of \$500 to \$700 per episode. In contrast, *Shop by Television* alone was known to bring in between \$4000 and \$6000 in item sales per episode, half of which came from sales placed by telephone during the episode’s airing. Weinstein, “Women’s Shows,” 16.

⁴⁰⁰ White, *Tele-Advising*, 89.

perspective of broadcasters and sponsors, daytime shopping programs offered an ideal vehicle for targeting one of their most lucrative audience groups, since daytime programming alone could “reach an almost all-feminine and therefore almost all-interested audience.”⁴⁰¹ The assumption underlying this formulation—that all women were naturally interested in or had a strong emotional attachment to shopping—was supported by discourses common to shopping shows and other representations of consumption at midcentury.⁴⁰² Stations, however, landed upon a second, even more useful strategy for promoting their home shopping programs’ appeal to female viewers. Programs such as the *Kathi Norris Show* were frequently described (by their promoters) as a public service to women who needed help completing all of their purchasing duties, with aid appearing in the form of product information or new avenues for placing orders from home.⁴⁰³ Bruce Robertson, a contributing editor for *Broadcasting-Telecasting*, describes the “simple” idea behind shopping programs, “All women love to shop. Few women have enough time to do all the shopping they would wish. The women whose shopping needs are greatest, housewives with growing families, have the least time for shopping because the restrictions of their houses and families. Therefore, let them do their shopping at home by television.”⁴⁰⁴ In so doing, Robertson cleverly positions a doubly commercial program format (commercially sponsored and direct sales) as local public service by linking women’s role as designated shoppers to an implicit suggestion of the massive shopping (and selling) job demanded by post-war reconversion, and the special capabilities of television as a domestic medium that can target lucrative female viewers where they can be most often found.

⁴⁰¹ Robertson, “Kathi’s Daytime Success,” 52/6.

⁴⁰² Robertson, “Kathi’s Daytime Success,” 52/6; John Osbon, “They Buy What They See...” *Broadcasting/Telecasting* (April 3 1950): 46/4.

⁴⁰³ “How TV sells Women,” 27; Robertson, “Kathi’s Daytime Success,” 52/6.

⁴⁰⁴ Robertson, “Kathi’s Daytime Success,” 52/6.

The shop-at-home program also represented two other trends in live local programming. A second case study, this time from the nation's capitol, speaks to how both these practices—telephone gimmick program and department store television—experimented with the sales demonstration possibilities of television. *Shop by Television*, an evening program for woman shoppers hosted by Ruth Crane and her comedic sidekick announcer Jackson Weaver, aired Fridays on WMAL. Developed by Crane in concert with the program sponsor, the Hecht Company, a chain of department stores, the program claimed the novel addition of shopping by telephone to the television shopper format. As Crane pursued an ambitious pace of 16 item demonstrations per half hour, three models sat within sight of the camera, taking phone orders from viewers and opening charge accounts. Each show also enlisted forty (presumably average-looking) people to attend phones off-camera. When choosing Hecht's products for inclusion on the show, Crane developed a strategy that accommodated the order-by-phone structure of her program, which precluded viewers from seeing products in person before buying (and belied immediacy claims regarding the television's ability to faithfully represent its featured products as if in person). Choosing items that vacillated between the two ends of the low/high cost spectrum, most products cost less than six dollars (what Crane estimated people might spend on a product sight unseen) with more expensive products demonstrated on occasion to "remind[] viewers that the store [Hecht's] catered to a range of middle-class budgets."⁴⁰⁵

Shop by Television was not unique in its development of a telephone-television program hybrid, but offers a good example of how the "telephone gimmick show" could be adapted to television's development as a selling machine. Originating in 1930s radio as a programming experiment and a quest to improve listening numbers, telephone shows most often took the form

⁴⁰⁵ David Weinstein, "Women's Shows," 14.

of phone-in quiz shows about diverse topics including music (*Stop the Music, Sing it Again*), general knowledge (*Tello-Test, People Know Everything*), U.S. History (*Know your America*), and kids' facts (*Tele-Kid Test*).⁴⁰⁶ Featuring giveaways of money and merchandise, varying levels of interstitial entertainment material, and the all-important “feeling of superiority when contestants muff the easy questions,” the tele-quiz show was identified as a sure-fire way to increase listener numbers.⁴⁰⁷ Programs also occasionally featured “strait participation” segments. For example, as a format adjustment to *Queen for a Day*—the radio and television competition show notorious for asking its female participants to detail their hardships in excruciating detail to demonstrate their worthiness for the “Queen” title—the program recorded phone calls with at-home participants and played the interviews on the air for the evaluation of the studio audience. Stations and producers believed such strategies gave shows the “personal touch” and increased audiences' interest.⁴⁰⁸ Syndicated and locally produced telephone radio shows became increasingly popular on local station schedules in the 1940s as network telephone programs dwindled.⁴⁰⁹ When tele-television programs made their debut sometime around 1949, both formats ran concurrently.⁴¹⁰

Like their radio program forebears, call-in television programs tended towards quiz shows. However, programs that used television's capacity for product demonstration also proliferated. In a random study of call-in television programs undertaken by *Sponsor* in 1950, six out of 21, or about a third of programs, could be classified as direct sales or auction shows.

⁴⁰⁶ Bingo was also a popular radio-telephone giveaway genre. “Radio Fills the Gaps” *Sponsor* July 17 (1950): 109.

⁴⁰⁷ “Nearly Every Station Has One: Part One.” *Sponsor* July 3 (1950): 22-23.

⁴⁰⁸ *Ibid.*, 42.

⁴⁰⁹ “Nearly Every Station Has One: Part One.” *Sponsor* July 3 (1950): 22.

⁴¹⁰ One of the first tele-television programs may have been *TV Telephone Game*, which aired on ABC. “Nearly Every Station Has One: Part Two.” *Sponsor* July 31 (1950): 26.

According to *Sponsor*, “the potentialities of linking home and studio by wire” were well served by the visual element of television, which allowed viewers to see the host and sometimes even the phone operator, and gave viewers “the powerful feeling [...] that ‘you are there.’”⁴¹¹ To prove the benefits of this interactive immediacy, *Sponsor* provided a laundry list of happy companies that saw product sales skyrocket after participating in *TV Telephone Game*, an early example of the genre. This success lead *Sponsor* to hypothesize about this unique material connection between advertisers and consumers; “Whether on radio or TV, the telephone is the only direct link between broadcasters and their audience. Properly handled, that link has been a very effective selling route.”⁴¹² Although referring broadly to all telephone broadcast programs, the possibility for viewer participation in product demonstration shows—even if that only means calling in an order—built on theories of effective salesmanship and lead to discussions of such TV/phone programs as a “model merchandising vehicle.”⁴¹³ Furthermore, although demonstration programs could not rely on the allure of free prizes or viewers’ competitive spirit to boost their audience numbers, their ability to quantify viewership through incoming calls and orders made them valuable to shows’ producers and sponsors. An alternative to external ratings numbers, data generated through phone calls and direct orders were enthusiastically championed as explicit proof of the efficacy of specific instances of product demonstration and as a means to quantify the value (and cost) of participating sponsorship.⁴¹⁴ By bridging the shop-at-home and the phone gimmick format, *Shop by Television* and its ilk experimented with television as a selling machine both by incorporating an element of interactivity—a strategy I discuss below—

⁴¹¹ “Nearly Every Station Has One: Part Two.” *Sponsor* July 31 (1950): 26.

⁴¹² “Nearly Every Station Has One: Part Two.” *Sponsor* July 31 (1950): 48.

⁴¹³ Osbon, “They Buy What They See...,” 46/4

⁴¹⁴ Osbon, “They Buy What They See...,” 46/4

and by enlisting companion technologies in the work of generating useful data concerning its efficacy as a demonstration medium.

Crane's *Shop by Television* offers an example of another growing genre of local direct sales programming, the department store show. Although local station programmers developed a variety of sales programs in addition to women's shopping shows—hawking cars, furniture, real estate, and even restaurant meals and local entertainment—department store TV began solidifying as a subgenre in 1950, with its pioneering example, Gimbel's *Handy Man*, dating to 1947.⁴¹⁵ Generally, these shows distinguished themselves from “women's shopper” programs through their funding, scheduling, and content. Unlike many women's shopping programs that invited participation from a variety of sponsors, department store programs promoted a single chain or store, such as Gimbel's or Macy's. According to a survey conducted by *Sponsor* in 1950, two-thirds of department store shows targeted a mixed-gender audience in the evening, and eighty percent aired once a week rather than every day in strip scheduling. Exploiting their mixed audience, department store programs—though some carved out niches in women's wear, children's toys and clothes, and “handy man” products—tended to feature a wider variety of products that appealed to both men and women.⁴¹⁶ Shows might choose a theme, such as “living outdoors during the summer” to guide product selections (“run[ning] the gamut from grass seed to summer fashions”) or they might choose any random smattering of products to appeal to diverse tastes.⁴¹⁷ Gimbel's for example, reported the products they included on a typical week:

Sylvan Foam Pillows; Eye Charmer Nylon Hose; Honey Bug ladies bedroom slippers; Florsheim Shoes for women; Speed Queen electric washers; Kelvinator home freezers;

⁴¹⁵ “Department store TV” *Sponsor* April 24 (1950): 31, 58; “Birthday for TV's Oldest Commercial Program!” *Telecaster* May 30 (1949): 2.

⁴¹⁶ “Department store TV” *Sponsor* April 24 (1950): 31.

⁴¹⁷ Paul Adanti, “Programming for TV as a Sales Medium” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 89.

Betsy Ross venetian blinds; Motorola Television; Hanes shorts for men; ladies' hats; Uncle Wip's Easter Eggs; California Fairest rose bushes; Felin hams; Glidden paints, Forgee kitchen cabinets.⁴¹⁸

According to Gimbel's publicity director, the multi-demonstration format was particularly suited to department stores that, unlike "the cigaret [*sic*] or aspirin manufacturer" could not rely on the cumulative advertising impact of a commercial for a single product, but were "obliged to present a never-ending, ever-changing parade of articles of merchandise." He added, "no outside medium yet devised affords a more effective means of such presentation than television."⁴¹⁹

Although occasionally overlapping with women's shopper shows in sponsorship structure, scheduling, product content, and even classification—as we see with *Shop by Television*—department store programs in aggregate remained distinct as a subclass of demonstration programs. Furthermore, this particular subclass built on longer traditions in audiovisual retail merchandising and point-of-purchase display practices that animated concurrent experiments with television's selling power *within* department stores.⁴²⁰

As some department stores developed programs to address the consumer in the comfort of their own home, others focused their attention on the capabilities of TV to make sales in more traditional surrounds. In addition to local broadcasts featuring a store's goods, "Department Store TV" referred just as easily to the use of television sets on a hyper local scale as point-of-purchase displays—as Anna McCarthy notes, still one of the predominant nondomestic uses of television today.⁴²¹ The latter practice was established well before *Handy Man*'s debut; as early as 1939

⁴¹⁸ "Department store TV" *Sponsor* April 24 (1950): 31.

⁴¹⁹ David Arons, quoted in "Department store TV" *Sponsor* April 24 (1950): 31.

⁴²⁰ Anna McCarthy, *Ambient Television*, 63-81.

⁴²¹ Anna McCarthy, *Ambient Television*, 64.

Bloomingdale's experimented with "controlled television" in its New York store.⁴²² Although the first example of such "tele-sales" featured little more than a few televisions scattered across the floors of a flagship store airing a film of spliced-together national advertisements for featured merchandise, later systems featured live programming originating from television studios embedded within the architecture of giant stores.⁴²³ Big auditoriums fitted for television allowed shoppers to watch demonstrations—sometimes alongside entertaining skits—live in person as they were produced while dedicated television viewing locations dispersed strategically throughout the store—Gimbel's called theirs "telesites"—made sure people in the midst of shopping did not miss out on special product information.⁴²⁴ As McCarthy suggests, television was incorporated into gendered understandings of spectatorship, sales architectures, and movement in space; the diffusion of sets throughout the store was important to sales theories regarding the importance of placing persuasive messages at the point-of-purchase in order to overcome any possible hesitation that might prevent "closing" a sale.⁴²⁵ The hope was that localized product demonstrations, when executed properly, could direct people to shop in "lagging departments" and "[lead] purse-walkers right up to the counter with the right product name on their lips."⁴²⁶ Some stores combined television's capacity for point-of-purchase

⁴²² "A Department Store Experiment Opens a Potential Film Field" *Business Screen* 1, no. 8 (1939): 16.

⁴²³ It is unclear whether the tele-sales system broadcast from the in-store central studio required by the system—unlikely considering licensing requirements even for "experimental" stations—or whether TVs were linked by coaxial cable—as was the more common practice in later years. "A Department Store Experiment," 16; "Department store TV" *Sponsor* April 24 (1950): 58.

⁴²⁴ "250,000 See Store Video" *Radio Age* 5, no. 2 (1946): 28; "Department store TV," 58

⁴²⁵ McCarthy, *Ambient Television*, 64-69. In a formulation that foreshadows the turn to shop-at-home by phone programs which added point-of-purchase capabilities to women's shopper shows, promoters of tele-sales noted that their product "permits the advertiser to make his appeal at the very point where the sale can be rung up. If the customer is motivated to buy, he is not at home where he can postpone his purchase." "A Department Store Experiment," 16.

⁴²⁶ "Color Cavalcade" *Business Screen* 17, no. 5 (1956): 39; "Department store TV," 31.

merchandising with its more domestic functions. Beginning in 1950, Philadelphia department store N. Snellenburg & Co. hosted an hour-long program of demonstrations and variety acts in its store auditorium that broadcast live every weekday afternoon on WCAU-TV. As Hecht's entry into the department store TV trend, *Shop by Television* helped established television's flexibility as a technology that could direct consumer's engagement with featured departments and products—the show was imagined to draw home viewers into Hecht's—and close product sales at the point of purchase, even if that meant at home, over the phone.⁴²⁷

A common refrain used by station managers and programmers to praise television's retail power played with variations on KLAC Executive Vice President Don Fedderson's claim that, "Ours is not an advertising medium. Ours is the first selling medium ever known to the advertising fraternity—the only selling medium ever known to the advertising industry."⁴²⁸ The emphasis on "selling" in lieu of "advertising" both recalled—and attempted to efface—earlier strategies by radio and print to establish their effectiveness as "oral salesmanship" or "salesmanship in print" and underlined the value of such distinctions in the medium's capabilities.⁴²⁹ As described by the men who worked in television, the medium's claims to salesmanship were founded on its ability to display action and facilitate interaction.

On the first count, television's capacity for "demonstration"—a keyword in professional understandings of the sales process—made it the closest and only medium able to mimic the

⁴²⁷ Osbon, "They Buy What They See...", 46/4

⁴²⁸ Don Fedderson, "Luncheon Talk, Tuesday May 27" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 171; "TV Clinic Open Forums: Los Angeles" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953); 220; George Moscovics, "Making TV Programs Pay for Advertisers" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 162.

⁴²⁹ Cynthia Myers, *A Word from Our Sponsor: Admen, Advertising, and the Golden Age of Radio*. (New York, Fordham University Press, 2014): 61.

paragon of salesmanship, the “point of sale” salesman.⁴³⁰ Good demonstrations, a central phase in mid-century visions of the classic sales process, were 1) clear, 2) complete with all information necessary to assure the prospect that his [*sic*] situation needed improvement and the product was the ideal avenue for such amelioration, 3) confidence-inducing insofar as the prospect believed the claims of the salesman, and 4) able to banish thoughts of possible competitors.⁴³¹ Among the various strategies developed to realize these aims was visualization, which could be achieved through the use of aids such as models and photographs, techniques of display that included motion and physical manipulation, “showmanship” (in some cases borrowed from television commercials), and storytelling that encouraged the prospect to imagine their improved situation post-purchase.⁴³² Likewise, discussions of television routinely emphasize vision as the most important sense for acquiring information and experiencing messages’ full impact and TV’s capacity for improving on print advertisements by showing products in motion and in use.⁴³³ George Moscovics, manager of TV development for KNXT Los Angeles, tied this visual demonstration capacity to his distinction between “advertising” and “sales;” “only in television can you demonstrate products in actual use. In other words, in other media, you make claims and statements about products. In television, if you use it properly, you can prove them. You leave no room for argument.”⁴³⁴ As his evidence, he offers an example of a car commercial in which bellboys load a trunk to visually demonstrate its roominess; “nobody

⁴³⁰ Adanti, “Programming for TV as a Sales Medium,” 83-85.

⁴³¹ Frederic A. Russell and Frank H. Beach, *Textbook of Salesmanship*. Sixth Edition. (New York: McGraw-Hill, 1959): 283

⁴³² Russell and Beach, *Textbook of Salesmanship*, 284, 292-293, 296.

⁴³³ Phil Ruskin, “Camera Techniques—Angles and Slants,” *Thirty-Two Television Talks* (New York: Broadcast Music, Inc., 1955): 188; “Postwar Television” *Business Screen* 5, no. 8 (1944): 31; “Department Store TV,” 31.

⁴³⁴ George Moscovics, “Making TV Programs Pay for Advertisers” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 161.

can doubt that fact. You've proved it. And if baggage capacity is important to the buyer of the car, you have made a sale. That's not advertising, that's selling."⁴³⁵ For proponents of direct sales programs, television and its combination of "sight, sound, motion, and immediacy" offered the unique opportunity to achieve the visual and aural dimensions of traditional sales demonstration—that which separated "advertising" from "sales"—without the in-person salesman.⁴³⁶

Of course, this positioning works hard to obscure the reciprocal relationship between sales theories employed by demonstration shows and live television commercials.⁴³⁷ Well before

⁴³⁵ George Moscovics, "Making TV Programs Pay for Advertisers" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 162.

⁴³⁶ "The Film Approach to Television Commercials," John R. Allen *Business Screen* 7, no. 7 (1946): 21.

⁴³⁷ Future work might further turn to commercials in the context of industry's ongoing engagement with the capabilities of television as an outlet for corporate speech and an instrument of its desires; if industrial films are the home movies of global capital, commercials may be its dream sequences—dazzling displays of the magical transformations made possible by consumer goods. *Business Screen* covered the development of film commercials closely, with a series of rather mundane reports in the early 1950s that traced specific studios' expansion into commercials, announced the production of individual advertisements, and followed the shuffling of industrial film executives as specialists were identified for the new format.⁴³⁷ Early printed coverage of debates over the merits of live versus filmed commercials also gave the sector a second avenue by which to assert their relevance to television production.⁴³⁷ Beginning with a few firms in the late 1940s (including Sarra, Sound Masters, Caravel, and Atlas), studios' advertising increasingly identified television commercials as one of their specialties. By the end of the 1950s, scores of industrial companies marketed themselves as commercial producers in order to take advantage of what had become a billion dollar industry.⁴³⁷ Although it is difficult to track the yearly proportions of commercials produced by industrial film studios, we can nevertheless identify a significant increase over the span of the 1950s in the number of companies with industrial sector affiliations that identified themselves as commercial producers. According to *Business Screen's* National Survey of Film Production Resources, an annual review initiated in 1951, the inaugural survey reported 31 companies across the U.S. that either listed television commercials as one of their services or included commercials as recent work. By the end of the decade, in 1959, this number more than quadrupled, to 128 companies.⁴³⁷ While the field—as indicated by the yearly surveys—saw intensive growth overall—the review featured 101 American companies in 1951 compared to 283 in 1959, an 180% increase—the number of industrial companies producing commercials rose far faster than overall sector growth, amounting to a 313% increase. Though a broad metric which cannot account for how

set ownership hit sustainable numbers, networks, station owners, and advertising agencies—already gearing up for the new medium with the development of television departments—colluded in positioning “visual radio” as an unparalleled advertising technology.⁴³⁸ Running throughout and alongside discussions about the sales effectiveness of demonstration programs these television talks zeroed in on the magic elixir of sight plus sound. One creative station operator dramatically demonstrated the “potent” impact of television advertising to the Advertising Club of Washington (“Washington radio officialdom, buttressed by members of Congress identified with communications legislation”) by first reading commercial copy alone and then showing audiovisual commercials in film form.⁴³⁹ ABC took a more modest approach, simply including assurances about the dual power of television in a booklet it distributed to

active each of the self-reported (though referenced) studios were in the field of commercial production, these figures provide some indication of the increasing importance of television commercials to the non-theatrical sector—and even, perhaps to its expansion over the 1950s, though far more work is necessary to test for such correlations.⁴³⁷ Again, the specialized experience of the industrial filmmaker as the producer of corporate communications was positioned as a solution to television’s latest programming need. If “Good advertising educates,” correspondences between educational/industrial film and commercials seemed logical; one author even suggested that educational films might borrow some strategies from advertisements.⁴³⁷ Furthermore, although the above focuses on commercials with a primary selling aim, institutional commercials borrowed the same strategies of address found in the glut of institutional advertising films produced by the industrial sector, many of which, as noted, also found their way to television.

The precise impact of the industrial film production sector, however, is difficult to measure. During the earliest years of television commercial production, advertising agencies provided rough script ideas to studios like Sarra and Transfilm that those firms transformed into a commercial.⁴³⁷ As agencies hired specialists to create television copy and formed television departments, they took greater control over the end result of the commercial. By the close of the 1950s, in lieu of rough ideas, a production house received a full shooting script, a storyboard, and a copywriter chaperone during shooting who oversaw any changes made to the agency’s plans.⁴³⁷ More work remains to precisely chart this shifting relationship between agencies and studios and their respective influences on the products of their collaboration, including issues including aesthetics, modes of address, shifting sales strategies, and representation.

⁴³⁸ “Agencies Ready for Post-War Television” *Broadcasting* (April 17, 1944): 11.

⁴³⁹ “Television as Potent Medium Explained By Joyce Before Washington Ad Club” *Broadcasting* (Jan 22, 1945): 60.

advertisers and their agencies; in part they claimed, “Due to the eye and ear together being more retentive than the ear alone, *sponsor identification* ratings are extremely high in TV.”⁴⁴⁰ By 1954, the advantages of television for advertisers had become “fairly obvious,” as noted by Henry Wayne McMahon, an experienced TV commercial consultant who, according to his biography, oversaw \$140,000,000 in TV billing as vice president in charge of TV commercial production for McCann-Erickson. Drawing from persistent advertising discourses surrounding television, McMahon’s trim list summarized:

TV is:

1. Powerful. Sounds and sight-in-motion combine to do a double effective selling job.
2. Memorable. Your message can be designed to penetrate deeper, cling to the memory longer.
3. “Step-by-step.” You can control the sales story, point-by-point, to its conclusion.
4. Dramatic. You can demonstrate the product, quickly, effectively to mass audiences as never before.
5. Personal. TV is face-to-face, person-to-person. You reach the family in the home.⁴⁴¹

Not coincidentally, many of these attributes—controlling the sales story, demonstrating effectively, and person-to-person communication—gesture towards the live demonstration salesman.⁴⁴² Proof of television’s effectiveness was likewise tied up in anecdotes regarding sponsors’ success with specific products, such as the furrier who sold \$11,000 worth of merchandise “directly traceable” to \$1500 of advertising.⁴⁴³ Both of these latter characteristics—

⁴⁴⁰ “Twelve Reasons for Entering Television Given Advertisers by American Broadcasting Company” *Business Screen* 10, no. 1 (1949): 32. Emphasis in original.

⁴⁴¹ Harry Wayne McMahon, *The Television Commercial: How to Create and Produce Effective TV Advertising*. (1954): 3.

⁴⁴² Another advertising agency vice president compares the television commercial to nine million salesmen simultaneously walking into the homes of 24 million Americans to deliver an identical presentation of a given product. George C. Oswald, “How a Television Commercial is Born” in Charles Anthony Wainwright, *The Television Copywriter: How to Create Successful TV Commercials* (New York: Hastings House, 1966): 35.

⁴⁴³ Ker, “Television on the West Coast” *Business Screen* 9, no. 2 (1948): 50.

its immediacy and a computational approach to TV's ROI pervade discussions of the demonstration show.

The second special capacity of television as a "selling force" manifested in discussions of television's ability to develop intimacy between the viewer and the salesperson or its sponsor.⁴⁴⁴

Part of this was related to the place of television within the home; as outlined by Moscovics,

there's a tremendous intimacy between television and the viewer. They're in their own living room. They're not surrounded by people. They're not putting on a big front. They're not acting for anybody. Their hair is down; and their slippers are on. And you, the broadcaster, and your clients, are invited into this intimate atmosphere, to display your wares.⁴⁴⁵

Likewise, Kathi Norris in a *TV Guide* article mentions shopping by television as something one can do "stretch[ed] out on the living room couch in your negligee."⁴⁴⁶ Taking advantage of this invitation to intimacy meant building personal relationships with audience-prospects; these relationships—important for "overcoming objections," another key phase in the sales process—could also attempt to engender a feeling of reciprocity between the television salesperson and the prospect that tied into theories regarding the utility of prospect involvement in the pitch.⁴⁴⁷

Direct sales television programs harbored a number of strategies to generate this type of viewer investment. As mentioned above, TV "personalities" were believed to be central to drawing and sustaining an audience, no matter the program—demonstration programs, kid's shows, sports, packaged films, quiz shows, disc jockey programs, or variety.⁴⁴⁸ In women's shopper programs,

⁴⁴⁴ George Moscovics, "Making TV Programs Pay for Advertisers" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 161.

⁴⁴⁵ George Moscovics, "Making TV Programs Pay for Advertisers" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 163-164.

⁴⁴⁶ Kathi Norris, quoted in David Weinstein's *The Forgotten Network: DuMont and the Birth of American Television* (Philadelphia, Temple University Press, 2006): 57.

⁴⁴⁷ Russell and Beach, *Textbook of Salesmanship*, 367-427.

⁴⁴⁸ Don Tatum, "Participating in Film Programming," *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 166-67

female hosts were recognized as the best candidates to develop a rapport with their viewers, and many worked to convey the illusion of intimate friendship and build loyalty through their manner and address to the audience.⁴⁴⁹ In a variation that used television exposure to build intimacy between people beyond the television screen, one station general manager suggested using clerks from sponsoring stores as on-air demonstrators to build viewers' comfort and familiarity with the very same salespeople viewers' might encounter the next time they visited the store.⁴⁵⁰ In Mimi White's discussion of more recent home shopping programs, the relationship between viewers and television hosts remains central to the program's sales strategies.⁴⁵¹ Sharing personal information about family, meals, and vacations, and even occasionally recognizing call-in customers by voice enables hosts to build a seemingly intimate relationship with their viewers—one that builds trust and trades on their shows' personal mode of address. This culminates in the contemporary practice of enlisting home viewers to call in to chat with salespeople and offer on-air testimonials about products, which helps reaffirm the bond between salesperson and prospect, provides an additional avenue for prospect participation, and transforms viewers into a key part of the pitch.⁴⁵² Such strategies—bolstered by programs' liveness and the ability of viewers to interact with the program via calls—added to this intimacy an immediacy offered by telephone gimmick shows as discussed above. Combined with the visual possibilities of demonstration, television's capability for intimacy and interaction—at least as popularly constructed by the station operators who benefited from such discourse—helped it claim approximation the work of live, in-person salesmen.

⁴⁴⁹ Stscheff and Bretz, *The Television Program* 118; "How TV sells Women," 60.

⁴⁵⁰ Adanti, "Programming for TV as a Sales Medium," 85;

⁴⁵¹ White, *Tele-Advising*, 103, 106.

⁴⁵² White, *Tele-Advising*, 100-101.

Even as station operators compared television's "salesmanship" to that of salesmen, they invested television with near superhuman powers for achieving sales. Demonstration shows—especially the phone-in variety—offered stations an additional means to generate data to "prove" these claims of sales effectiveness. Discussions of home shopper programs almost never failed to include some example of their spoils. Although brief reports might restrict themselves to a single impressive example, e.g., the perfumer who reserved 500 samples to fill an offer made on *Kathi Norris Show* who found himself on the receiving end of over 10,000 requests, longer coverage often featured multi-item lists organized by product, price, or number sold.⁴⁵³ These latter reports made up for a loss in narrative panache with the power of quantification; "some tabulations" extolling the efficacy of early *Shop by Television* episodes read plainly, "Jan. 31—74 orders, 104 items sold, \$583.82 in volume; Feb. 7—148 orders, 220 items, \$731 volume; Feb. 14—216 orders, 379 items, \$1,064 volume; Feb. 28—646 orders, \$2,600 volume."⁴⁵⁴ As mentioned above, such figures provided stations with a set of numbers beyond ratings that they could offer to possible sponsors as evidence of the sales effectiveness of their specific programs and television in general. According to these station operators, television is so good at its selling job that it instills desires for things that are not even "on sale," as in the case of a viewer who called into a program selling curtains because he wanted to know the price of the couch (a set piece).⁴⁵⁵ While this storyteller recounted the effectiveness of the incident for keeping the department store that supplied the couch as a loyal supporter of the station's programming, another station used a similar story in a full-page advertisement promoting the ability of their programs to inculcate the

⁴⁵³ "How TV sells Women," 57-59; "Department Store TV," 58; Tom Gallery, quoted in Charles Sherman, "Mr. Sponsor Asks..." *Sponsor* April 24 (1949).

⁴⁵⁴ Osbon, "They Buy What They See..."; 46/4

⁴⁵⁵ "TV Clinic Open Forums: Los Angeles" *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 208

close attention in their viewers necessary for advertising messages to take hold. WPTZ Philadelphia's "Story of the Popcorn that didn't pop!" relates the "nightmare" failure of a featured product on Gimbel's *Handy Man*. Unable to get the product to work, the host stopped the demonstration and told viewers to hold off on purchasing the machine until he could ensure that it worked. The selling powers of TV, however, were too strong; 75 people still ordered the popper that day.⁴⁵⁶ One day later, the host showed the popper again, this time with a branded popcorn oil, and sold 300 of the devices, 75% of them with the new oil. WPTZ chalked this up to the "eagle eye" Philadelphians devoted to their program; "an adjunct to the main article being sold was *so carefully watched by the viewing audience* that they demanded the popcorn oil right along with the popper."⁴⁵⁷ Alongside the massive amounts of sales data generated by five-a-week "strip" shows that demonstrated over a dozen products a day, these colorful trade stories about television selling in spite of itself offered "proof" of television as a "selling" medium.

In addition to establishing the desirability of inclusion on TV, these discourses about television as a "salesman" offered a secondary utility to stations—justifying the cost of sponsor participation on sales shows (and commercials). According to these logics, if television is more like a salesman than a print advertisement, then television rates should be compared not to newspaper ads, but to human employees. One station manager talking to a conference of other broadcasters used this framework to mathematically illustrate the value of television participation. While in traditional in-person sales total costs per thousand prospects can run anywhere from \$115 to \$750—if we consider a woman giving a silver polish demonstration paid eight dollars a day giving 70 demonstrations per day or a door-to-door vacuum cleaner salesman

⁴⁵⁶ "Telefile" *Telecasting/Broadcasting* July 24 (1950): 69.

⁴⁵⁷ "Story of the Popcorn that didn't pop!" *Telecasting/Broadcasting* January 9 (1950): 2/48. Emphasis in original.

paid \$15 per day for 20 daily demonstrations—“selling by television” is far more frugal; returning to the language of equivalence between the two types of sales, he claims, “We’re making demonstrations, we’re making sales pitches at \$5.00 a thousand, \$4.00, \$3.00 and even \$2.00 a thousand.”⁴⁵⁸ Notions of “per time cost” were central to how stations positioned their advertising and sponsorship rates, which were still in an experimental stage for many stations trying to figure out the business of television broadcasting. By comparing themselves favorably to human salesmen and distinguishing themselves from print, stations promoted television as the “sales medium with the lowest cost per-thousand and the most effective results.”⁴⁵⁹ Although often in direct reference to demonstration programs, the “data” generated by such figuring could be made to speak to the efficacy and affordability of television as a salesmen at large. Given their ease of production and the handy way they stood in for the effectiveness of television-wrought sales across the schedule, demonstration programs were “a low budget dream” for early stations looking to fill their schedule.⁴⁶⁰

Conclusion

This chapter attempted to answer several questions in the hopes of illuminating 1) the role that industrial filmmakers and corporate television users played in the development of domestic television’s programming, form, and discursive meanings, and 2) the promises that television held out for industry as a special sort of sales technology with unique capabilities based in the immediacy of sight-sound and its extraordinary reach, and articulated to understandings of audiences and reception. Although industrial films on television may seem

⁴⁵⁸ George Moscovics, “Making TV Programs Pay for Advertisers” *Twenty-Two Television Talks* (New York: Broadcast Music, Inc., 1953): 162.

⁴⁵⁹ Adanti, “Programming for TV as a Sales Medium,” 87; It was not unusual for the cost of demonstration shows to be compared to a full page advertisement, with the understanding that, of course, the show does the better selling job to more people. “Department Store TV,” 31.

⁴⁶⁰ Osbon, “They Buy What They See...” 4.

quite distinct from demonstration programs, these differences were less salient to those who worked within the industrial sector, where both forms represented opportunities for corporate communication with consumer citizens (and increased production). Furthermore, while domestic television—at least in its first decades—is far afield from the forms of narrowcast communication discussed in the rest of this dissertation, it represents an important chapter in American business’s ongoing attempts to make television “useful.” In pursuing the two large-scale questions invoked above, I have emphasized the textual qualities of programming that made its way to television—including the differences and overlaps between formats invested engendering viewers’ trust and gratitude versus those more directly invested in making a sale—as well as the ways in which television’s economic potential and the shifting constellations of its selling capabilities were understood by a range of different users. I have also discussed how a conjuncture particularly welcoming to business participation in television was created by the intersection of industrial conditions, e.g., the move towards the 24 hour programming cycle and the development of American television as a commercial medium, and the competing and overlapping economic interests of a range of concerned parties (post-war consumer goods industry, industrial producers, local broadcasters, the networks, advertising agencies). Although American domestic television has long been understood as a commercial medium, tracing heretofore unexplored avenues of corporate participation in television both expands our understanding of what television is—as a textual object, as a communication form, as a mechanism for developing audiences—and complicates our understanding of who historically has contributed to its transformation.

In the next chapter and beyond, I move beyond articulations between television and the home and television and broadcasting to demonstrate the varied ways in which television became

fitted to corporate goals and operations as an internal (intra-organizational) medium of communication. Although the next chapter focuses specifically on the ways in which television was understood and used as a mechanism to develop workers bodies to make them more efficient, later chapters address extensively the way in which television, as a distribution mechanism for industrial cultural content, built on the above early experiments into television as a selling apparatus in order to “sell” employees on the corporation and their participation within it.

Chapter Three

“To extend vision beyond the horizon, to see the unseen”:

Closed-Circuit Television in the Post-War Era

In *Modern Times*' (1936) most famous scene, Charlie Chaplin's tramp finds himself literalized as an errant cog in massive industrial machine, his body curving wildly to fit around a dizzying array of gears and sprockets. As the film continues, it further establishes the absurd degree to which the mechanics of the modern factory has bent the tramp's body to its will. Tasked with tightening the nuts on an endless stream of metal sheets (which, not coincidentally, seem stripped of any relation to a finished identifiable object), the movement of the tramp's body—though he attempts to “sneak” moments from the conveyor by stopping and stretching or talking with his co-workers—becomes tightly regulated by the machine. Even when on break, his body tweaks and jerks with the memory of repetitive motion. Nor is his mental state unaffected by the unforgiving monotony of the machinery. Everywhere he looks—women's clothes, co-workers noses, and the very machine that swallowed him—he sees bolts needing tightening. This leads to a nervous breakdown for our main character, but not before he's made the subject of an experiment involving a new machine that tries to regulate even the most organic of functions (eating) so that workers never have to leave their posts and break the rhythm of work. The film's satirical bite zeros in on anxieties surrounding workers' loss of humanity in a world where they are asked to work intimately and extensively with machines.

When the automated eating scene is mirrored near the end of the film, the victim is not the tramp, but an engineer. Imprisoned in his own creation—and stuck because the lunch whistle also signaled a cutting of electricity to the machine—the engineer is hand-fed by the tramp, whose difficulty in feeding the engineer results in the incorporation of food itself into the logics of the machine world—a chicken carcass becomes a funnel for coffee, replacing a less salutary metal funnel pulled out of a gasoline tank. While this reinforces the earlier criticism of the increasing automation of workers' lives, it underlines another argument of the film regarding the alienation of workers from their labor. Even the engineer, ostensibly the worker who understands and controls the mechanical monstrosities that bend countless nameless workers to the will of industry, is not free from its adverse effects.

Indeed, the only person not alienated from work in the traditional Marxist sense is the one man who seems to control it all—the owner. His mechanism for overseeing the entire production process, communicating with foremen to set the pace of work, and surveying the behavior of employees: television.⁴⁶¹ Using a two-way screen machine that connects him “live” to anywhere in the factory—including the bathroom—the owner watches and controls work (and leisure) from his desk. These anxieties over the possibilities of electronic communication equipment becoming incorporated into the automation of the factory surface on the film's audio track. The only (legible) voices in the entire film come from the two-way television and an audio-recording

⁴⁶¹ Chaplin would likely have been familiar with experimentations into videophones in the late 1920s and 1930s, which could have inspired his use of the two-way communication screen device we see throughout the film's first factory segment. While not “television” in the traditional broadcast sense—which was also under keen experimentation in the same period—its promises of live, immediate vision at a distance links it to other forms of television I discuss throughout this project.

describing the feeding machine.⁴⁶² Both the booming voice of the factory owner and the crisp instruction manual-like description of the feeding machine's functionalities contrast with the aural landscape of the rest of the film and reinforce the mediated factory as a space of sensory onslaught and danger.

This chapter returns to the near future that so concerned Chaplin—the incorporation of screens into factory workspaces as mechanisms of efficiency and regulation—to trace the development of “industrial television” (ITV). A widely used synonym for closed-circuit television in the United States, ITV was the first sustained initiative backed by the research programs and funding capabilities of major media and technology institutions such as RCA and DuMont to recognize the potential of television tailored specifically to the needs of industry, science, medicine, education, and the military. By consulting a wide range of sources created alongside the development of CCTV—technical reports, trade journals, handbooks and manuals, archival documents and newspaper coverage—I’ll offer a corrective to common understandings (and Chaplin’s fear) of closed circuit television as a surveillance technology, and largely one designed to police behavior. Instead, this chapter will show how CCTV was positioned by its creators, promoters and early users as a mechanism not to constrain bodies but to extend them. As we increasingly recognize the complicated relationship between capacity building and surveillance built into digital technologies, e.g., GPS, CCTV, as an antecedent, offers an opportunity to better understand this tension. In what follows I’ll demonstrate how CCTV was hailed for its promise of remote viewing and augmented sight and I’ll argue that CCTV provided employers an opportunity to reconfigure the ideal working body, building its capacities to meet

⁴⁶² Chaplin is perhaps well known for his reticence to embrace the “talkies,” which arrived in Hollywood in 1927—almost a decade before *Modern Times*. While the tramp does sing towards the end of the film, he does so in complete gibberish.

the shifting demands of diverse post-war industries. In so doing, I hope to contribute to studies of how “work systems” produce people, socializing them to the conditions and expectations of capitalism as well as to investigations into how technologies—whether media, maps, clocks, or factory automation—have altered workers’ relationship to their labor.⁴⁶³

Below, I address the specific shape of these electronic transformations as I move through various industrial applications in a mode borrowed from CCTV manuals of the mid to late 1950s: the taxonomy of uses. However, instead of organizing my analysis based on use sector (medicine, government, industry, education) or application (observing industrial processes, security), I have designed my discussion to touch on the myriad ways television promised to extend the worker’s body and build its capacities (to make it invincible, adaptable, bigger, stronger, more perceptive, more connected, and smarter). Although ITV got its “official” start in the late forties and is still in operation today, I have chosen to focus on the 1950s, as it was a critical decade for its development and adoption. The fifties were also the liveliest period—in the American business and industry context, at least—of discussion and negotiation over the varied forms industrial television could take. While this chapter focuses *primarily* on business and industry users of ITV, in the interest of avoiding arbitrary institutional divisions at the service of

⁴⁶³ On work systems and the conditioning of capitalism, see Rosabeth Voss Kanter *Men and Women of the Corporation*. New York: Basic Books, 1993: 10; Vicki Mayer, *Below the Line: Producers and Production Studies in the New Television Economy*. Durham: Duke University Press, 2011; and David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Social Change*. Hoboken: Wiley-Blackwell, 1991. On labor and technology, see, for example, Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*. New York: Monthly Review Press, 1974; E. P. Thompson, *The Making of the English Working Class*. New York: Vintage, 1966.

my project's agenda, I occasionally touch on other users and uses to acknowledge the understandings and motivations of CCTV's developers.⁴⁶⁴

Contemporary analyses of closed-circuit television tend to focus primarily, if not exclusively, on issues of surveillance and surveillance culture, obscuring the visibility of CCTV's many other uses.⁴⁶⁵ This uneven attention may stem, in part, from how industry positioned CCTV to capture the *public* imagination and generate excitement around the new technology. RCA, for example, circulated a story in which they turned their ITV system on their own employees to capture a warehouse worker stealing on the job, portraying the system as “an electronic witness” and a “hero.”⁴⁶⁶ Another article appealed to readers' knowledge of science fiction to cast the TV as a spy—not in the employ of dictators, of course, “but to spy on operations, rather than citizens.”⁴⁶⁷ More effective than these news briefs, perhaps, for articulating surveillance to ITV systems within the broader cultural imagination was the first public demonstration of the technology, held at the City Prison of Manhattan. RCA and the New York City of Correction collaborated to create a three-camera system that allowed the warden, in his office, to observe prisoners as they worked, exercised, and moved in and around their cells in

⁴⁶⁴ While K-12 and secondary education were sometimes classified as ITV users, they were also set apart through the terminology of E-ITV or ETV; although a wealth of materials document educational CCTV programs, I do not follow those investigations here. See, for example, the trade journal *Educational Television*, which became *Educational and Industrial Television* in 1972, three years into its run.

⁴⁶⁵ Inga Kroener, *CCTV: A Technology under the Radar?* Farnham: Ashgate Publishing Ltd, 2014; Clive Norris and Gary Armstrong, *The Maximum Surveillance Society: the rise of CCTV and social control*. Oxford: New York, 1999; Kelly Gates, *Our biometric future: facial recognition technology and the culture of surveillance*. New York: New York University Press, 2011.

⁴⁶⁶ “Industrial Television Solves a Mystery By Watching Theives at Work” *The Michigan Technic* 72.2 (1953) 44; “TV Catches a Thief.” *New York Times (1923-Current File)*, Sep 06, 1953. E7

⁴⁶⁷ Bryan Whipple, “Industry's New Tool—T.V.” *The Michigan Technic* April 1958, 28.

different parts of the building.⁴⁶⁸ While RCA may have believed security best translated the utility of ITV to the public, other companies such as Philco also promoted surveillance applications—insofar as cameras could replace extra guards—as a means to demonstrate ITV’s immediate cost-saving potential.⁴⁶⁹ To contemporary readers, increasing concerns with privacy and security, and the public nature of surveillance operations such as Britain’s million-plus CCTV cameras may have helped obscure the technology’s origins, making its ongoing operations less visible to everyday life. However, many other capabilities, from remote observation of dangerous processes to document retrieval, were far more prominent in discussions of possible ITV applications.

Although news stories regarding the potentials of industrial television and its wartime applications begin to appear as early as 1944, the first major wave of attention given to ITV begins in the late 1940s and very early 1950s as researchers and manufacturers published technical articles in engineering journals to introduce and claim ownership over their systems. Beginning in the late 1940s, major newspapers including the *New York Times*, the *New York Herald Tribune*, and the *Chicago Tribune* also start running what would amount to a handful of articles about the possibilities of ITV, as well as brief reports about new models, prominent demonstrations, advertisements, and classified employment ads.⁴⁷⁰ Likewise, popular magazines

⁴⁶⁸ P. B. Reed, “Industrial Television Demonstrated” *Radio Age* 9.3 (1950): 14; *SMPTE Journal* 54 (April 1950): 512-513.

⁴⁶⁹ “Closed Circuit TV Protects Defense Plant.” *New York Times* Aug 28, 1956. 33; Alexander R. Hammer “Industry Posting More Electronic Guards.” *New York Times* (1923-Current File), Oct 04, 1959. F1; Ernest B. Gorin, “Long Term Industry Outlook” *The Analysts Journal* 12.3 (Jun. 1956): 81.

⁴⁷⁰ See, for an example, Thomas Rivera, “The Brass Ring.” *Chicago Tribune* Nov 10, 1968. Although Rivera mentions industrial uses of ITV in airports, the article’s focus rests on a flashier public application, the use of ITV at the horse race track to display odds and winners. Suggesting reports about industrial applications would be uninteresting to the paper’s readers he asks, “But how much of a kick can you get out of showing arrival and departure schedules?” Towards the

ran rare stories on high profile uses of ITV, e.g., *Popular Mechanic* on ITV guiding missiles into German V-2 hangars during WWII, and the implications of ITV for their readers, e.g., *The Rotarian* on how ITV could be used in the home, while shopping, and to support the civic lecture circuit.⁴⁷¹

The vast majority of coverage of ITV, however, exists in specialized trade papers and manuals. After the introduction of basic systems in the first wave of journal reports, articles tended to focus on specialized applications within specific industries (rail, steel, sewage, commerce) or technical innovations to systems (color, greater light sensitivity).⁴⁷² A series of books published in the second half of the 1950s attempted to provide overviews of the young industry and market ITV applications. Written largely from within the industry by engineers for RCA, DuMont, and others, the books are remarkably similar in their discussions of the applications of ITV, often using the same examples and even occasionally the same photograph illustrations, though the biases of the authors towards their home institutions occasionally reveals itself.⁴⁷³ In contrast to news and journalist reports, which generally amount to brief announcements of new ITV installations—rather than discussions of the implications of systems and their affordances, these books and trade journal articles showcase a far more developed

very end of the 1960s, the term “ITV” undergoes a shift in meaning, away from the types of vision-extending applications discussed in this chapter to refer to the massive industrial television program production and distribution systems that developed in the 1970s and beyond.

⁴⁷¹ Henry M. Lewis, Jr. “TV in Work Clothes” *The Rotarian*, August 1955, 32-34, 54-55; Creighton Peet, “TV’s Little Brother” *Popular Mechanic*, November 1950. 82.

⁴⁷² “Review,” *Journal of the Institution of Electrical Engineers* 4.45 (1958): 512-516. This book review, writted within the industry, traces many of the pioneering papers on ITV to IEEE’s 1952 television conference.

⁴⁷³ Reviews of Noll’s and Zworykin’s books, for example, gently point out that their focus is narrow, excluding major manufacturers or focusing heavily on a single lab. It should be pointed out as well that the author of these reviews published his own book on CCTV in 1957. “Books” *Proceedings of the IRE* 44.9 (1956): 1203; “Books” *Proceedings of the IRE* 46.10 (1958) 1769-1772.

sense of what ITV could mean for American business and industry. It is important to remember, however, that technical communication—which began to form as an academic discipline in the 1920s with the publication of texts books and the formation of professional societies—was well established as a professional practice by the end of World War II.⁴⁷⁴ Indeed, manual writing became a key skill in the post-war era, shaped by past experiences of wartime and reconversion's turn to electronic consumer products.⁴⁷⁵ As a professional practice, technical writing has been animated by various debates regarding its proper nature, form, and purpose. While some scholars pursue a humanistic approach to technical writing—one that attempts to “complicate” or denaturalize technologies and, at its extreme, seeks to actually intervene in the process of technological development—others follow a more traditional “instrumentalist” approach.⁴⁷⁶ The materials under analysis here fall in the latter subgenre, which sees as its mission integrating technology into users' lives “invisibly” and “unobtrusively.”⁴⁷⁷ Underlining this approach is a technologically determinist strain that sees technology as the inevitable (and desired) outcome of capitalist progress. Insofar as this approach to technical writing attempts to naturalize idealized relationships between users and machines, this chapter attempts to denaturalize these same relationships in order to expose the workings of power behind the dry and certain discourse of

⁴⁷⁴ In other words, “The decade of the 1950s saw technical writing ‘grow up.’” Robert J. Connors, “The Rise of Technical Writing Instruction in America” *Teaching Technical Communication: Critical Issues for the Classroom*. Ed. James M. Dubinsky, Boston: Bedford/St. Martin's, 2004: 84, 89.

⁴⁷⁵ Connor, 88.

⁴⁷⁶ For an overview of this debate, see on the humanist side, Robert R. Johnson, “Complicating Technology: Interdisciplinary Method, the Burden of Comprehension, and the Ethical Space of the Technical Communicator,” and “Johnson Responds,” in *Teaching Technical Communication: Critical Issues for the Classroom*. Ed. James M. Dubinsky, Boston: Bedford/St. Martin's, 2004: 22-44 and 58-61, respectively. For the instrumentalist viewpoint, see Patrick Moore, “Myths about Instrumental Discourse: A Response to Robert R. Johnson” in the same volume, 45-57.

⁴⁷⁷ Moore, 54.

technical writing employed by my sources. The taxonomy I offer below is my own, though as will be clear from my references, the uses I delineate reoccur throughout many of these published treatises.

This chapter will not address all of the divergent uses enabled by the flexibility and local adaptability of CCTV. Anna McCarthy has already discussed the topic of closed-circuit television as a technology of display in department stores and other sales contexts, and those practices will not reappear here.⁴⁷⁸ The next chapter will touch on the use of CCTV as a distribution mechanism for videotape programming in the pre-cassette era. Two additional CCTV functions will be left aside for discussion in the final chapter: two-way communications and telecasting at meetings and conferences that use the technology to serve geographically dispersed members or employees. Although these uses were part of early conversations regarding the capabilities of CCTV, they stood somewhat apart from developers focus on the technology's function as an extension of human sight (rather than a content delivery system or a mechanism of co-presence). Furthermore, the videoconference affordances of CCTV fit more squarely in a much longer trajectory concerning the historical desire for perfecting—that is, using hypermediation to destroy any sense of mediation within—interpersonal point-to-point communication at a distance. Rather than allow the technology to determine the shape of analysis, it is more useful to structure these discussions by the cultural ambitions they animated.

Developing the system

Many histories position Germany's WWII use of remote cameras to observe rocket launches as the origins of CCTV (or, at the very least, identify non-denominational WWII

⁴⁷⁸ See Anna McCarthy, "Gendered Fantasies of TV Shopping in the Postwar Department Store" in *Ambient Television: Visual Culture and Public Space*. Durham: Duke University Press, 2001: 63-88.

missile guidance systems as the first use of CCTV). However, a broader cultural understanding of CCTV as the manifestation of the desire to create rigidly defined but potentially expansive networks can look to theater television as an earlier example of these principles in commercial entertainment, a context rarely associated with the institutional leanings of CCTV. Demonstrated by RCA in 1930 and investigated for its profitability by the Academy of Motion Picture Arts and Sciences in 1938, experimentation with theater television began in earnest in test theaters in 1941.⁴⁷⁹ Experimentation slowed during the war but picked up steam at its close. To Hollywood, theater television offered a means to combat an expected drop in theater attendance due to the mass adoption of television and, according to RKO Executive Vice President Ralph Austrian, changing leisure and labor patterns brought by the transformation of wide scale shift work—which meant the film audience could be replenished three times a day as workers ended their shifts—back into the regular 8-hour working day.⁴⁸⁰ Theater television—in which filmed or live programming could be distributed to a set of participating movie theaters by way of radio relay, coaxial cable, and/or telephone lines—used the broad principles of closed-circuits in its attempts to create expansive intracity and even national networks of theaters that enabled precise restriction of the television audience. In the context of distributing live news programming, theater television also built on CCTV’s remote viewing capabilities. In the keynote delivered to the 1944 National Electronics Conference, for example, Ralph R. Beal alluded to the shared qualities of both systems when discussed theater TV’s capability to deliver the “thrills and drama

⁴⁷⁹ For an analysis of Hollywood’s strategic interest in theater television, see Michele Hilmes, *Hollywood and Broadcasting: From Radio to Cable*. Urbana: University of Illinois Press, 1990, 118-125 and Timothy R. White, “Hollywood’s Attempt at Appropriating Television: The Case of Paramount Pictures” in *Hollywood in the Age of Television*, ed. Tino Balio, (Crows Nest, Wales: Unwin Hyman, 1990): 149 – 155. While experiments in Britain followed a similar trajectory, my focus here is on the context in which American manufacturers came to CCTV.

⁴⁸⁰ Ralph B. Austrian, “Some Economic Aspects of Theater Television” *Society of Motion Picture Engineers*, 44, no. 5 (1945): 13.

of actual events as they occur at a distance in real life” *alongside* the promise of ITV’s “use of radio sight as the ‘eyes’ of factories, the means of co-ordinating and controlling giant manufacturing enterprises, and the means also of looking into places that otherwise might be inaccessible or dangerous.”⁴⁸¹

Proponents believed theater television could offer high quality content—for example, stage plays and live theater acts, A-list performers, news events, and major sporting events like the World Series or the Kentucky Derby—too expensive for commercial sponsorship alone since ticket sales could be adjusted to cover costs and generate profits.⁴⁸² Unlike advertising-subsidized broadcast television offered “free” to anyone with a set (or with a friend, neighbor, barkeep, or acquaintance who owned a set), theater television appealed to theater owners and the commercial entertainment film industry as an economically viable medium precisely because it allowed them to extend a business model focused on per-person ticketing.⁴⁸³ Drawing from per-head attendance models established in theater, film, and the most frequently proposed programming for the new medium, sports, Hollywood industry workers and engineers identified theater television as a “closed-circuit” that enabled perfect control of audiences’ access to content as a strategy to maximize potential profits.⁴⁸⁴ Although a few mentions of theater television’s potential for serving institutional audiences (students, workers, citizens and

⁴⁸¹ Ralph R. Beal quoted in “Chicago Conference Presages Expanding Electronic Applications” *Electrical Engineering* (Nov. 1944): 419.

⁴⁸² John Evans McCoy and Harry P. Warner, “Theater Television Today” *Journal of the Society of Motion Picture Engineers* 53 (1949): 346-348; Austrian, 379.

⁴⁸³ Of course, some were working to make television more like theater by developing coin-operated controls that limited viewers’ access to television content. These devices would be marketed to bars, hotels, and other institutions where “free tv” could be parlayed into a second revenue stream. See, for example, the early output of Industrial Television, Inc.

⁴⁸⁴ The language of the “closed-circuit” can be found in Barton Kreuzer, “Progress Report—Theater Television,” *Journal of Motion Picture Engineers* 53, no. 2 (August 1949): 134; “Progress Committee Report,” *Journal of the Society of Motion Picture and Television Engineers*, Vol. 56 (May 1951) 581; Austrian, 385; Halpern, 140.

government employees) pepper technical discussions of the technology's progress, theater television was most valuable to the film industry as a competitor in the exhibition of commercial entertainment and as a way to reimagine their business and audience model in the context of television.⁴⁸⁵

Though television-equipped theaters experienced a range of success with their closed-circuit programming, with some reporting capacity crowds at sporting or high profile current events, the experiment was short-lived. In addition to difficulties specific to the various technical systems proposed by manufacturers, the residual effects of the Paramount decree in disarticulating production from exhibition, and changing exhibition strategies (Cinemascope, subscription television), when the FCC refused to grant theaters UHF frequencies to transmit programming, theaters were forced to use higher cost, lower quality phone lines in order to network theaters together in order to achieve efficiencies of scale.⁴⁸⁶ As Timothy White observes, "More expensive than broadcast television, and lacking the quality of the motion picture image, theater television could compete with neither."⁴⁸⁷ Despite theater television's failure to find success as an alternative to broadcast television and film, the experiment provided a foundation for thinking about the possibilities of disarticulating "television" and "broadcasting" and developing "private" television systems. Although Hollywood's interest in closed circuits rested on exhibitors' desire to restrict the flow of entertainment programming to

⁴⁸⁵ Austrian, for example, suggests programming for audiences of school children during daytime off-hours to increase the profitability of theater television (Austrian 382). Nathan L. Halpern, "Theater Television Progress," *Journal of the Society of Motion Picture and Television Engineers*. Vol 59 (August 1952): 140. Hilmes also briefly mentions the first "nonentertainment" use of theater television, a sales convention for a Brooklyn clothing company spanning 17 cities in 1952 and suggests that "This particular use was to increase for awhile, then be overtaken by closed-circuit television systems." Hilmes, 122.

⁴⁸⁶ Hilmes, 123-124.

⁴⁸⁷ White, 153-55.

paying customers, the principles behind the systems developed for local, regional, and national distribution challenged what increasingly seemed to be the “natural” correspondence between television and the broadcasting industry and offered a proof of concept for the restriction of broadcast signals under the exigencies of controlling the audience.⁴⁸⁸

When industrial television was discursively contrasted with entertainment technologies, however, it was not theater television, but commercial broadcasting that provided its foil. In the early 1950s, industrial television was often included in a set of exuberant promises regarding the future shape of television that included the “magic” of color, the “miracle” of three-dimensional programming, the rise of UHF and classroom television, and the end of the Freeze.⁴⁸⁹ However, engineers and reporters took pains to differentiate between the two systems. Industrial television was smaller, relatively less expensive, and did not require massive transmitters and antennae or expert system supervision.⁴⁹⁰ Furthermore, the audiences of ITV were small and specialized, as was the “programming.”⁴⁹¹ Since it did not use the airwaves, ITV also operated outside of the authority of the Federal Communications Commission, which meant systems had the flexibility to eschew (and even, rarely, exceed) broadcast standards.⁴⁹² In defending the generally lower quality image of many ITV systems, authors were quick to point out the different goals and

⁴⁸⁸ Rallying his fellow Hollywood men to his cause, Austrian’s treatise on the possibilities of theater television proclaims, “Television must not be thought of as the exclusive instrument of the broadcasting industry or, as a matter of record, of any other industry. Television is too big, too all-encompassing, too international in scope to be controlled by group interests (385).”

⁴⁸⁹ David Sarnoff “TV Comes of Age, Stands Ready for the Future” *The Billboard* (Dec. 1 1951): 13; Henry M. Lewis, Jr. “TV in Work Clothes” *The Rotarian*, August 1955, 32-34, 54-55; R. C. A. Net for 1953 to Show Gain” *New York Herald Tribune*. (Dec 15, 1953): 43; Dumont, Allen B. “The ‘Telectronic Age’.” (Jan 6 1954): 102.

⁴⁹⁰ Peet 81; Whipple; Guilgoyle.

⁴⁹¹ Whipple; V.K. Zworykin, “Industrial Television and the Vidicon” *Electrical Engineering* 69.7, (July 1950): 624; Schneider 25. The language of CCTV “programs” comes from Freeman, F1 who used the term to distinguish their inaccessibility to “general audiences.”

⁴⁹² Williams, “Industrial and Professional Applications of Television” 651; “Doctors to View Surgery here by Color Video.” *New York Herald Tribune* (Oct 08, 1950).

purpose of industrial systems were better served by simpler systems trained only on the most effective transmission of necessary data.⁴⁹³

One of the most popular ways practitioners made sense of their difference—and legitimized industrial television as a serious, scientific pursuit—was by oppositionally gendering the two divergent uses of television; broadcast television was the “more popular sister” and the “glamorous cousin,” and industrial television the “little brother.”⁴⁹⁴ In these formulations, femininity becomes articulated to broadcast television in descriptions of its role as a “show horse:” “a highly exotic and temperamental art,” “amusing, or boring, or time-wasting, or frankly alarming,” ruled by the “dictates of fashion” and focused on “fantasy and deception,” with its performance criteria “emotional or subjective.”⁴⁹⁵ ITV, on the other hand, was the more masculine “work horse:” “stern,” “practical,” “useful” “serious” and “entirely functional” with performance criteria that was “intellectual or objective” and content that was “factual and truthful.”⁴⁹⁶ To the public, television—that is, broadcast—meant “sports, drama, variety shows and news programs;” for the “television scientist,” television represented an “electronic key for solving industrial as well as scientific problems”—one that held a promise of “furthering understanding, advancing knowledge, and enriching life.”⁴⁹⁷ These same commentators, Vladimir Zworykin among them, often claimed that the inventor fathers of television always had ITV’s capacities for industrial use and “pure research” in mind, and commercial broadcasting—

⁴⁹³ Barratt and Waters, 227.

⁴⁹⁴ Peet, 81; Guilfoyle; Schnieder 23.

⁴⁹⁵ Wilson 125; Williams, “Industrial and Professional Applications of Television” 651; Brace 441, 444.

⁴⁹⁶ Ibid.; Dumont, Allen B. “The ‘Telectronic Age’.” *Variety* (Jan 06 1954): 102; Michaelis 172.

⁴⁹⁷ Dumont, Allen B. “The ‘Telectronic Age’.” 102; Zworykin, “The evolution of television” *Electrical Engineering* 72.3 (1953): 209.

discouragingly and bewilderingly—overshadowed and limited these possibilities.⁴⁹⁸ In making these claims, they also commonly suggested that industrial television would eventually surpass broadcast entertainment television in its scope and reach, in so doing establishing the ultimate legitimacy of industrial television as the proper use of TV's extended sight.⁴⁹⁹ Although ITV was, on occasion, positioned as a possible domestic technology—easily managed by housewives as they monitored the kids, the kitchen, and the front porch—these instances were rare.⁵⁰⁰ More often, referring to domestic, commercial television enabled engineers to disassociate ITV (and its users) from popular associations of television with mass, feminine, frivolous and passive audiences. In taking into account the many ways in which television augments the human body discussed below, it appears the cultural work of gendering ITV becomes increasingly important to promoters when television threatens to actually break down understood differences between the potential capacities of men and women workers.

ITV Gets its Start

The first post-war demonstration of ITV—according to a CCTV planning manual written by two men working for DuMont—was a 1946 contract closing between DuMont and Chevrolet. To avoid the expense, time commitment, and hassle of travel (and, of course, to demonstrate the technical savvy and forward-thinking nature of both companies), the president of DuMont and the general manager of Chevrolet each signed a copy of their contract under the watch of a

⁴⁹⁸ Williams, "Industrial and Professional Applications of Television" 651; D. Sarnoff "Electronics and the Engineer"; Zworykin "The evolution of television," 209; V.K. Zworykin, "Industrial Television and the Vidicon" (July 1950): 624-627 *Electrical Engineering* (all below from 624) 69.7, 1950; Michaelis 170; Wilson "Television in Industry" 125; Schneider 23. Wilson, 125.

⁴⁹⁹ D. Sarnoff "Electronics and the Engineer"; Wilson, "Television in Industry" 125; Schneider 23; "C of C Seats Chiefs; Hails 2 Scientists." *Los Angeles Times* (Feb 03, 1955): A1.

⁵⁰⁰ Henry M. Lewis, Jr. "TV in Work Clothes" *The Rotarian*, August 1955, 32; Sarnoff, "Electronics and the Engineer" 837.

television camera—in New York and Washington, respectively. With the signatories “separated by 250 miles,” the feeds of both cameras were superimposed to create an image that showed both signatures resting on the same document. To establish a permanent record of the occasion—and provide the only material instance of what would otherwise be nothing more than a fleeting illusion seen by a few men—the companies took a photograph of the “signed” contract. After this splashy beginning—complete with predictions for its forthcoming wide scale adoption—several years lapsed before ITV grew from its “fumbling adolescence” to “vigorous maturity.”⁵⁰¹

Although British engineers may have been working on developing ITV proper as early as 1936, American magazines and trades began covering industrial television in the mid-1940s with stories heavy on its possibilities and potentials and light on its concrete manifestations.⁵⁰² Figures suggest that despite industry enthusiasm (and the marketing efforts of manufacturers), adoption of television was slow. Precise numbers are difficult to verify. For example, one contemporaneous researcher suggests that by the close of 1951, only about 100 systems had been sold in the United States.⁵⁰³ However, an internal survey undertaken by RCA indicates at least 107 installations—many of them experimental—spanning military, medical, and industrial users may have belonged to RCA alone in 1951.⁵⁰⁴ As the decade wore on, sales seem to have steadily

⁵⁰¹ Morris A. Mayers and Rodney D. Chipp, *Closed Circuit TV System Planning* (New York: John F. Rider Publisher, 1957): v. Hints of earlier uses exist, such as Diamond Power’s claim to have used a CCTV system to monitor water gauges as early as 1945, though little information substantiates these instances. As will become clear, how “vigorous” the maturity of CCTV became is in question.

⁵⁰² R.C.G. Williams, “Industrial and professional applications of television technique” *Proceedings of the IEE* 99.20 (1952): 651; “TBA Conference Highlights” *The Film Daily* (Dec. 12, 1944): 8; David Sarnoff, “Reconversion is Dominant Factor” *The Radio Annual* 1946. 59; A. P. Peck, “Previews of the Industrial Horizon” *Scientific American* (June 1947): 244.

⁵⁰³ Anthony R. Michaelis, “Some Uses of Television in Science and Industry” *The Quarterly of Film and Television* 7.2 (Winter 1952): 173.

⁵⁰⁴ Radio Corporation of America, “Industrial Television Meeting May 24, 1951” Accession 2069, RCA (Camden, NJ Technical Reports) Box 165, Folder Z 164-Z-170. Hagley. P4 -14.

increased. In August 1955, manufacturers estimated they would hit over 600 installations for 1955 by the end of December. In describing this dramatic increase in adoption, one RCA manager suggested that the numbers for 1955 might equal nearly all total industry sales from 1946-1954.⁵⁰⁵ Estimates varied wildly from source to source, however, with industry-wide estimates of sales volume for 1956 ranging from \$2.5 to \$7 million even a full nine months after the year's official close.⁵⁰⁶ Yet another set of numbers circulated by the Electronic Industry Association, claims sales of industrial television increased 10-fold in the four years between 1954 and 1958, jumping from a million-dollar industry to a 10 million dollar industry.⁵⁰⁷ Others located a 500% increase in ITV use between industrial, military and scientific groups between 1956 and 1961.⁵⁰⁸ Bryan Whipple attempts to explain this discrepancy, suggesting that companies inflate their numbers for stockholders while simultaneously deflating their sales in public reports to discourage would-be competitors from entering the industry. Ultimately, he suggests examining the number of vidicon tubes—a piece of equipment designed especially for ITV—produced each year. In 1956, 1,350 were made; though some would have been replacements for broken cameras, Whipple suggests the majority of these would be headed for new installations.⁵⁰⁹ Whatever the veracity of these figures independently, together they point to rising adoption of ITV by a range of users. While insiders suggested “the period of

⁵⁰⁵ Joseph M. Guilfoyle "Industrial TV." *Wall Street Journal*, Aug 29, 1955.

⁵⁰⁶ Bryan Whipple, “Industry’s New Tool—T.V.” *The Michigan Technic* April 1958, 28-30.

⁵⁰⁷ “Industry’s Electronic Eye” *Steel* July 21, 1958. (Hagley)

⁵⁰⁸ Richard W. Cook “Transistorizing the Industrial Image Orthicon Camera” *IRE Transactions on Industrial Electronics* 8.2 (1961): 1.

⁵⁰⁹ Whipple, 29.

experimentation [came] to a close” in 1956, they claimed that ITV was “generally accepted” by 1961.⁵¹⁰

It the early period of its adoption, several key uses became articulated to industrial television. The identity of the first permanent ITV system is somewhat unclear, though many point to the New York Edison Company’s 1946 installation of television to monitor the water levels of giant boilers.⁵¹¹ Due to a number of factors, including the massive scale of their operations and the relative cost effectiveness of ITV monitoring, power stations and utilities companies represented the swiftest and most enthusiastic adopters of early industrial systems.⁵¹² “Big Steel” quickly followed, reacting to surging demands for increased production in the post-war era that required factories to find new methods to expand output.⁵¹³ Undertaking three years of testing to identify potential applications for ITV, industry officials noted that by 1954, it “served its probation period and is headed for big things.”⁵¹⁴ According to RCA’s R. F. Schneider in 1955, following the installation of ITV for “essential applications,” e.g., safety uses in ordinance factories and nuclear facilities, “cost-reduction applications” became a major site of interest for industrial users, with “luxury applications,” for example, shopping by television, as

⁵¹⁰ W. R. G. Baker quoted in “Glowing Prospects on His Screen.” *New York Times* (Dec 18, 1955.) F1; E.S. Hall, “The new look in Industrial electronics” *Proceedings of the IEE* 108.37 (1961): 23-14.

⁵¹¹ Peet, “TV’s Little Brother” 82; Schneider, “How can industry use television” 23.

⁵¹² E. R. Thomas and W. L. Norvell, “Television for monitoring stack emission” *Electrical Engineering* 72.3 (1953): 224-227; L. W., “Industrial TV Plays Big Role in Many Fields” *Chicago Daily Tribune* May 10, 1952. C1; Michaelis, “Some Uses of Television in Science and Industry” 173; G. H. Wilson, “Television in Industry” Paper presented at AIEE Fall General Meeting, (Feb. 1953): 135.

⁵¹³ J. Higsom, “Electricity in the expansion of the iron and steel industry” *Proceedings of the IEE* 103.7 (1956): 35.

⁵¹⁴ “Steel Mills Make Use of Television” *New York Times* (Feb 21, 1954): F2. The Association of Iron and Steel Engineers also promoted earlier tests that indicated ITV cut costs when used for direct observation in factories. “New Uses for TV Found in Industry” *New York Times* (Oct. 8 1950): F8.

the final trend completing the cycle of experimentation and use.⁵¹⁵ Adoption of ITV appears to have been faster on the East Coast than in the West, and the military continued to be an important user of ITV throughout its early years and beyond.⁵¹⁶

As a potentially profitable future for the technology became clear, more companies began manufacturing ITV equipment. By the late 1950s, what began as a closed industry with a few manufacturers grew to encompass a dozen companies; in the lingo of the era, the industry was described as “mushrooming” by mid-decade.⁵¹⁷ RCA, Diamond Power Specialty Corporation, and Remington Rand all marketed their own ITV camera tubes by 1950.⁵¹⁸ By 1955, RCA, Diamond, the Dage Division of Thomas Products, Inc. (a Michigan company), and Kay Labs shared most of the American market, though several others hoped to challenge their dominance (including DuMont, GE, Philco, GE, CBS, Farnsworth Electronics, and General Precision Laboratory).⁵¹⁹ Pye and Marconi, meanwhile, hoped to secure the British market.

Due to their interest in staking a claim to new televisual technologies and the predilections of one of their figureheads, Vladimir Zworykin, for the public service potential of television, RCA’s experiments with ITV are relatively well documented and offer a useful means to trace the early trajectory of the technology. As noted above, RCA also occupied a significant share of the fledgling industry. According to internal reports, one of RCA’s major difficulties—

⁵¹⁵ Schneider, “How Can Industry Use Television,” 23.

⁵¹⁶ “Industrial TV Showing Set.” *Los Angeles Times* (Oct 09, 1954): P14; L. W., “Industrial TV Plays Big Role in Many Fields” C1; Zipser “C.B.S. Unit Lifts Military Orders from 0 to \$5 Million in 5 Months”; David Sarnoff, “Reconversion is Dominant Factor” *The Radio Annual* 1946. 59; Peet, “TV’s Little Brother” 84; Julian K. Sprague, “Industrial Electronics” *The Analysts Journal* 11.3 (1955): 83-85.

⁵¹⁷ Alfred R. Zipser, Jr. “C.B.S. Unit Lifts Military Orders from 0 to \$5 Million in 5 Months.” *New York Times*, (Feb 13, 1955): 11.

⁵¹⁸ Creighton Peet, “TV’s Little Brother” *Popular Mechanic* (November 1950): 81 – 85, 260.

⁵¹⁹ Guilfoyle A4; Zipser 11; Michaelis 173; Baker, F1; Whipple 30.

one shared by other ITV companies—was the cost of the equipment.⁵²⁰ David Sarnoff even publicly noted that cost was the biggest drawback of ITV systems preventing widescale adoption.⁵²¹ The equipment costs published by manufacturers, unfortunately, are as muddy as their volume sales reports. It appears that, depending on the manufacturer and the quality of the camera and cable, prices varied widely. In 1950, a user could spend as little as \$3000 or as much as \$19,985 (if the DuMont prices for their new color system are to be believed).⁵²² 1951 figures point to costs between \$4,000 and \$8,000, while a year later these numbers are estimated between \$6,000 and \$8,000.⁵²³ Due to installation costs and the short life of pickup tubes and the expense of their replacement, the ongoing operation of ITV systems could quickly become a costly endeavor, especially on top of the hefty price tag for a basic initial set-up. Across manufacturers, cost reduction thus became a key site of ITV research throughout the 1950s.⁵²⁴ RCA laboratories eventually found technical solutions in projects like the Vidicon tube, smaller and more rugged than its predecessor (the image orthicon tube) and systems that used fewer tubes altogether.⁵²⁵ In the late 1950s—when manufacturers and users circulated prices that hewed closer to \$2,000 - \$3,500—falling prices were cited as the primary factor influencing record sales.⁵²⁶

⁵²⁰ Michaelis, “Some Uses of Television in Science and Industry” 170-177.

⁵²¹ D. Sarnoff “Electronics and the Engineer” *Proceedings of the IRE*. 41.7 (1953): 837.

⁵²² Peet, “TV’s Little Brother” 81-85; “IRE Convention: DuMont Color System” *Broadcasting – Telecasting* (March 13, 1950): 28.

⁵²³ Proceedings of the meeting of the Associates of Stanford Research Institute,” Volumes 5-10 (1951): 34; Michaelis, “Some Uses of Television in Science and Industry,” 170-177.

⁵²⁴ Harold R. Walker “A Low Cost Industrial Television System” *IRE Transactions on Industrial Electronics* 9.2 (1962) 97-101.

⁵²⁵ J. E. Flory and J. M. Morgan, “Engineering Memorandum PEM-157: Simplified Industrial Television,” Accession 2069, RCA (Camden, NJ Technical Reports) Box 44, Folder PEM 156-PEM 157, PEM-159-PEM-161, p (4). Hagley.

⁵²⁶ Arthur D. Caster, “Television for Sewer Inspection” *Sewage and Industrial Wastes* 31.7 (Jul. 1959): 860; “DuMont Labs Announces Line of Industrial TV Equipment” *Broadcasting –*

However, even given the reduced prices, an additional problem remained: justifying any costs for a product that did not yet have a very defined set of applications. Given the “lack of education” regarding the potential uses of ITV, RCA engineers working on the ITV problem suggested a time-honored strategy for ensuring the success of a new technology: create the market and define the needs served by the product in question. On the brink of “commercialability,” in 1951, a technical memo suggested a straightforward strategy: sell 100 systems (at \$5,500) within a year to “selected customers” and “By working closely with these customers [...] find and develop applications for the equipment and, in addition, obtain additional market information.”⁵²⁷ Anxieties over “finding” applications for industrial television became apparent in common disclaimers that “the full burden of identifying practical applications of remote viewing cannot fall on the manufacturers of industrial television equipment” and subsequent appeals to those within particular industrial spheres to devise ways in which they might best adapt the technology, since, after all, “various personnel in industry are best equipped to point out those problems to which television offers better solutions than any yet found.”⁵²⁸ Likewise, the numerous, often overlapping taxonomies developed to simplify and organize ITV’s many, sometimes random applications —by use, industry, technological difference, and even the viewer’s relationship to the screen—indicate some degree of struggle in

Telecasting May 27 1957: 88; “Electric Product Sales Post Record” *New York Herald Tribune* (Jan 7, 1957): B14.

⁵²⁷ “Industrial Television Meeting,” 1.

⁵²⁸ Noll, 10; Dumont, Allen B. “The ‘Telectronic Age’.” *Variety* (Jan 06 1954): 102; Wilson 130; Schneider 23. There is some indication that this strategy may have worked at least for “another delighted maker of ITV equipment” (as they were described in a WSJ article), who claimed, “In the past, we had to try to sell new uses to industry; now industry is coming to us with the applications.” Guilfoyle A4.

locating the technology's purpose.⁵²⁹ This may explain the common organizational structure found in early CCTV technical guides written by industry insiders that devote almost as much space to potential applications as they do to technical specifications; developing new needs and uses was as important as improving technology.⁵³⁰

Whatever their marketing utility, these and other publications offered a space for RCA (and its press and public relations department, if the relatively high number of glowing stories touching on RCA branded equipment in trade journals like *Radio Age* and *Business Screen* is any indication) to mobilize discourses that positioned ITV as a not as a narrow technical product, but as a "service" to industry, science, and education. According to predictions made by Zworykin, Ramberg and Flory, industrial television bore the disruptive potential of the automobile, radio, and broadcast television and their "profound effects" on personal habits, community development, customs and family life.⁵³¹ Unlike early discussions of theater television, which

⁵²⁹ It is more common than not for a general-themed book or article on ITV to attempt some sort of classification of its powers, however rudimentary; classificatory lists were also a popular way to make sense of the capabilities of ITV. See, for example, JH Taylor, "A High-grade Industrial Television Channel with Reference to Infra-red operation" *Journal of the British Institution of Radio Engineers* 20.1 (1960): 77-85; Brace 446-447. The "mass experimentation" approach (ITV as solution for anything and everything) taken by American manufacturers was criticized for pushing ITV into situations where its usefulness was dubious (and thus unfairly discredited the technology, since it was found unsatisfactory). R.C.G. Williams, "Industrial and professional applications of television technique" *Proceedings of the IEE* 99.20 (1952): 656; J. E. H. Brace, "Industrial Television: A Survey of History, Requirements and Applications" *Journal of the British IRE* (June 1960) 442.

⁵³⁰ See, for example, Mayers and Chipp, *Closed Circuit TV System Planning*; H. A. McGhee, *Industrial Television: Design and Application of Television Equipment in Industry, Education, and Science* (London: George Newnes Limited, 1957); V. K. Zworykin, E. G. Ramberg, and L. E. Flory, *Television in Science and Industry* (New York, John Wiley & Sons, Inc., 1958). Respectively, the corporations represented by these authors are DuMont, Pye Limited, and RCA. It is not clear, however, the extent to which the companies were involved in the development of their employee's book projects.

⁵³¹ Zworykin et. al., *Television in Science and Industry*, 272. It was Zworykin who famously derided *Howdy Doody* as the offspring of the invention to which he had contributed so much, suggesting that television's greatest potential—and, according to *Television in Science and*

focused primarily on the possibility of developing a novel distribution technology to protect and extend the business interests of a subset of the entertainment industry, the early participants and observers of industrial television—which was, of course, built on a similar technological framework—positioned ITV as a harbinger of much broader social, economic, and political change. In interrogating the qualities and conditions of the transformative “service” ITV promised, this chapter is interested in how these experiments into potential applications of ITV laid the groundwork for reimagining the ideal relationship between industrial employees, their physical and visual capacities, and their labor.

The expansiveness of the claims regarding ITV’s potential utility to a vast number of industries and occasions contrasts with the simplicity of early systems. At its most basic, an ITV circuit needs a camera, power source, video amplifier, and monitor. The image picked up by the camera travels directly via coaxial cable to the attached monitor where users can make a permanent record of the telecast using a kinescope (or, later, videotape). CCTV systems could even use regular home television sets with the addition of an extra tube. As will become clear, this basic system is easily modified by the addition of monitors or cameras (for two-way communication), as well as speakers and sound amplification technologies depending on the local needs of the user. For systems in which the television signal needs to travel some distance (or even span the country), users might supplement the linking coaxial cable with microwave relays or use some combination of both means of transmission.⁵³² For those without the means to construct—or license—their own cable or relay systems, users could connect their pickup and

Industry, its original goals—lay in scientific and industrial applications rather than domestic broadcasting. Fortune, quoted in *Time*, Milestones (Nov. 26.1951); Zworykin et. al., 11.

⁵³² For more on the specifics of transmission, see. Mayers and Chipp, *Closed Circuit TV*, 108-113.

receiving equipment to telephone company lines.⁵³³ Within these basic boundaries, users could create modular and flexible systems geared towards highly localized specific uses, all of which sought perfectly targeted subjects and audiences. Unlike broadcasting, which comprised the majority of the last chapter, ITV enables a particular form of narrowcasting, one enforced by technology rather than taste.

Although others have discussed television's capability for "annihilating" distance and the ability of mass communication technologies to extend human sight globally and even astronomically, ITV offers an opportunity to further explore the relationship of television to specific spaces and locations of transmission and reception, and identify how these capabilities of extension and connection occur at a far more local scale. Furthermore, an analysis of ITV also allows for greater attention to some of the most mundane but omnipresent uses of television—the simple transmission of water gauge levels, for example—obscured by television studies' emphasis on *programming* (entertainment or otherwise). Last—and most crucially—an analysis of ITV reveals how television became imbricated in a series experiments in cyborgian sight at the service of industrial coordination, labor, and communication needs. An aphorism that circulated in the ITV industry summarized the technology's value: "Whenever it is too dangerous; too difficult; too expensive; too inconvenient; too inaccessible; too tiring; too far; too hot; too cold; too high; too low; too dark; too small to observe directly, use television."⁵³⁴ In a

⁵³³ Both AT&T and the Bell System devised special rates for closed circuit television transmission by 1957. Mayers and Chipp, 113.

⁵³⁴ Quote from Zworykin et. al. *Television in Science and Industry*, 22 and H. F. Schneider, "How Can Industry Use Television?" Paper presented at the 3rd annual Conference of the Professional Group on Industrial Electronics (Sept. 5, 1955) 23- 31. Though both of these authors are affiliated with RCA, variations on this "too" formulation appear as early as 1952 in "Industrial Television Expands" *Radio Age* 3, no. 11 (1952): 21, and became a point of reflective comment by 1957 (Mayers and Chipp, *Closed Circuit TV*, 62). "Industrial Television Solves a

world populated by Goldilockses limited by their physical stature and abilities, industrial television becomes a prosthesis that makes men bigger, stronger, faster, more perceptive, and smarter so they can meet the demands of their material environments and the desires of their employers in reaching workforce efficiencies.

Invincible

One of the most popular and widely accepted early applications of industrial television was remote observation of hazardous operations.⁵³⁵ Although public utilities companies comprised the majority of these users in the 1950s, ITV for remote viewing proved valuable for a range of companies in chemistry, transportation, and manufacturing.⁵³⁶ In such cases, a wall or protective barrier separated cameras trained on a dangerous industrial process from a human observer who monitored activity on TV screen in a safe, climate controlled space. Prior to the development of CCTV, companies needing to shield their employees from bodily harm were forced to employ a range of unsatisfactory systems to enable sight in dangerous spaces. The thick zinc bromide windows used by nuclear facilities to shield workers could not reach the safety thickness desired by future laboratories and provided less “realistic” views of robotic manipulation of materials than possible by three-dimensional television.⁵³⁷ In utilities, the remote position indicators used to gauge the water levels of large boilers could lose their calibration, leading to false readings and expensive accidents.⁵³⁸ Even the bell and light systems used by steel mills required workers to stand dangerously close to furnaces in order to send the proper

Mystery,” 44; L. W., “Industrial TV Plays Big Role in Many Fields” *Chicago Daily Tribune* May 10, 1952. C1.

⁵³⁵ Whipple 29, Williams Industrial and professional applications of television technique 652, 657.

⁵³⁶ Mayers and Chipp, *Closed Circuit TV*, 62.

⁵³⁷ Barrat and Waters 229.

⁵³⁸ Wilson, 127.

signals the control room.⁵³⁹ The most common strategy of extended sight prior to ITV, however, used periscopes or intricate, expensive mirror systems that required extensive duct networks to ensure a clear line of sight from the process being observed to the technician.⁵⁴⁰ Not only did mirrors limit the distance between the technician and possible danger, since the size of the reflections depended on the length of the chain, such a system also precluded multiple observers of the same phenomenon. This latter issue could be a particular hindrance during product testing, e.g., for airplane engines, where the simultaneous observations of many different people could contribute to the development of the product under question.⁵⁴¹ ITV was found to be a more economical solution to these systems and, in some cases, a mechanism for increasing the efficiency of operations by allowing faster readings of distant information.⁵⁴² Although mirrors might occasionally be employed alongside CCTV cameras (to avoid the need for a moving camera or to protect a camera from harm), on the whole ITV enabled a reconfiguration of the architectures of industrial organization by removing the need for an unobstructed light corridor connecting worker and object.

By substituting monitors, cameras, and wires in its place (and in some instances replacing a chain of human workers otherwise required to endure less-than-ideal conditions), ITV's corporate users invoked television's capacity for mediation—in a material sense—while simultaneously shifting the relationship between employee, their capacity for sight, and the observation of processes that formed the bulk of their work by promising to “extend the limits of normal vision and to overcome or compensate for limitations of biological factors of human

⁵³⁹ “Steel Mills Make Use of Television” F2.

⁵⁴⁰ Mayers and Chipp, *Closed Circuit TV*, 63; Schneider 24; J. E. H. Brace, “Industrial Television: A Survey of History, Requirements and Applications.” *Journal of British IRE* (June 1960): 443.

⁵⁴¹ Mayers and Chipp, *Closed Circuit TV*, 78.

⁵⁴² Brace, 443; Wortman, 160.

physique and its capabilities to withstand hostile environments.”⁵⁴³ “Protecting human life” was the primary goal of many installations in factories dealing with explosives, radioactive materials, and chemicals; nuclear power and weapons faculties; wrecking and blasting operations; and research laboratories that held the possibility of explosion or other harm.⁵⁴⁴ In this context, ITV became a “lifeline” for industrial workers depicted as a physical extension of the human body that could be harmlessly scarified to protect worker life.⁵⁴⁵ As described by one ITV manual, “should a mishap occur, the only loss among the personnel is the loss of the ‘eyes,’ the TV camera.”⁵⁴⁶ These protective powers were also represented through several visual tropes, including schematics and dramatic metaphorical images.

Schematics, the more common mode of representing CCTV, balanced an emphasis on separation between monitor and camera with a clear indication of the cables that linked both. As Johanna Drucker argues in her most recent book, we must take special care when analyzing the cultural forces behind such graphs and visualizations, since

Diagrammatic images spatialize relations in a meaningful way. They make spatial relations meaningful. And they do so according to conventions that embody assumptions about how we translate observation, sensation, perception of phenomena into knowable forms. The interpretive acts that become encoded in graphical formats may disappear from final view in the process, but they are the persistent ghosts in the visual scheme, rhetorical elements of generative artifacts.⁵⁴⁷

⁵⁴³ Wortman 155.

⁵⁴⁴ P. Barratt and I. M. Waters, “The Application of Closed-circuit Television in the Nuclear Industry” *Journal British IRE* (March 1940): 225-241; Whipple, “Industry’s New Tool” 29; Williams, “Industrial and professional applications of television technique,” 657. Ashbridge, “Television Development,” 11; Zworykin, “The evolution of television,” 40. It was also suggested that improving safety measures with television would lift morale. Scheider 25.

⁵⁴⁵ “Electronics for Greater Safety” 20.

⁵⁴⁶ Wortman 177.

⁵⁴⁷ Johann Drucker, *Graphesis: Visual Forms of Knowledge Production*. Cambridge: Harvard University Press, 2014: 66.

Although Drucker does not address the specific type of schematic invoked below—and throughout this chapter—her argument is nevertheless useful for signaling the importance of understanding such visual forms as situated, “convenient conceits... conventions grounded in historical and cultural exigencies.”⁵⁴⁸ Just as a flow chart—in its repression of “human factors” and exclusion of the “emotional affect or impact” that complicates various networks of interaction charts display—makes it “easy to impose the will of an administered culture on the complexities of human behaviors,” the line drawings here often exclude the perspective and representation of workers to focus instead on the technological qualities of connection across industrial space. As a result, ITV becomes a “neutral” managerial tool that sidesteps questions about workers’ numbers and conditions.

We can see these factors at play in a line drawing of an ordnance factory in which a bomb sits on the right third of the image, hooked up to a pole structure that also supports a camera at its apex. Shading indicates the visual range of the camera, trained downward on the nose of the bomb. Sprouting from the camera in a stylized series of curved right angles is a thin black cable that extends to the edge of a thick brick wall before plunging underground, winding below the wall and then popping back up to link up with a monitor in a control room.⁵⁴⁹ Half the height of the wall and perched on the left third of the schematic, the diminutive control room sits at a distance from the barrier and the bomb behind it. The drawing forsakes any kind of naturalistic scale to emphasize the most important elements—the components of the ITV system, the bomb, and the protective barrier wall. The caption refers to the camera as an “ally” of the ordnance men charged with defusing surplus weapons. Notably, no people are present in the drawing. Rather than imagine the human scale of CCTV systems, schematics invite viewers to imagine the path

⁵⁴⁸ Drucker, 81.

⁵⁴⁹ Image found in Mayers and Chipp, *Closed Circuit TV*, 68.

of transmission, which connects control room and bomb while preserving a life-saving distance between the two as indicated through the built environment and visual indicators of space. Work architectures become the self-evident guarantee of ITVs effectiveness.

An alternative mode of representing the protective powers of television invokes a different type of imagination. In one of the most widely distributed advertisements for RCA's Vidicon system from 1950, a lab coat-clad engineer stands amid flames that lick his legs and reach above his head but do not consume him. Calmly with clipboard and pencil, he stands on rough rock, peering into the source of the fire. The caption reads, "*Eye-witness reports from a fiery furnace!*"⁵⁵⁰



Compact industrial television system—developed at RCA Laboratories—lets us see the unseeable in safety!

Eye-witness reports from a fiery furnace!

Something's gone wrong inside a big blast furnace, and heat is too high for engineers to approach in safety. Focus the Vidicon camera of an RCA Industrial Television System on the flames and the fiery furnace can be studied in comfort on a television receiver.

This is only one suggested use out of many, for RCA's compact industrial television system is as flexible as its user's ingenuity. "Eye" of the tiny camera—small enough to be held in one hand—is the sensitive Vidicon tube. Extremely simple, the only other equipment needed is the Vidicon camera's suitcase-size control cabinet, which operates anywhere on ordinary household current.

The Vidicon camera could be lowered under water where divers might be endangered—or stand watch on atomic chain reactions, secure from deadly radiations. And it is entirely practical to arrange the RCA Industrial Television system in such a way that observers can see a 3-dimensional picture . . . sharp, clear and real as life!

See the latest wonders of radio, television, and electronics in action at RCA Exhibition Hall, 26 West 47th Street, N. Y. Admission is free. Radio Corporation of America, Radio City, New York.

Here's RCA's Vidicon system at work beside a streaming vat. Note how the compact television camera is getting a safe "close-up" of the action.

RCA **RADIO CORPORATION of AMERICA**
World Leader in Radio — First in Television

⁵⁵⁰ "Eye-witness reports from a fiery furnace" in *Broadcasting* (Oct. 2 1950): 95, *Popular Science Monthly* (Oct. 1950): 243 and *New York Times* (Sept. 10, 1950): 180. Emphasis in original.

The body of the advertisement continues, “Something’s gone wrong inside a big blast furnace, and heat is too high for engineers to approach in safety. Focus the Vidicon camera of an RCA Industrial Television System on the flames and the fiery furnace can be studied in comfort on a television receiver.” Rather than portray a realistic scene depicting an engineer watching from the safety of the control room, RCA chooses to represent the ITV system as a mechanism for transforming the human body, building its capabilities for previously impossible feats; although the copy acknowledges the body’s need for physical accommodation, the tag line’s invocation of “eye-witness reports” nevertheless reinforces the system’s claims to enabling human presence where physically impossible. Whether, as in this case, representation focuses on the superhuman body or, as in the schematic, forsakes the human form altogether, television provides the prosthesis by which people become capable to withstand inhuman conditions.

In addition to saving human lives, ITV systems pursued the somewhat less ambitious goal of making workers *comfortable*.⁵⁵¹ In these instances, television was used (or proposed) to save employees from the physical wear of extreme temperatures, high noise levels, difficult repetitive motions, and unsalutary environments that taxed the limits of the human body. Noting that many of the jobs within such environments were observational in nature—workers monitored processes and reported on their progress—Zworykin et. al. argued, “In such instances the worker can almost invariably be replaced to advantage by a television camera, which is immune to factors annoying and painful to the human observer.”⁵⁵² Citing “excessive heat, high noise level, excessive cold, or unhealthy atmosphere” proponents of ITV even suggested

⁵⁵¹ Whipple, “Industry’s New Tool” 29; “Three Dimensions Achieved in Video” *New York Times* (Apr. 16 1950): 82; Zworykin, “The Evolution of Television,” 40; Schneider, “How can Industry Use Television” 24.

⁵⁵² Zworykin et. al., 24.

television systems as a remedy for the “elimination of undesirable occupations” altogether.⁵⁵³ Significantly, the key terms of these discussions are “discomfort,” “annoyance,” “undesirable,” “drudgery,” “inconvenience,” “exertion,” and “tiring.”⁵⁵⁴ Although some of the jobs cited as candidates for the television comfort treatment were perhaps undersold in terms of their danger (e.g., steel work and water tending—monitoring the water levels of giant boilers) and others do have permanent adverse effects on human health (e.g., observation of sulfite pulp digesters emitting sulfur dioxide), the primary narrative focus of these discussions promoted television as a means to make non-life-threatening modes of work easier for human workers.

The Cincinnati-based Continental Can Company, for example, adapted an ITV camera and monitor to their blade-inspection system. Although workers faced no immediate threat to their personal safety, inspection required them to peer through the eye-piece of a microscope to see the quality of each blade. With an ITV system attached to the microscope, inspectors were able to view the enlarged image on a brightly illuminated TV screen and carry out their task “in

⁵⁵³ Ibid.

⁵⁵⁴ Noel Ashbridge, “Television Development” *Address delivered at the Television Convention*, (28 Apr. 1952): 11; F. Roberts and J.Z. Young, “The flying-Spot Microscope” *Proceedings of the IEE* 99.20 (1952): 755; Wortman, 172. For more on attending to the comfort of workers, see Zworkin et. al. 24; Mayers and Chipp, *Closed Circuit TV*, 63, 78. Remote control technologies were similarly paired with television in descriptions that blurred the lines between television’s affordances as a labor and leisure technology, as in this example where the remote control of steel mill operations recalls the use of a domestic remote control device, “The worker controlling the rolling mill sits in comfort far away from the furnace, looking at pictures on his receiving set and making needed adjustments by pressing buttons.” “Steel Mills Make Use of Television” F2. Even a decade after the first round of in-depth publications on industrial television, practitioners were still interested in the ostensible contrast between television as a leisure technology and its capabilities of industrial viewing. As one wrote, with industrial television “an observer can sit comfortably in front of a television monitor, yet watch the interior of an industrial furnace, observe closely the launch of an untested space booster from every angle, explore the bottom of the ocean, view objects under infrared or ultraviolet light, or look for defects in a sewer.” Leonard C. Showalter, *Closed-Circuit TV for Engineers & Technicians*. (Indianapolis: Howard W. Sams & Co., Inc, The Bobbs-Merrill Co., Inc., 1969): 9.

comfort” and “less tiring working conditions.”⁵⁵⁵ Eyestrain and fatigue induced by small viewfinders and dim X-rays were a common target of ITV screens, which promised larger, brighter, more detailed images than possible with unadjusted equipment.⁵⁵⁶ Likewise, ITV engineers praised the ability of television to endure the unpleasant sensations of the act of viewing when they noted “the ability of the television camera to stare into a flaming furnace for hours without blinking.”⁵⁵⁷ In these instances, the designers of industrial television and their corporate customers attempted to transform the specialized, labor-intensive (or at least, physically demanding if not impossible) viewing of the technician into the common, comfortable experience of viewing a television set. This emphasis on the physical experience of watching, observing, and monitoring was undoubtedly informed to some degree by the overdetermination of television as a leisure technology in the popular imagination. (A similar thread that emphasizes the value of transforming workers’ pleasurable affective relationship with entertainment television into a strategy for making corporate communications by TV more effective runs throughout the remainder of this dissertation.) While watching remotely enabled employees to work in more appealing environments tailored to the sensory thresholds of humans, e.g., temperature and noise, the TV screen offered “comfort”—that is, relief and support to the senses—through its use of the visual and material properties of television (illumination, picture quality, image size) as it had been developed for domestic entertainment contexts.

In addition to relieving workers of the burden of enduring “cruel heat, moving parts, or long hours,” the developers of ITV dreamed up scenarios in which television—like its predecessors in automation and mechanization—could be used to reduce the expenditure of

⁵⁵⁵ Mayers and Chipp, *Closed Circuit TV*, 78.

⁵⁵⁶ Noll, 17, 21.

⁵⁵⁷ Mayers and Chipp, *Closed Circuit TV*, 63.

worker energy. In one instance, Zworykin, Ramberg, and Flory suggested a system by which a small business owner could survey “his” shop via a closed-circuit camera linked to his home television set during lull periods.⁵⁵⁸ Without having to attend to his store in person, the owner would have an opportunity to undertake other necessary business in the comfort of his living room. According to this formulation, when a customer happened to enter the empty store, a buzzer would alert the owner, who could then follow and interact with the customer via a two-way intercom. The owner could likewise instruct the shopper how to leave payment or return to the shop if more complicated arrangements are necessary. The authors suggest such an arrangement could save the owner “much time and exertion.”⁵⁵⁹ Although not quite the reprieve from “cruel heat, moving parts, or long hours” that other ITV installations promised, this “sell at home” system nevertheless concerned itself with the physical limits of human workers and the labor-saving capabilities of television.⁵⁶⁰ Given the dual-purpose nature of the home television set in this scenario, this application of ITV also literalizes the tension between television as a leisure and labor technology while reinforcing television’s role as a human comfort machine that protects the physical body from wear.

The camera’s ability to occupy places too dangerous for humans is further reinforced by discussions, drawings, and photos documenting the processes and accessories used by ITV systems to protect the camera and ensure its survival. Camera housings could be weatherproofed and climate controlled—heated for cold conditions, air-conditioned with water-cooled windows for use in furnaces or combustion situations—and might even boast a small windshield wiper to keep the lens clear. For underwater operations—research, ship-building, salvaging—miniature

⁵⁵⁸ Zworykin et. al., 38.

⁵⁵⁹ Ibid. (Zworykin et. al., 38.)

⁵⁶⁰ Noll, 13.

pressurized cabins ensured cameras could travel deeper and stay down longer than human divers. As one author modestly explained, “it may be correctly said that television systems can be designed to operate under what would appear to be the most adverse conditions”—conditions that reveal the limitations of the human body.⁵⁶¹

While remote viewing applications that enable “vision at a distance” at the service of the physical limitations of the human body invoke visions of the robotics and cyborgs, nowhere is the use of television as an apparatus for extending human capability more apparent than in situations that employ both the invincible, extended sight of television *and* remote control systems that enable workers to mechanically manipulate materials at a remove. In the most basic of such arrangements—in the sorting of crushed limestone into the proper bins, drilling a shell or regulating the speed of a conveyor belt in a sugar factory—operators do not simply observe the status of processes on screen; they operate local controls that guide industrial production systems as a safe distance.⁵⁶² In these examples, the capacity of the human operators is doubly extended—not only does ITV allow workers they see into spaces the human body cannot withstand, remote control systems enable super-human “action at a distance.” Further, the operation of screen and remote controls in tandem offers a visual feedback loop confirming users’ super-human kinetic activity.

The positioning of ITV as a cyborgian appendage to the human worker reaches extremes in a highly circulated example of a system developed for nuclear research at the Remote Control Engineering Division of the Argonne National Laboratory. In press images supplied by DuMont laboratories, the operator sits in front of DuMont monitor, grasping intricate hand controls at the base of large metal arms extending from overhead. One image taken from a slight distance shows

⁵⁶¹ Noll, 13.

⁵⁶² Mayers and Chipp, *Closed Circuit TV*, 69-71; Zworykin et. al. 191.

the full body of the technician tucked into the small gap between the screen and the metal frame of the manipulator device, which sits just behind the operator's chair and reaches over and in front of him like the safety harness of a metal rollercoaster.⁵⁶³ As explained in the system's description, "It is possible [...] by guiding with television a device that has the same manipulative capabilities as does the human hand, to work with radioactive substances from a safe location [...] the technician places his hands in the device and manipulates it, and every movement of the device is then duplicated at the remote point."⁵⁶⁴ In addition to using prosthetic arms and hands, the operator also wears three-dimensional glasses that (pointed at the stereoscopic image on the ITV monitor) restore spatial relations—as perceived by non-mediated human sight—flattened by television transmission. [See image below.] If, at its most basic,



⁵⁶³ For both images described, see Noll, 15.

⁵⁶⁴ Noll, 14.

“Remote viewing by television does away with both hazard and discomfort,” it adds something else in the process—a new relationship between worker, their labor, and television in which screen technologies augment the limited human body, shaping it to (or, perhaps, making it comfortable within) the rigid mechanical needs of industrial operations.⁵⁶⁵

Adaptive, More Perceptive

Although ITV applications in the previous category augmented and protected the human body to make it possible for men to see in physically dangerous situations, the uses of closed-circuit television systems here might be better understood as an extension of the power of sight where previously impossible by *any* means. That is, rather than extend the human qualities of seeing into threatening situations previously observed through other technologies (periscopes, mirrors), ITV in this instance makes previously invisible activities visible and augments the capacity of human vision itself. Put more succinctly, with this version of ITV “we can *see* even where we can’t *look*.”⁵⁶⁶ While overlaps exist between this section and the last, the emphasis in this category rests on the opening up of new avenues of sight into previously “inaccessible” spaces that may be too small for the human body (chimneys, water and gas pipes, mine shafts) or atmospheres impossible to inhabit (ocean depths, flight altitudes), while simultaneously expanding the spectral range and light sensitivity of human vision.⁵⁶⁷ Here, ITV is best

⁵⁶⁵ Zworykin et. al., 13.

⁵⁶⁶ This particular quote is attributed to a “steelworker in Virginia,” though similar formulations circulated elsewhere, as in a sewage industry trade paper that credited television with solving the “centuries old problem of ‘seeing where you can’t look.’” “Electronics for greater safety” 20; Arthur D. Caster, “Television for Sewer Inspection” *Sewage and Industrial Wastes* 31.7 (1959) 855.

⁵⁶⁷ Caster, 196-197; Peet 84; The notion of impossible sight and “inaccessibility”—and even in one instance, “extreme inaccessibility”—was a key way in these discussions, emphasized the novel capabilities of ITV to explore previously invisible processes and procedures. Barrat and Waters, 231; Dumont, Allen B. “The ‘Telectronic Age’.” *Variety (Archive: 1905-2000)* Jan 06

understood as “an ‘eye’ that sees better many things that would otherwise be imperfectly viewed or not seen at all.”⁵⁶⁸

One set of such applications pursued underwater vision. Submerged cameras could be used to examine underwater operations, such as the function of a ship’s propeller, or scavenge for resources in places previously inaccessible.⁵⁶⁹ Unaided, a diver can swim to a maximum depth of 350 feet. By the late 1950s, specially made television cameras could reach depths of up to 3000 feet. The almost 9 fold increase in diving depth allowed for a dramatic extension of the possible range of salvage and deep sea ventures. Underwater cameras could also outperform the human body in terms of their mobility and speed, since they do not need to pause during depth changes to acclimate to pressure. Furthermore, cameras’ ability to transmit images to those above water allowed specialized knowledge workers (who may not have diving expertise) to identify the significance of the sea’s contents and direct operations.⁵⁷⁰ ITV thus allowed for those trained in the recognition of their subject, e.g., the remains of a submarine, with the ability to actually see underwater rather than, for example, use limited aural communication with a diving team. In describing the implications of this shift, Zworykin et al. argued, “In certain industries television does not merely make it possible to do things better and more cheaply, but opens up entirely new possibilities.”⁵⁷¹

1954: 102; Schneider 23; Whipple; Williams, “Industrial and professional applications of television technique” 652.

⁵⁶⁸ Noll 12; Schneider 23.

⁵⁶⁹ Zworykin et. al., 27.

⁵⁷⁰ Zworykin et. al., 189; Ashbridge, “Television development.” One of the highest-profile uses of ITV in its earliest years was to find the wreckage of *The Affray*, a British submarine that had famously sunk without leaving information as to its intended location. Indeed, there is likely more coverage of *The Affray*’s discovery than any other story linked with ITV in its first decade.

⁵⁷¹ Zworykin et. al., 26.

While some used television to explore the newly accessible depths of the sea, others pursued an opposite direction and took to the sky. The aviation industry was a heavy user of early industrial television techniques, since it provided the ability for the first time to observe previously inaccessible areas of a plane while in flight.⁵⁷² This capacity was particularly useful for a range of valuable tests, including material fatigue, jet engine operation, accelerometer function, and assembly shock performance. For astronomers interested in even higher altitudes, cameras could be sent aloft in balloons to eliminate atmospheric disturbances in their research, including studies undertaken in a range of ultraviolet radiation otherwise absorbed by the “near space” level of the atmosphere.⁵⁷³ Television was considered “of course, a necessity” for other operations, including observing guided missiles and flying pilotless planes.⁵⁷⁴ It also increased efficiency and lowered the cost of previous processes. For example, the Bristol Aeroplane Company used an ITV system to analyze the effect of acute icing conditions on one of their turbopropeller engines. Tucking a camera into one of the plane’s engine nacelles—the same one rigged with a grid of nozzles spraying water into the engine to mimic poor conditions—the company completed in 20 hours at 10,000-30,000 feet the same amount research that would have taken 200 hours without the use of television.⁵⁷⁵

Television contributed to economizing on the ground as well by providing sight in wind tunnel tests and sewer, water, and gas pipes. Rather than wait for the end of an experiment to eye the results of a test, researchers could observe the experiment in real time and adjust or end the test the moment malfunction occurred, saving further damage and expensive experimental

⁵⁷² Noll, 11.

⁵⁷³ Zworykin et. al., 28.

⁵⁷⁴ Noll, 12.

⁵⁷⁵ Zworykin et. al., 203.

fuels.⁵⁷⁶ Instead of periodically replacing the buried conduits for sewage and utilities automatically, inspectors could drag a small, tubular camera through pipes to verify if they needed repaired and if they could be fixed while still underground, saving money and worker time.⁵⁷⁷ Much like the undersea camera in salvage operations acknowledged for its ability to transmit inaccessible images to an audience of experts, ITV for aviation was praised for its ability to show results instantly and simultaneously to specialists—in this case a large group of researchers—with implications for the speed of analysis.⁵⁷⁸ Within the aviation industry—commercial and military both—ITV thus enabled established interests to see into newly accessible spaces and processes at the service of greater efficiency and, in the latter case, at the service of modern warfare.

A third means for rendering previously invisible spaces accessible, and one touched on above, is the placement of cameras in spaces too small for humans to inhabit. As in the aviation industry, in which companies embedded cameras in engine housing, car companies like General Motors and Ford used cameras attached to a their chassis to test their products. GM, for example, used a system whereby a camera affixed under the car's suspension transmitted its signal to a monitor observed by an engineer riding in the back of the car. Another example of the possibilities of kinetic feedback between ITV viewer and image—since the engineer would certainly feel the movement of the car as he watched its on-screen operation—such arrangements allowed for the detailed study of tires, springs, engine, fans, throttle and choke controls.⁵⁷⁹ Although a form of remote viewing—much like the safety applications mentioned above—the emphasis in these instances rests on the close proximity of the vantage point to the operation in

⁵⁷⁶ Zworykin et. al. 202.

⁵⁷⁷ Caster, 196-197.

⁵⁷⁸ Noll, 12.

⁵⁷⁹ Mayers and Chipp, *Closed Circuit TV*, 78-79.

question (and thus the close detail of the image), the impossibility of the human form to occupy such a position, and the previous visual inaccessibility of the object.⁵⁸⁰

In addition to opening up new vantage points, ITV electronically enhanced the power of human vision through the techniques of magnification and augmented spectral range. An example of the first mode is “optical tooling,” a process used to make, among other things, tools to build aircrafts. In the context of aviation, one instance of optical tooling transformed a process whereby two men worked on the same large machine spaced 15 feet apart. One lined up contour plates and yelled instructions to the other who operated the machine; due to the loud noise of the shop floor, confusion was common. Using telescoping television, a single man could operate the machine and further, because of the close placement of the camera to the machine, the operator was able to achieve “exceedingly fine measurements” that increased the accuracy of the manufacturer while doing away with another employee.⁵⁸¹ Likewise, ITV cameras could be fitted to microscopes to allow operators to see at high levels of magnification, an increasingly necessary affordance in various scientific and industrial fields.⁵⁸² For example, the magnification provided by industrial television microscopes could help hydraulic parts inspectors more easily count particles or help welders better see the 0.0001-inch gold wires they needed to attach to a 0.002-inch transistor element.⁵⁸³ The engineers of industrial television argued that ITV microscopy improved on unaided sight through a scope due to the camera tube’s ability to provide better illumination, greater detail through electronic enhancement and contrast, and the

⁵⁸⁰ Noll, 12; Zworykin et. al. 27.

⁵⁸¹ Mayers and Chipp, *Closed Circuit TV*, 73.

⁵⁸² F. Roberts, and JZ Young, “The Flying-Spot Microscope” *Proceedings of the IEE – Part IIIA: Television* 99.20, 1952. 755; Zworykin, “The evolution of television” *Electrical Engineering* 72.3 (1953): 209.

⁵⁸³ Leon A. Wortman, *Closed-Circuit Television Handbook* (Indianapolis: Howard W. Sams, 1969): 168.

comparatively greater ease of following motion on a large screen.⁵⁸⁴ Although ITV microscopy promised more potential applications in science and medicine, it would also prove useful for delicate production processes, such as microtransistor assembly.⁵⁸⁵

In addition to magnifying human sight, ITV using specialized tubes and equipment could increase its spectral range. As mentioned above, one often-discussed use of ITV was safely displaying x-rays. Common in industrial inspection, x-rays might be used to identify flaws in materials invisible to the naked eye, monitor fill levels of opaque or sealed containers, or obtain fluoroscopic images, e.g., an engine in motion.⁵⁸⁶ While avoiding hazardous radiation served as an important reason for using ITV, television monitors also offered brighter images that made detail recognition easier, making ITV an “essential accessory” for industrial use of x-rays.⁵⁸⁷ Even without using x-rays, engineers argued industrial television could serve as a valuable means of extending human sight. Due to the heightened sensitivity of camera tubes, which surpassed photography and the human eye in normal lighting situations, ITV could provide greater detail—particularly under dim lighting conditions—than perceptible via direct viewing.⁵⁸⁸ Indeed, this emphasis on “detail” as the product of ITV—a promise of its mastery of vision and its utility to industries and corporations valuing precision—reoccurs throughout discussions of its super-human capacity. In addition to x-ray vision, infrared and ultraviolet tubes provided ITV with “an electronic eye so sensitive” that it could see processes “invisible to the human eye,” e.g., the nocturnal habits of animal species.⁵⁸⁹ However, these capabilities were

⁵⁸⁴ Zworykin et. al., 207.

⁵⁸⁵ Wortman, 168.

⁵⁸⁶ Zworykin et. al., 25, 167.

⁵⁸⁷ Zworykin et. al., 26.

⁵⁸⁸ Zworykin et. al., 28.

⁵⁸⁹ Descriptions of infrared and ultraviolet capabilities of ITV often make heavy use of the camera-as-eye metaphor, emphasizing both the bodily extension of human senses enabled by

situated by engineers and authors as pertaining more to science and medicine than to industry and commerce.⁵⁹⁰ Despite their differences in use and adoption, however, ITV cameras offering magnification, specialized vantage points, and greater spectral sensitivity made television into a mechanism for rendering the invisible visible and increasing the “accessibility” of industrial processes, natural resources, and physical experiments to industrial observers. In turn, this heightened accessibility supported the expanding horizons of industry’s territorial claims to sea and sky.

Bigger, Faster

Yet another way ITV expanded the worker’s body was by turning men into giants that could see at incredible distances and around massive obstacles, often with the goal of enabling a single man to do the work of two or three. While David Morley, Lisa Parks, Harold Innis, James Carey, Roger Silverstone, and others have already established the capabilities of media to bind spaces, disrupt geographies, enable viewer mobility, and connect cultures, this example addresses an alternate mode in which televisual extension and connection occur at far more local scales and within specific institutional contexts—in particular, the use of television to establish and manage spatial relations between worker and workplace.⁵⁹¹ The focus of this category

television and the relative inferiority of biological constraints next to the capabilities of machines. Sarnoff, “Reconversion is Dominant Factor,” 45; “TV extends Microscope’s Range” *Radio Age* 10.2 (1951): 26; Reed, 15.

⁵⁹⁰ Zworykin et al., 29.

⁵⁹¹ David Morley, *Home Territories: Media, Mobility and Identity*. New York: Routledge, 2000; Lisa Parks, *Cultures in Orbit: Satellites and the Televisual*, Durham: Duke University Press, 2005; Harold A. Innis, *Empire and Communications*, Lanham, Maryland: Rowman & Littlefield Publishers, 2007; James W. Carey, “McLuhan and Mumford: The Roots of Modern Media Analysis,” *Journal of Communication* 31.3 (September 1981): 162-178; and Roger Silverstone, *Media and Morality: On the Rise of the Mediaopolis*, Cambridge: Polity Press, 2006. See also: Anthony Giddens, *The Consequences of Modernity* (Cambridge: Cambridge University Press): 1990; David Harvey, *The Condition of Postmodernity* (Oxford: Blackwell Publishing): 1990; David Harvey, *Spaces of Hope* (Edinburgh: Edinburgh University Press): 2000.

diverges from Anna McCarthy's work in its focus on spatializing media targeted *specifically* to employees, rather than inadvertently consumed by them, e.g., attendants in hospital waiting rooms.⁵⁹² Within this category, television functions as an "extension of human sight" to the extent it enables individual workers to observe (and control) the complex, spatially distant processes particularly germane to the fields of manufacturing, energy production, product distribution, and security.⁵⁹³ Using scaled sight might enable an operator to survey the batch processing of pulp in giant vats, manage the smooth flow of an entire yard of freight cars, or ensure the safety and security of a department store warehouse. These uses were prominent in early uses of ITV—even described as potentially the "principle objective" of ITV—and continue to be, under the guise of surveillance and security, the primary function ascribed to CCTV.⁵⁹⁴ In the late 1940s and early 1950s, these activities were being corralled under the umbrella of what was coming to be known as materials handling.

Materials handling was part of the post-war fantasy of the fully automated factory that functioned through "the substitution of mechanical, hydraulic, pneumatic, electrical and electronic devices for human organs of observation, decision and effort, so as to increase productivity, control quality and reduce costs."⁵⁹⁵ Recalling the above discussions of the ITV camera as an electronic replacement for the frail human body, automation and materials handling descriptions repeatedly emphasized the substitution of machines for "human hands" and even

⁵⁹² Anna McCarthy, *Ambient Television*, 207.

⁵⁹³ Zworykin et. al.; Sight at a distance was also brought into the field of education, with a common refrain suggesting that television actually transported the viewer to the scene, rather than the inverse formulation (bringing the scene to the viewer) more popular in business literature: "Medical students, for example, need no longer be relegated to distance seats in the amphitheater. Instead, through the new medium, they may be brought directly to the operating table." Reed, "Industrial Television Demonstrated" 14.

⁵⁹⁴ Whipple, 29.

⁵⁹⁵ "Seventy Makers of Automation Equipment to Open 4-Day Exposition here Tomorrow." *New York Times* (Nov 28, 1954): F7.

“human reasoning, responses, and reactions”; electronics, adopting human form, served as automation’s “intricate nerve center and sensory system.”⁵⁹⁶ Reportedly a billion dollar industry in 1951, the specific aim of materials handling was to maximize the efficiency with which resources, products, and workers were distributed across industrial operations—most commonly in steel mills; machine shops; chemical, nuclear, and power plants; coal mines; and automotive and consumer goods factories.⁵⁹⁷ According to one report, “picking things up, moving them around and putting them down again cost the average American factory 25 per cent [*sic*] of its production payroll.”⁵⁹⁸ By automating these processes, factories hoped to save both time and money, securing “economies” that included “greater output from a given floor space, elimination of bottlenecks, reduction in damage to products, increased safety, better labour and capital productivity, upgrading of personnel, increased speed of handling materials, and resulting from these and other benefits, reduced costs.”⁵⁹⁹ While a glut of materials handling conventions in the early 1950s featured a variety of devices “for guiding, testing, weighing, sorting”—described as “regulators, analyzers, measurers, recorders and the like”—they also featured feedback and communication technologies that provided the vital function of monitoring automated processes.⁶⁰⁰ Alongside two-way mobile radio, facsimile, computers, memory devices,

⁵⁹⁶ Sprague, *Industrial Electronics*, 83; “25,000 To Inspect Handling Devices.” *New York Times* (May 19, 1953): 41; “Electronics for greater safety” 20.

⁵⁹⁷ Landon Goodman, *Materials handling and automation* IEE Journal December 1959; 689. “Equipment Makers See Record Output.” *New York Times*, (May 14, 1951): 44; “New Uses for TV Found in Industry.” *New York Times*, (Oct 08, 1950): F8.

⁵⁹⁸ “25,000 To Inspect Handling Devices,” 41.

⁵⁹⁹ Goodman, 689.

⁶⁰⁰ “Show of Robot Load Toters” *New York Herald Tribune* May 15, 1955 A12; “25,000 To Inspect Handling Devices.” *New York Times* (May 19, 1953): 41; “Seventy Makers of Automation Equipment to Open 4-Day Exposition here Tomorrow.” *New York Times* Nov 28, 1954. F7; Sprague, “*Industrial Electronics*,” 83; WRG Baker “Electronics – Promise and Reality” *Transactions of the IRE Professional Group on Vehicular Communications* 3.1 (1953):

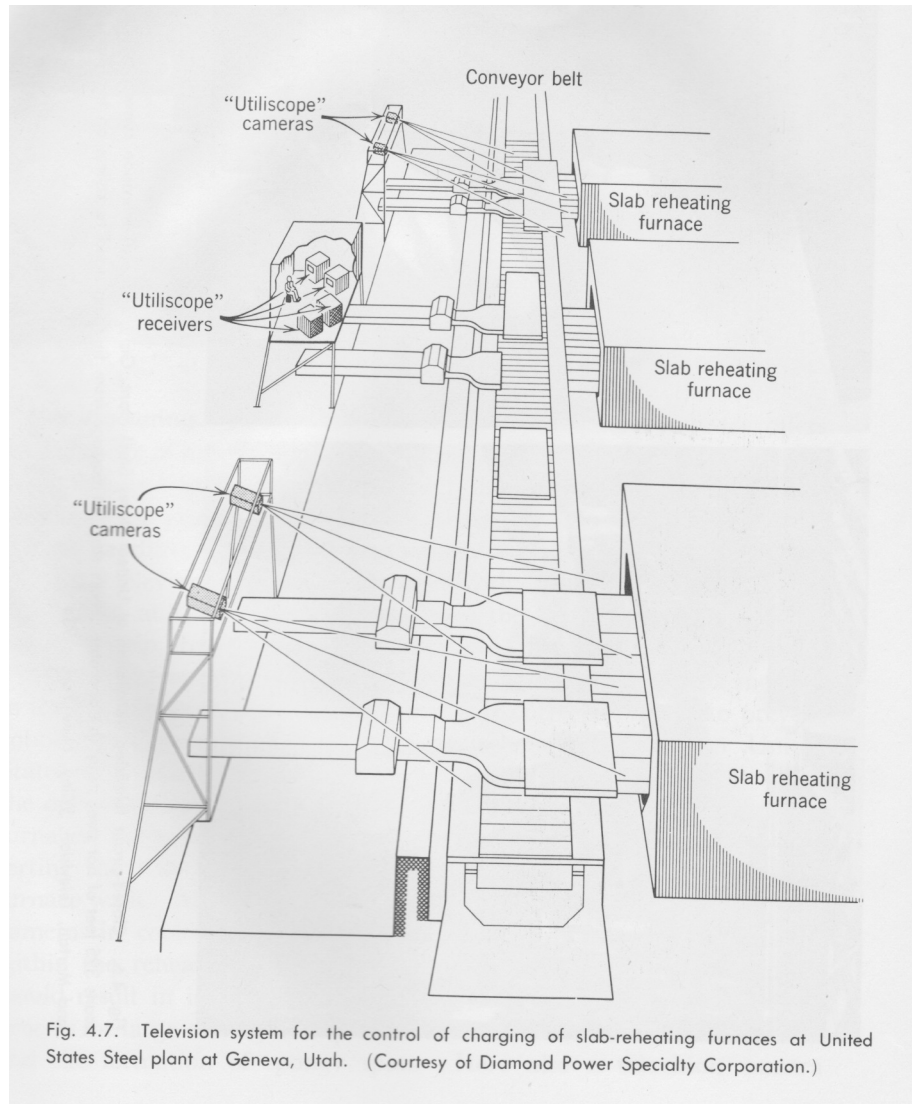
telemetering, and several other communication technologies understood to be key to the smooth operation of automated materials handling systems, ITV was promoted for its particular ability to observe dangerous processes, as explored above, and—the concern of this section—manage massive, far-flung operations, conserving money and “man-power” in the process.⁶⁰¹

Engineers and manufacturers emphasized the superhuman scale of ITV sight both visually via diagrams and through discursive strategies contrasting human capability with the sight range of television cameras. Schematics for ITV systems tended to employ a motif whereby diagonal rays emanating from small rectangles signifying ITV cameras overlaid—sometimes with shading—simple outlines of conveyor line equipment and traffic flow charts. In one illustration of an installation at United States Steel’s Geneva, Utah plant, three furnaces for reheating steel slabs sit opposite two pairs of cameras (each set facing the outer two furnaces) and a viewing booth (directed at the middle furnace).⁶⁰² The cameras angle downward and emit a

40. "Seventy Makers of Automation Equipment to Open 4-Day Exposition here Tomorrow." *New York Times* (Nov 28, 1954): F7.

⁶⁰¹ "25,000 To Inspect Handling Devices" 41; Baker, "Electronics – Promise and Reality" 41; Schneider 24.

⁶⁰² Zworykin et. al., 164.



three-dimensional ray covering the entrances of the outer furnaces and the massive steel slabs intended for re-heating. (This process, which heats slabs so they can be rolled into thin sheets is dangerous and delicate; weighing tons, the slabs easily slam into and damage the sides of furnaces, sometimes even causing expensive shutdowns while repairs are made.)⁶⁰³ Although the booth emits no such ray indicating its sightlines to the furnace before it, it is clear that the booth and the tiny worker inside cannot possibly see the spaces covered by the cameras given the distance between furnaces; they are “blind” spots. This representation of ITV as angled rays

⁶⁰³ “Steel Mills Make use of Television” *New York Times* Feb. 21 (1954): F2.

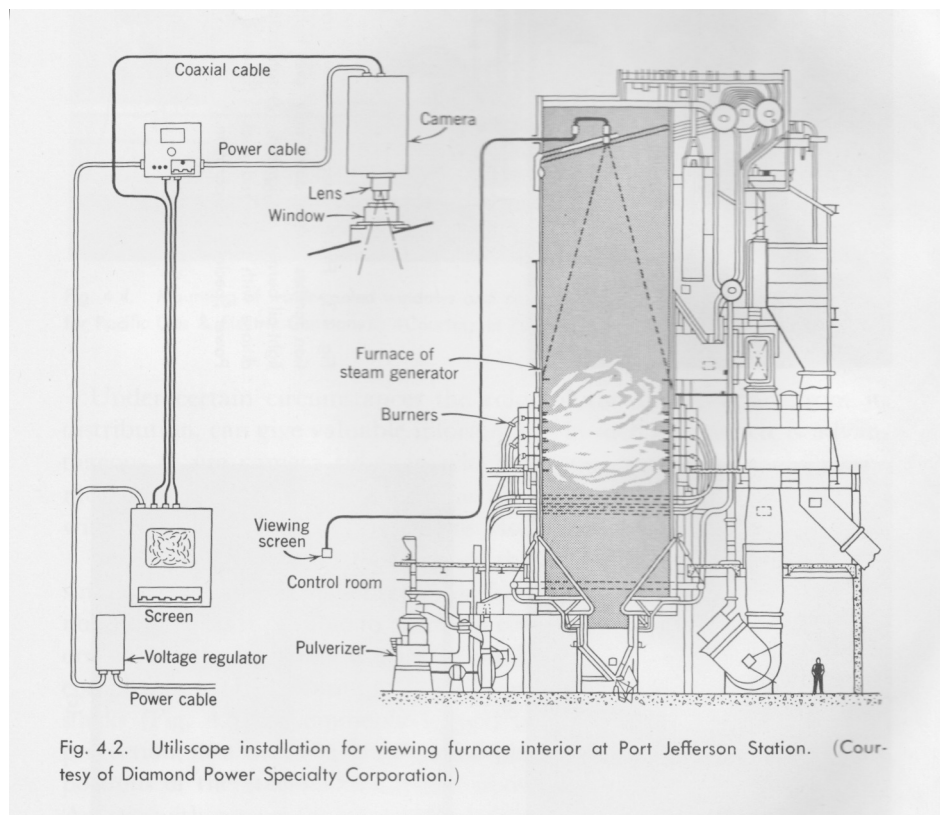
highlighting newly visible space continues in figurings of the technology's capability to manage traffic flow, as in a diagram illustrating the layout of a three-camera system designed to extend the sightlines of the control tower to a newly lengthened runway at Alameda Naval Air Station.⁶⁰⁴ Much like the depiction of ITV on the conveyer line, each camera beamed a triangular shadow covering a portion of the runway, with the composite result of all three cameras being an irregularly shaped swath (marked in grey) of perfect visibility despite the two "obstructions" (signified as shaded rectangular boxes on the chart) blocking control tower's view. While the former example demonstrates the potential of television to increase the output of a single worker by replicating their vision across multiple installations (e.g., the furnace), the latter provides an example of how cameras can be situated to saturate a single large space to perfect visibility on a large scale. Both examples use the same visual formula—a brief sketch of a space overlaid with angled rays of visibility, gestures towards blind spots necessitated by architectural layout or existing buildings—to promise perfect sight at a distance, i.e., *total coverage*, of anything trapped within the scope of the camera.⁶⁰⁵

Of the many diagrams showcasing the reach of CCTV cameras included in the early major publications of ITV, only a few feature human figures; many others drew from a perspective so immense it excluded the recognizable depiction of the human form, despite their claims to enabling workers to operate such enormous equipment. In one schematic that details the function of the Utiliscope (manufactured by the Diamond Power Specialty Corporation) in

⁶⁰⁴ Mayers and Chipp, 57.

⁶⁰⁵ Lisa Park's definition of satellite footprints offer a useful corollary insofar as both offer the promise of homogenized coverage and perfect sight. Here, this feeds into a strain of discourse that positions the camera as better-than-human communication; sight becomes knowledge (seeing as knowing) and mediation becomes invisible. *Cultures in Orbit: Satellites and the Televisual* (Durham: Duke University Press): 2005, 49-52.

the Long Island Lighting Company's Port Jefferson Power Station, an enormous coal furnace dominates the right half of the image. Standing like a monstrous Pompidou center-esque



skyscraper, with its mechanical innards and control systems on display, the furnace dwarfs the image of a tiny man drawn into the bottom-right corner of the schematic. An ITV camera, the Utiliscope, sits at the very top of the inside of the furnace, protected by an air-cooled window, with the scope of its sight indicated by the requisite dotted lines forming an isosceles triangle reaching its pinnacle at the camera's lens. Safely tucked within its range are a series of burners and their flames occupying the bottom quarter of the giant furnace. Connected to the camera by a topological wire is the viewing screen, a tiny square even smaller than the man on the opposite side of the image, near the label "control room" that designates the general location (rather than an actual space included in the drawing) where such a room might fit. (To the left of this, filling out the rest of the image is a "close up" diagram, again topological, of the camera-screen-power

system.) Were the male figure a part of imagining the ongoing operation of the system, he would occupy a position near the control room and viewing screen. Instead, he stands at the corner of the image—at less than 1/10 the full height of the furnace—simply as an indication of the scale of the machine and, consequently the sight of the camera. The reproduction of the magnified view of the Utiliscope system next to the furnace, which further decreases the proportion of the image occupied by the figure, intensifies the diminutive nature of anthropomorphic scale next to the power of the camera. Even when the scale of the image allows for the representation of people, emphasis remains on the ability of cameras to enable workers to match an otherwise inhuman rate of growth for post-war operations.

The power of television's reach was emphasized through discursive strategies as well. Descriptions of ITV installations in manufacturing and distribution plants were sure to include details regarding the distance of the operations from the viewing room (or building) and any obstacles that might stand between the camera and its monitor. Quantifying distances with a measured industrial exuberance, writers explained systems that sat on "different floors of the plant and 100 feet apart," allowed a single man to watch "five different production departments in its four-story building," positioned viewers a full "80 feet from the furnace" or "as much as 100 feet away" from their target, reached central offices "12 miles away," saw "about 60 feet away" or "more than 600 feet away and around corners."⁶⁰⁶ Others described the transmission of information over distances spanning 450 feet to 10 miles, between buildings, and across floors.⁶⁰⁷ Authors enthused that these same cameras saw into machines anywhere from six to 100

⁶⁰⁶ Noll, 4, 6; Wortman 163; Zworykin et. al., 166, 167; Mayers and Chipp, 71, 72.

⁶⁰⁷ Wortman 165; "Industrial Television Transmitted via Telephone" *Electrical Engineering* 75.2 (1956): 212; E. R. Thomas and W. L. Norvell, "Television for monitoring stack emission" *Electrical Engineering* 72.3 (1953): 224; Guilfoyle "Industrial Television," 14.

feet high and 15 to 400 feet wide.⁶⁰⁸ This sustained emphasis on the specific distances spanned by wired television built on the established capabilities of broadcast television to span the nation in order to demonstrate ITV's ability to extend the capabilities of *humans* to "operate" remotely.

The practical applications of sight at a massive scale manifested primarily in three different functions appealing to business and industry: controlling the flow of production and distribution, enhancing security, and centralizing operations. The first of these, managing flow, promised significant changes to industrial organization and work processes. In terms of manufacturing, television enabled workers to better and more efficiently control the flow of conveyor systems as well as peer into massive process and storage equipment. In particular, ITV was promoted heavily as an aid to partially automated production processes. Engineers wrote of CCTV installations in which a single worker watching television could see simultaneously multiple segments of a production line, which enabled them to better imagine and anticipate the rhythm of product flow. Using television's capacity for sight at a massive scale, workers with this "complete and continuing story of plant-operating conditions" could speed up or slow down conveyor belts filled with logs, scrap metal, and roller bearings; switch out filled containers and freight cars at exactly the right moment; time processes, such as the reheating of steel slab mentioned above, and avoid bottlenecks at trouble spots.⁶⁰⁹ Across these uses, (tele)vision became the key to perfect timing, which, in turn, aided efficiency and the prevention of costly mistakes.⁶¹⁰ In addition to smoothing the timing of enormous production processes, workers could also use television to visually comprehend the function of massive machinery that increased in size under the dominance of mid-century American manufacturing and

⁶⁰⁸ Zworykin et. al., 166; Noll, 4, 6; Wortman 160, 163.

⁶⁰⁹ Noll, 4; Mayers and Chipp, 69-72; Zworykin et. al., 164; Peet, 84; Schneider 24.

⁶¹⁰ Wortman notes, for example, that accidental clogging in paper manufacturing systems—preventable by close ITV monitoring—could cost thousands of dollars (164).

technological advancements. Positioned correctly, ITV cameras could see into boilers that had outgrown traditional mirror systems and giant furnaces like the one described in the diagram above, or survey the use of 6ft x 15ft double vats used in processing pulp.⁶¹¹ In some instances, sight at such a significant scale was even identified as a means for workers to collect and correlate new information, such as the relationship between flame consistency inside a large furnace and the output of smokestacks atop the plant; while it would be obviously impossible for one person to see these two processes simultaneously, with cameras situated at both sites and reporting to a central control room, comparison would be simple.⁶¹²

In addition to making manufacturing more efficient, television as a means of controlling flow promised to smooth traffic and travel in the context of distribution. As in the above example of the diagram explaining the flight path extension, cameras allowed viewers to see greater expanses of travel space (runways, roads, tunnels, rails, airspace) than ever before. By situating cameras along vast spans of travel routes, shippers could analyze route efficiency, railways could search for competitive advantage against the expanding highway system, and public service officials could regulate traffic through the strategic deployment of lighting and police “to meet hour-by-hour changes throughout the area.”⁶¹³ Much like a production worker might speed or slow a conveyor belt to avoid bottlenecks, transportation agencies or manufacturing plants could also use information regarding wide-scale ebbs and flows to avoid traffic stoppages and manage accidents or construction.⁶¹⁴ Although corporate and public interests in traffic management

⁶¹¹ Noll, 4; Zworykin et. al., 166.

⁶¹² Zworykin et. al, 161.

⁶¹³ Mayers and Chipp, 69-72; 84-87, “Electronics for Greater Safety” *Radio Age* (Jan. 1957): 21; Noll, 6-7; Zworykin et. al. 177.

⁶¹⁴ “Electronics for Greater Safety” *Radio Age* (Jan 1957): 20-21; “TV Slated to Keep Eye on New Midtown Shuttle.” *New York Times* Jan 14, (1955): 12. Even as recently as 2008 television systems have been suggested as viable means of regulating traffic. Chong Han and Qinyu Zhang,

served different constituencies, the Interstate Highway System authorized by the Federal-Aid Highway Act of 1956 created a roads system that enabled trucks to travel quickly and easily cross-country, threatening the long-haul routes previously dominated by railroads; public transportation infrastructures impacted industrial distribution just as it did the travel routes of private citizens.

Railroads—the lynchpin of much industrial distribution—began experimenting with ITV most prominently in 1952 when Baltimore & Ohio partnered with Railway Age Magazine and RCA to run a test in their South Chicago Barr yard, one of the nation’s busiest railroad yards.⁶¹⁵ Observed by officials from 28 additional railroads, the experiment used at least two different camera setups.⁶¹⁶ The first, in what would become a relatively common usage, positioned a camera at one of the yard’s entrances in order to capture the serial numbers of incoming cars, transmitting the information to the yardmaster’s office where they could be transcribed by a single worker or photographed for a permanent record.⁶¹⁷ Without these cameras, “mud hops” had to manually record the information in the field, walking down strings of cars up to a mile long—a process that took significant time and, depending on the weather, could result in messy records.⁶¹⁸ The second set of cameras was positioned to take in the entire yard. This bird’s eye

“Real-Time Detection for Advanced Traffic Signal Control” *2008 International Conference on Computer and Electrical Engineering*.

⁶¹⁵ “Kaiser Aluminum Adding to Trentwood Mill.” *Wall Street Journal* (Sep 12 1952): 17 Aug. 2014; Felix C. Smith “An Investment Trust Views the Rails” *The Analysts Journal* 14.1 (1958): 45-47; Schneider 29.

⁶¹⁶ “Baltimore & Ohio Tests Industrial Television in its Freight Yard.” *Wall Street Journal* (Sep 17, 1952) 2.; Schneider, an RCA employee, suggests a third setup was used to check brake and truck assemblies on cars as they rolled over the tracks, however no other reports confirm this use and one description of the experiment quotes B&O VP W.C. Baker suggesting the inspection of undercarriages as a possible future application of the technology. “Baltimore & Ohio Tests Industrial Teelvision In Its Freight Yard” *Wall Street Journal* Sep 17 1952

⁶¹⁷ Zworykin et. al., 175-176.

⁶¹⁸ Whipple (1958) 29-30

view enabled the yardmaster to instantly assess which tracks were clear and determine where to assign incoming trains.⁶¹⁹ Previous practice relied on passenger's reports and, later, two-way radio connecting different sections of the yard with the yardmaster's office. Although the latter strategy improved the speed of communication, it did not reduce costs or miscommunications; ITV promised it could do both.⁶²⁰ One proponent of ITV for rail summarized the benefit of such systems thus, "The net result of being able to handle more trains, at higher speeds, with fewer people is more competitive service on a more profitable basis."⁶²¹ After the reported success of the demonstration, ITV was increasingly pulled into the massive railroad signaling and communications market—estimated at 100,000,000 a year in 1953 (almost one billion in 2014 dollars)—alongside technologies including radio, radar, microwave, electronic ticketing, and dispatching systems that centralized control and sought greater efficiencies of time and cost.⁶²² Reports of railroad installations of ITV spanned the 1950s, and new systems that functioned much along the same lines were being installed as late as 1974 in Britain.⁶²³

Beyond rails and roads, ITV helped industrial workers shape and control distribution traffic in other ways. In the air, ITV allowed workers at geographically spread airports to share radar information by transmitting an image of their traffic control screen to others nearby,

⁶¹⁹ "Midget" Televising Helps Run Railraod." *New York Times* (Sep 17, 1952): 49.

⁶²⁰ Schneider 29; In a similar example, the Downtown Merchants Parking Association in Oakland used CCTV to render redundant one of their parking attendant positions. Rather than use two workers to survey the lot and assign customers to open spots, a single attendant with a camera-supplied birds eye' view of the lot could use his extended sight to perform both jobs. Zworykin et al., 179.

⁶²¹ Mayer and Chipp 87.

⁶²² Fred B. Stauffer, "IT&T steps up activity in rail field" *New York Herald Tribune* (Nov 22, 1953): A7; Felix C. Smith "An Investment Trust Views the Rails" *The Analysts Journal* 14.1 (1958): 45-47.

⁶²³ "Comment heard on Wall Street" *New York Herald Tribune* (1956 Jul 21): A3; "Roadhouse TV Scans 2 Miles of Track" (advertisement) *New York Herald Tribune* (Dec 11 1957): B7; Guilfoyle A4; "Electronics and Power" 20.20 (1974): 13.

eliminating blind spots and expanding the viewing capabilities of all participating airports to smooth air travel and shipping processes.⁶²⁴ In the more circumscribed space of the supermarket and department store, ITV's broad views of the floor enabled managers to (re)distribute personnel as needed.⁶²⁵ In many of these examples, ITV became part of a lengthier set of experiments in the twentieth century, e.g., just-in-time manufacturing, aiming to increase distribution efficiency by perfecting the flow of material inputs and products.

Television scholars tend to think of flow in the terms set forth by Raymond Williams—broadcast programming's streaming “series of differently related units” in which the discrete contours of presentations (news, sports, dramas) are disrupted and reorganized with commercials and trailers to serve the needs of broadcasters to maintain viewership throughout the course of an evening.⁶²⁶ While Williams' definition does much to outline the form and function of a specific period of late network-era television—and provide one of the animating concepts of television studies—I want to adapt and broaden the term to fit within the context of industrial television. William Uricchio, in his own effort to make “flow” meaningful three decades after Williams' encounter with American television, asks whether it makes sense to look for the term's resonance with a vastly different context of television programming and reception practices.⁶²⁷ His conclusion, and mine, is that the concept of flow offers “an element of discursive continuity” between the concerns of television studies, of which I argue we must consider non-broadcast

⁶²⁴ This, of course, would bear implications for business and industry as well as private citizens and the military. Noll, 10.

⁶²⁵ Wortman 148.

⁶²⁶ Raymond Williams, *Television: Technology and Cultural Form* ed. Ederyn Williams (London: Routledge, 1997 reprint): 85.

⁶²⁷ Uricchio follows the shifts wrought first by remote control devices that empowered viewers to take control of flow and second by the rise of intermediaries and filtering technologies that remove control from the programmer-viewer axis entirely. “Television's Next Generation: Technology/Interface Culture/Flow” in *Television After TV: Essays on a Medium in Transition*. Eds. Lynn Spigel and Jan Olsson (Durham, Duke University Press, 2005): 232-261.

television a part. Furthermore, given the young state of research into non-commercial and non-educational television, it makes little sense to abandon terms and theoretical frameworks that have proved their utility in describing the technology and its forms—if for nothing else than to open up a space of reflection regarding the way our object of study has heretofore been circumscribed. In this spirit, how might we understand the relationship between the flow of broadcast television and television as a technology of industrial flow? How does televisual flow coincide with other forms of everyday flow, such as materials handling, and how might we understand workers’ experiences of watching the flow of ITV commodities such as endless streams of steel billets and freight trains?

First, we might consider the conclusion of William’s essay, which he devotes to a brief discussion of the “mutual transfer” between the discursive strategies of commercials and programming and the ways in which commercial messages saturate and are legitimized by the rest of television’s flow. While mapping out flow as a textual and temporal manifestation of programmers’ attempts to manage viewers’ engagement with television, he also offers a fine description of the urgency of consumption (of both programs and products) embedded within the phenomenon he describes.⁶²⁸ This extends beyond the economic underpinnings of flow—the exigencies of maximum, sustained viewership—to appear in the “flow of meanings of a specific culture” he discusses in relation to a complicated intertwining of commercials for headache tablets and educational shows, cat food advertisements and news and nature programs, and a loan company commercial playing off the California gold rush and period films.⁶²⁹ Attending to flow as the meanings that cross all of television’s textual borders reminds us of the place of television within cultural practices of consumption and commodity circuits, and its position as an important

⁶²⁸ Williams, 79.

⁶²⁹ Williams, 111.

part of the production cycle through its marketing function. We might best understand industrial and broadcast television as different points of transmission and cultural management within the same circuits of production and consumption. The flow of broadcast television—its unending inducement to watch and buy—perforce correlates to the constant flow of materials and products that smoothly ride conveyor systems and freight cars; the temporal rhythm embedded in televisual flow invokes industrial production's continual output.

Second, we can examine the temporality and rhythm of flow as well as its implications for shaping the possibilities of viewer experience. Described by Urrichio as a companion concept for the “viewer-television interface,” flow alerts us to axes of power and control, asking us to consider who holds control over the shape of television transmission and what technologies participate in those control structures.⁶³⁰ Within the framework of ITV, these questions translate to a focus on the compulsory (rather than compulsive) viewing of television transmissions “scheduled” (at least according the shift or work day) by employers, factory owners and shipping agents. Although any conclusions regarding the cultural consequences of mandatory television viewing sit at the level of conjecture, importing the theory of flow—and its ability to describe a particular experience of the medium—allows for at least a partial accounting of workers' experiences within a context in which no historical evidence is forthcoming. Like Williams' notion of flow, ITV content (if not “programming”) streams almost continuously. Over the course of an eight-hour shift, a worker might watch and manage a never-ending supply of crushed limestone, the consistent fluctuation of furnace flames, or a steady stream of shipping traffic. Even if a viewer cannot turn the TV dial, other dials may well need turning over the course of a viewing session to ensure the proper continuation of the worker's particular outpost

⁶³⁰ Urrichio 256.

in the production-distribution system. Although ITV certainly cannot boast the variability of commercial broadcast television, it nonetheless offers a constant presence (certain technical difficulties excluded) to those it interpellates with its relentless mediation of factory processes. If flow is at least in part about the agency of the viewer in relation to television programming, ITV—through its demand that viewers not only watch, but act in relation to screen images—may incorporate audiences even more forcefully into the larger cultural and belief systems alluded to by Williams. Audiences do not simply watch ITV flow—with all of its connections to capitalist commodity systems—they help manufacture it.

To be clear, I do not argue that the broadcasting flow of the late network era is equivalent in cultural implications to television as a mechanism of regulating flow within industrial contexts. However, borrowing the concept allows for thinking about technological televisual affordances that span exhibition contexts and audience groups (e.g., streaming transmission), the historical experience of watching transmission-based technologies, the evergreen question of who controls the content and cultural form of television, the ideological implications of television as a mechanism for folding viewers into capitalist systems of production and consumption, and the relationship between viewer agency, televisual time, and content. Thinking along these lines not only helps identify facets of industrial television unrepresented within existing records (e.g., experience), it also contextualizes ITV within ongoing conversations of televisuality and its historical form, expanding our notions of television in the process.

In addition to adjusting the rhythms of labor and ensuring the smooth manufacture and distribution of goods, televisual sight at scale offered a powerful mechanism for surveillance and security through the expansion of guards' sight. Most commonly, cameras were recommended as an antidote to employee and customer theft within warehouses and on the department store floor

and as a new method to “guard” prisoners.⁶³¹ In both instances, camera installation presented an occasion for experimentation with the panopticon. Although stores like Newark’s Bamberger’s might undertake studies to determine the effectiveness of visible versus hidden cameras—taking care to avoid (or at least measure the economic impact of) “offending sensitive souls who might resent the idea that they are being watched”—engineers identified the visibility of the camera within the context of prison surveillance as a virtue of the system; installing cameras “in full view of the prisoner” at the Houston City Jail resulted in a “reduction in disturbance” from “troublesome prisoners.”⁶³² Beyond monitoring potentially criminal behavior, cameras were used to manage large-scale operations by, for example, identifying idle loading docks to maximize efficiencies, “safeguarding and speeding” the paths of shipped goods, verifying the credentials of visitors and vehicles from a centralized location, and enabling executives to observe the “conditions” in an entire plant “without leaving their desk.”⁶³³

In addition to recouping its cost through the prevention of theft and disruption, surveillance television promised to again increase efficiencies by reducing the need for human workers.⁶³⁴ According to its proponents, as an “auxiliary guard,” CCTV rendered a large, distributed workforce “superfluous.” Describing a system installed in Filene’s department store’s warehouse, Mayers and Chipp remarked on the novelty of television’s ability to extend the surveying eye of the officer almost simultaneously to different spaces (which the person himself does not occupy), “Seated in his office he can turn [the cameras] in any direction to observe the area of his choice, covering his entire ‘beat’ in a matter of seconds.”⁶³⁵ Removing bodies from

⁶³¹ Mayers and Chipp, 82; Zworykin et. al, 38, 192.

⁶³² Mayers and Chipp, 82, 79; Zworykin et. al., 38.

⁶³³ Zworykin et. al., 26, 191; Mayers and Chipp, 79, Noll, 10.

⁶³⁴ Mayers and Chipp, 82.

⁶³⁵ Mayers and Chipp, 79.

spaces observable by cameras not only offered a strategy for lowering costs, in the case of prisons, it was identified as a safety strategy that lessened the chance of officers becoming hostages.⁶³⁶ In stockyards and secure shipping and manufacturing facilities, removing men from gatehouses and installing a control center with fewer employees was promoted as a way to create a more direct link between the process of granting access—the guard’s job—and the “higher authorities” understood to have the capabilities for discerning the best route of action in “doubtful cases.”⁶³⁷ In both instances, replacing a diverse, distributed workforce with centralized operations became a way to reduce liabilities and increase control through a two-pronged strategy: limiting the number of people participating in the labor force and strengthening direct lines of communication; television allowed companies to remove links in a chain of command where authority had been delegated widely. Ideally for its proponents, surveillance by television promised an almost wholly self-sustaining system whereby workers, prisoners, and customers not only monitored their own behavior; what remained of the job of observation was carried out by a mere handful of workers with close access to (and closely monitored themselves by) the “authorities.”

This emphasis on the value and power of centralizing operations is the third promise of televisual sight on a massive scale. For in-plant surveillance and communication, television’s centralizing force was imagined as a solution to time lost to the “continuous parade of personnel” “taking excursion trips around the plant” to gather information and deliver messages, while, as touched on above, using CCTV as an adjunct to production, distribution, and surveillance often meant replacing links in a communication chain comprised of human workers, whether the chain was as small as a few men on the same production line or as large as a guard force in a train yard

⁶³⁶ Zworykin et. al., 193.

⁶³⁷ Zworykin et. al., 26.

or prison.⁶³⁸ Consolidating the coordination of operations at central control points, ITV promised to “‘observe’ one or more large areas faster, more efficiently, and at less cost than can personnel”—that is, secure workforce “efficiencies” by downsizing—at the same time it suggested communication via television (rather than in-person or by other electronic means) would improve.⁶³⁹ In this formulation, centralization and concomitant workforce reductions reduce confusion brought about by the delegation of sight to a chain of imperfect human communicators.⁶⁴⁰

Indeed, across several applications in this taxonomy, engineers suggested that one key benefit of television systems was developing an improved workforce. In this instance, the argument contained two prongs: 1) television could replace costly human labor with 2) technologies of perfect perception. On the first count, television, as “a useful substitute observer,” rendered observational jobs—in which a worker occupied a physical position that allowed him to extend the sight of another worker through his own visual capabilities—obsolete.⁶⁴¹ It also reduced the need for complicated and expensive shield and mirror systems, which provided lower visibility to a limited number of observers and might be damaged or destroyed in the course of their operation.⁶⁴² Often, the “efficiency” of television praised in this capacity referred both to the money saved by supplanting human workers and the improved sight of their replacements. In more modest claims, engineers suggested that workers could react more quickly to the bright, magnified image of a television screen than they could to information

⁶³⁸ Noll, 4, 10.

⁶³⁹ Noll, 4. As in above examples, observers were quick to run back-of-the-envelope calculations to demonstrate the potential labor costs saved. In one scenario, an author suggests that a television replacing three shift workers scheduled for a combined 24 hours could trade a 1,200 pound wage bill with the cost of a replacement camera tube. McGhee, 117.

⁶⁴⁰ Mayers and Chipp, 69-70.

⁶⁴¹ Zworykin et. al., 199. See also page 24.

⁶⁴² Mayers and Chipp, *Closed Circuit TV*, 77.

transmitted by periscope or other viewing apparatus.⁶⁴³ More commonly, however, writers boasted the television's "unblinking eye" offered a "fail-safe picture" or "zero error in communication."⁶⁴⁴ It promises that television "reduces error in remote observations to zero by eliminating intervening personal or mechanical communication" and makes incorrect readings an "impossibility," engineers elided both the mediation of the television and the need for human interpretation of the final screen image.⁶⁴⁵ More accurate and instantaneous than phone calls or even in-person observation and communication, television was just as good or better than "being there." In these instances, television "sight" became equivalent to knowledge; communication—riddled with potential errors and misunderstandings—could be avoided. At the same time superhuman sight at a massive scale offered to reorganize segments of the workforce, fold employee audiences into the flow of production in new ways, and increase security surveillance practices, it also offered an opportunity for observers to make claims about the relationship between mediated and unmediated communications and the role of vision in industrial coordination and control. These same discourses, by implicitly suggesting the value of eliminating humans from manufacturing processes—even while tightly incorporated into the worker's body as its "eyes"—offered a vision of total automation, free from messy human error, as an ideal form of production.⁶⁴⁶ While television promises to extend the capabilities of the

⁶⁴³ Zworykin et. al., 23.

⁶⁴⁴ Mayers and Chipp, *Closed Circuit TV*, 63; Noll, 121; Industrial Video Holds Great Future Promise *The Science News-Letter* 62.17 (Oct 25, 1952) 269; Wilson 127; Brace 443.

⁶⁴⁵ Noll, 32; Williams, "Industrial and professional applications of television technique," 656. Put another way, in certain instances (infrared and ultraviolet in particular), "it provides greater intelligence than can be gained by direct observation" Wilson 125.

⁶⁴⁶ Language referring to ITV as an apparatus itself capable of sight can be found throughout early literature on CCTV. In the above context, for example, one author suggested, "A television system [...] provides an exact picture of things 'seen' by the camera and transmits no error of reproduction." Noll, 12.

human body, it also does so at the threat of displacing it altogether to suit the needs and desires of industrial production.

Standardized, Networked

In some instances, ITV enabled the coordination of sight itself. That is, installed in a variety of contexts, it ensured that a diverse group of people saw the same thing, at the same time, and (understood it in) the same way—all in the hopes of better shaping bodies to the *rhythms* of work. This was particularly true in the context of training, “one of the serious bottlenecks which must be broken” to allow for increased manufacturing output.⁶⁴⁷ By the late 1950s, television had already become a major object of interest for educators, funding organizations, and policy makers occupying diverse fields ranging from K-12 and university schooling to military and medical training.⁶⁴⁸ Furthermore, according to RCA’s H. F. Schneider, WWII (and reconversion) demonstrated the importance of training industrial workers to follow identical, standardized production methods (rather than pursue their own strategies) for maximum efficiency.⁶⁴⁹ In the field of manufacturing, proponents identified television as “perfectly suited” to “relaying” the demonstrations that formed the bedrock of industrial education (without passing along pesky, non-standard “tricks-of-the-trade” that might be shared were new workers trained directly by senior staff).⁶⁵⁰ Similar to practices outlined within the educational environments alluded to above, industrial practitioners could use television to “project” training films from a single, centralized location to industrial audiences in different rooms simultaneously, allowing for fast, “intimate,” “convenient and detailed viewing” of the

⁶⁴⁷ Mayer and Chipp, 74.

⁶⁴⁸ Anthony W. Zaitz, *The History of Educational Television, 1932-1958* (unpublished dissertation) 1960.

⁶⁴⁹ Schneider, “How Can Industry Use Television?” 26.

⁶⁵⁰ Noll, 18; Schneider, “How Can Industry Use Television?” 26.

training information for large groups.⁶⁵¹ Unlike traditional training lectures in which multiple instructors might teach each group according to their own capabilities and quirks or the same instructor might give the same presentation multiple times with each demonstration shaped by the vagaries of the lesson context, television—like film before it—ensured homogeneity of the content distributed to trainees and, ostensibly, homogeneous *use* of that information. Unlike film, however, this particular system of exhibition allowed for simultaneous viewing by dispersed groups and could make use of live feeds from ongoing real-time factory operations.⁶⁵² Not only could television thus promise greater efficiency than in-person and film training (though, as noted above, what people were actually watching was often *on* film), some proponents of ITV training even pointed to studies sponsored by the U.S. military and undertaken by Fordham University to suggest that television could be more useful than live demonstrations.⁶⁵³ “[M]ore effective, efficient, and interesting,” than other methods, the homogenized sight enabled by CCTV fit well into an emerging understanding of television as an indispensable industrial tool.⁶⁵⁴

The coordinated sight of the ITV camera drew on several companion CCTV capabilities discussed above. With eyes that could see in synch, viewers of ITV training materials could observe phenomena beyond the spectral range of humans in lessons built around X-rays, they could identify the shape and motion of microscopic elements with cameras adjusted high levels of magnification, and they could occupy “a vantage point inaccessible not only to a group of students, but even to a single student,” such as a bird’s eye view of an operating table, the inside

⁶⁵¹ Noll, 17-18; “Television in Industry” *Radio Age* 8.4 (1949): 32; Zworykin, “The evolution of television” *Electrical Engineering* 72.3 (1953): 39.

⁶⁵² “New Uses for TV Found in Industry,” F8.

⁶⁵³ Mayer and Chipp, 54; The users of live feeds also suggested it increased “the effectiveness of instruction in ‘Do’s [*sic*] and Don’ts.’” “New Uses for TV Found in Industry,” F8.

⁶⁵⁴ Noll, 24.

of a mouth, or a therapist's office.⁶⁵⁵ Although medicine was the most prominent user of this type of training, CCTV also promised comfort and individualized attention to students observing the live processes of a noisy, busy, distracting plant from a remote location, while simultaneously removing disruptive gaggles of trainees from the high-activity shop floor; "the camera, in other words, can make a trip through the plant while the trainees sit – with clear advantages to both plant and trainees."⁶⁵⁶ In opposition to the focus on reaching dispersed groups discussed directly above, but in keeping with uses outlined in other categories, "closed-circuit methods" were identified as crucial to the small, highly specialized, sometimes even individualized, audience—some of whom needed to learn confidential or protected information—native to industrial vocational education contexts.⁶⁵⁷ Building on the categories already outlined, homogenous sight thus adds a further layer of time-sensitivity (simultaneity—a key characteristic of broadcast television) to our understandings of the spatially organized capabilities of wired television.

Moving beyond the exhibition of content to differently situated audiences at the same time (and thus working to distinguish this mode of ITV use from videotape or attempts at broadcast training programming), synched sight could operate as an augmentation to human faculties, allowing multiple people to see remotely a time-sensitive process which they were to participate in, either while watching or shortly thereafter. Though television was used to

⁶⁵⁵ Zworykin et. al., 34-35; Noll, 21. While some students certainly could fit in a therapist's office—whatever the moral and ethical implications of this outsider observation—the "psychological intrusion" resulting from their presence was considered a barrier to representing a typical session. Zworykin et. al., 34.

⁶⁵⁶ Noll, 23; Whipple, "Industry's New Tool—T.V.," 29.

⁶⁵⁷ Zworykin et. al., 34. Though medical students are often excluded from the category of vocational learners for various reasons—some pertaining to the specifics of their profession others more basely related to class and distinction—here it is useful to consider them alongside other communities that use television to teach their trainees the tools and rules of the trade.

distribute pre-produced materials, here my focus is on live demonstration and a particular relationship of the viewer to the screen within training and work contexts. For an example of the practical applications of homogenized sight, we need look no further than RCA's implementation of its own technology.⁶⁵⁸ In an example cited by many of the major publications promoting ITV use, RCA devised a procedure to meet a fast approaching deadline to produce needed equipment for Cinemascope installations.⁶⁵⁹ While a specialist assembled components in close-up view of a camera, with a microphone by his side, ten monitors transmitted the image and sound (this being a rare instance when sound accompanied ITV's superhuman sight) to trainees, each working on their own set of components at their own bench. In what was referred to as a "follow-the-leader" processes, the trainees duplicated every step carried out by the specialist simultaneously until ten identical "Stereoscope" units were completed. Images describing the process always appear in pairs: the male specialist working pliers over an intricate block of equipment in the direct line of sight of an overhead camera, a microphone tucked close by his right side, and, in the second image, a bank of three television sets with two women performing similar operations in front of the two sets switched on. In the second press photo, the screen image of the nearest monitor has been replaced with a realistic sketch of a magnified view of the specialists' hands, presumably to indicate the detail possible with the system; to emphasize the uniqueness of this process in which workers do not simply watch, but do, both women's

⁶⁵⁸ For a non-training example, we might consider the ITV system at the Permanente Cement Company of Hawaii, which enabled a chemist and a cement mill operator—both of whom could remotely control the feed rate—to “see the same information at the same time,” and simultaneously “[maintain] a vigil” over their production processes. Wortman, 157.

⁶⁵⁹ Mayers and Chipp, 74; Zworykin et. al. 247; Noll, 24.

heads are angled down, creating a sight line with their own physical manipulation of the components rather than with the television.⁶⁶⁰

In these processes, viewer identification with the on-screen process was central to efforts to mechanize the human body. If, as Stephen Groening suggests, “for the training film to function properly, the viewer must project herself into the images on the screen,” and thus, “the form of identification suggested by fictional film is required by the training film,” ITV offers an intensification of this phenomenon.⁶⁶¹ By demanding viewers take up the position of the on-screen specialist, seeing and acting along with him in real time (rather than interiorizing a lesson and a more general way of perceiving oneself in the context of labor), training processes based in this specialized, homogenized sight embed a high level of immediacy within the training experience, reducing the space between instruction, identification, and participation. In addition to an emphasis on shared temporal rhythms, the heightened physical proximity suggested by the “follow-the-leader” technique appeared in reviews that praised trainees’ ability to “‘look over the shoulder’ of the instructor” and learn from “a fellow worker actually doing a job at the same time and under the same conditions as the trainee.”⁶⁶² In addition to other qualities that separated television from film training programs—lack of distractingly slick production values and temporal efficiencies flowing from sidestepping the shooting, processing, and editing process and beginning training as soon as a technician became qualified—this immediacy and

⁶⁶⁰ The largest reproduction of this image, which is in all three books in the above citation, can be found in Mayers and Chipp, 77.

⁶⁶¹ Groening 40. Although the female identity of Western Union workers—the subject of Groening’s study—is central to his discussion of exteriorization (assumed to be a natural spectatorship position for women) and the anti-union strategies of WU that made female workers desirable, the gendered nature of the expert/trainee split is unremarked upon in the discussions of the process I have found. Though women populated the images of the trainees, all workers were referred to with male pronouns according to the custom of writing of the period.

⁶⁶² Mayers and Chipp, 77.

mechanization, whereby a worker could “learn by doing at the same time he learned by watching” helped position ITV training as “superior” to training film.⁶⁶³ The heightened identification required by follow-along training thus became key to its claim of increased effectiveness, further demonstrating the salience of the relationship between identification and training media. Of course, this process also provided time-savings to RCA by running a training (and marketing) program concurrently with its production process.

A second example in which ITV supported the homogenization of sight to smooth workers’ incorporation into specific work processes comes from roughly a decade after RCA filled its Stereoscope orders—and what we might call the beating, highly mediated heart of western capitalism itself. In 1969, the New York Stock Exchange completed a facility expansion in effort to increase its average daily volume capacity to fifteen million shares.⁶⁶⁴ For the exchange, the sixties and early seventies were a period of rapid growth—average daily volume rose from 3 million shares in 1960 to 11.6 million a decade later—and an ensuing “paperwork crisis” marked by increasing difficulty managing the mass of transactions. Looking toward automation as a solution to these issues, the NYSE introduced several new or improved technologies to the floor in the 1960s, including the “900” ticker, so named because it printed 900 characters per minute—almost twice the speed of the existing ticker design that dated to the 1930s—electronic pagers for order clerks (instead of the Annunciator board, which looked like a giant arrivals and departures board that called clerks when needed), and optical card readers that could be used to enter stock prices into the system (sidestepping the complex 50-mile network of

⁶⁶³ Mayers and Chipp, 74, 77.

⁶⁶⁴ Floor Department memorandum dated December 22, 1966, quoted in Tyrell G. Rogers, “Status Report – 20 Broad Street Project” October 12, 1967, page 3. Senior Vice-President, Market Surveillance Jeremiah J. O’Donahue Papers. Box 100, Folder “Trading Floor, Raulitier, 1965-1971,” New York Stock Exchange Archives. (Henceforth NYSE).

brass pneumatic tubes under the floor). Within this context, the NSYE built the (now closed) “Blue Room,” a third trading space (painted blue) neighboring the main floor at 20 Broad Street, stocked with cutting edge technologies and experimental posts (the structures that designated where securities would be bought and sold on the exchange, the primary “furniture” on the floor). In addition to increasing trading capacity, the renovations resulted in a series of archival documents that reveal the intricate planning that undergirded the project. From identifying the ideal height of the posts, to determining the proper width of booths that housed telephone and teletype machines, specifying the proper color of each item, and testing new electronic technologies, the Floor Department overseeing the renovations aimed for maximal efficiency in space usage and clarity in the display of visual information.⁶⁶⁵ CCTV became a part of these efforts.

A 7,000 square foot rectangle, the Blue Room featured two massive horseshoe-shaped trading posts, their open ends facing each other and joined together to create a single giant oval. Under the strict policies that regulated floor activities, odd lot brokers—responsible for trading shares in quantities below 100—were positioned inside the posts. The height of the posts, however, threatened to obscure the odd lot brokers’ line of sight to the electronic ticker posted on the north and south walls of the Blue Room. In initial experiments, architects raised the height of the electronic tickers by seven feet, allowing the odd lot brokers to see the ticker over the top of the post superstructure.⁶⁶⁶ At 19 feet above the trading floor, this arrangement threatened ticker visibility for specialists and commission brokers who stood on the outside of the posts, closer to the walls; viewing from an angle not unlike sitting in the front seat of a movie theater, their

⁶⁶⁵ See Meeting Minutes in O’Donahue Papers, Box 100, Folder “Trading Floor Expansion (20 Broad Street) 1966-1968,” NYSE.

⁶⁶⁶ “Meeting held Tuesday, November 14, 1967 at 10:00 AM in Room 1901,” 3. O’Donahue Papers, Box 100, Folder “Trading Floor Expansion (20 Broad Street) 1966-1968,” NYSE.

perception of the ticker could be easily distorted. As a solution this visibility problem, architects returned the ticker to its initial height and installed two CCTV monitors on the inside of the posts, at the points where the superstructure blocked the ticker.⁶⁶⁷

For the stock exchange, homogenized sight is vital to its proper functioning. In yet another example of “Ticker-Tape TV,” brokerage firms installed ITV cameras in front of their own ticker tape machines in order to transmit up-to-the-minute information throughout their local and branch offices. In explaining the system, the author of *Close-Circuit Television Handbook* remarked, “Fast decisions demand the best, most complete, and most automatic communications techniques.”⁶⁶⁸ In an industry currently being eyed as the primary funding support for a \$300 million undersea fiber-optic cable project that would reduce trading time between New York and London by six milliseconds, even miniscule delays leading to information asymmetries upsets the logics by which the exchange works.⁶⁶⁹ Experiments with ticker visibility ultimately lead to the decision to use CCTV monitors to ensure that all parties have a perfect line of sight to stock prices, and thus instant, simultaneous access to information

⁶⁶⁷ “Meeting held Tuesday, November 21, 1967, at 10:00 AM in Room 1901,” 1. O’Donahue Papers, Box 100, Folder “Trading Floor Expansion (20 Broad Street) 1966-1968,” NYSE. The Trans-Lux units were chosen by the brokers themselves. Although a competitor brand, Bunker-Ramo, displayed 11 trades at once (6 more than the Trans-Lux unit), the brokers preferred the horizontal orientation of the chosen set, perhaps because it recalled the horizontal flow of information across the ticker. “Meeting held Monday, January 29, 1968, at 10:00 A.M. in Room 1901,” 1. O’Donahue Papers, Box 100, Folder “Trading Floor Expansion (20 Broad Street) 1966-1968,” NYSE. There was also some discussion of expanding CCTV use to the lounge area, expanding the visibility of the ticker to non-trading spaces, though I could not find evidence of whether this occurred. “Meeting held Tuesday, November 28, 1967, at 10:00 AM in 11th Floor.” O’Donahue Papers, Box 100, Folder “Trading Floor Expansion (20 Broad Street) 1966-1968,” NYSE.

⁶⁶⁸ Wortman, 155-156.

⁶⁶⁹ Christopher Williams, “The \$300m cable that will save traders milliseconds,” *The Telegraph* 9/11/2011. <http://www.telegraph.co.uk/technology/news/8753784/The-300m-cable-that-will-save-traders-milliseconds.html> accessed 8/3/2014. Though early estimates put the completion date of the cable in 2013, the project is still ongoing due to delays and, as of August 2014, is scheduled to be finished in 2015, according to Hibernia Networks’ website.

no matter their situation within the spatial organization of the Blue Room. Unlike the prior example, homogenized sight is not the prerequisite of homogenized action. However, implicit in the emphasis on synched sight is the belief that traders will understand and act rapidly in accordance with the aims of their employers (and further, that the NYSE is a rational market, based on users' access to the same data and thus an equal playing field). ITV, in this instance, allows odd lot brokers to be perfectly attuned to and participate in the rhythms of market exchange.

Here, we might think once more about the experience of laboring before television screens. Similar to how scaled sight folds workers into the semi-automation of the plant, homogenized sight helps set the pace of work and incorporate the human body into the varied temporalities of different work processes, e.g., building a piece of electronic equipment on an assembly line or participating in trading rhythms between the ringing of the opening and closing bells. Due to its emphasis on multiple, dispersed audiences, homogenized sight enables dialogic processes such as exchange and higher levels of what we might call interactivity—with screen activities (training-production) and with other people (trading). However, firmly outlining the relationship between worker and screen—and of screens to the spatial distribution of labor—becomes a difficult historical project. This may be particularly true given the appeal of technological determinist arguments that pose CCTV (and other technologies) as a guiding force of workplace regimentation. After all, above I have outlined processes that attempt to mechanize the human body to an incredibly high degree, not only asking workers to interact with automated equipment but to discipline themselves to automated behavior. However, as Stephen Groening argues in the conclusion of his piece on Western Union training films,

“It is *not* the interaction with technology that made workers more machine-like. Rather, it is that the workers labored under the same conditions of industrial capitalism that

necessitated (and relied on) machine technology. The machines and workers exhibit similar characteristics because they are called upon to perform similar tasks.”⁶⁷⁰

While this does not respond to the questions regarding actual worker experience, it nonetheless reminds us of the non-televisual and non-technological forces weighing on work processes and offers a reminder of the appeal of television to industrial users as a tool for coordinating its pre-existing systems of automation and employee management. What synched sight and its demand for rapid reaction meant for the everyday experience of workers “following-the-leader” is unfortunately unknown.

Smarter

The final category of this taxonomy might be understood as a cognitive rather than corporeal boost to worker capabilities, though in this instance, ITV would also impact worker mobility. Several installations used ITV for data retrieval and transmission—the “instantaneous ‘transportation’ of any data seen by the human eye.”⁶⁷¹ Although not as attuned to the augmentation of the traditional capabilities of human vision as ITV in other categories, examples of stored sight nevertheless contribute to discourses surrounding visuality, information processing, and the ideal construction of work environments. While these systems themselves could not *store* data, they were incorporated in various programs that provided the user access to diverse and dispersed information in the manner of an artificial memory. Much like a primitive computer system, ITV used as a logistical search and retrieval tool enabled users to call up and transmit desired information. Instead of automated systems governing the organization and flow of files, however, people—at the other end of the camera or receiver—undertake the grunt work of locating and returning needed information via their own camera-monitor setup. This was a

⁶⁷⁰ Groening 53.

⁶⁷¹ Wortman 139.

particularly attractive capability in industries in which verbal transmission of information was considered unreliable and physical transportation of records too slow.⁶⁷² As a technology for regulating stock control, for example, a television monitor linked to a centralized records office could show a branch salesman the master inventory list of the firm's products.⁶⁷³ If the salesman placed an order, he or she could signal the centralized records office by transmitting an image of a completed transaction slip. Not only would this system reduce the need for duplicate records, because inventory fluctuations could be immediately recorded on the central list, all users, no matter their location, would have access to the most current numbers. Such systems were also valued for their potential to reduce workers' "absenteeism" from their posts and save significant "man-hours."⁶⁷⁴ In one highly circulated example, the Navy experimented with a search and retrieval system in the Library of Congress that allowed researchers to "call up" card files with one camera and visit the stacks to examine titles with another. Authors suggested that the system promised to save significant time by eliminating unnecessary legwork and pointed to the potential value of the "complete centralized library" for any research activities.⁶⁷⁵ Across varied installations, television transmission and retrieval systems promised greater efficiency and information control in businesses that needed to distribute data to employees across different locations "whether on the same floor, in the same building, in buildings a considerable distance apart, or even in different cities."⁶⁷⁶

⁶⁷² Wortman 139.

⁶⁷³ Noll, 26-27.

⁶⁷⁴ Guilfoyle, 14.

⁶⁷⁵ Schneider 28; Michaelis 175; W. L. "Industrial TV plays big role" C1.

⁶⁷⁶ Noll, 26, Zworykin et. al, 261. Such systems might culminate in installations like the Hughes Aircraft Company's use of television to transmit "up-to-the-minute data" throughout its factory across its parts, machine loading, and finished goods departments. According to descriptions of the system, by using television to quickly evaluate delivery schedules, production flow, and parts requirements, Hughes was able to maximize the efficiency of their assembly and production lines

Not coincidentally, the data chosen for transmission along ITV's links were of a particularly visual nature: detailed records, signatures, schematics, stock quotes, blueprints, weather and tactical maps, and spatial maps of theater seats and train cars. Displaying distant information by monitor was not only speedier than waiting for hand delivery, proponents believed that visual communication itself was faster and more accurate than other forms of communication or moving between different registers of communication.⁶⁷⁷ Proponents argued, "the eye can take in information at an enormously more rapid rate than the ear can accept it or the voice can communicate it. In addition, the television method avoids the possibility of error in the translation of written matter into the spoken word and in the interpretation of the latter by the listener."⁶⁷⁸ Again, television promised to reduce confusion in communication chains in part due to perceptions of it as an infallible transmission technology—never mind, of course, the human viewer who must interpret the screen image. Furthermore, using a logic that turned television into a fax machine—"In a sense, the transmission of documents is the province of facsimile rather than of television"—proponents suggested the best visual data suited for long distance transmissions were static. Additional economies could be realized by installations that used the slower scanning rates accommodated by telephone wires, eliminating the need for far more expensive coaxial cables associated with television transmission. For images like signatures and seating charts, the slower scanning rates suited their stable form.⁶⁷⁹ However, even if some suggested that CCTV's varied affordances began to make it unrecognizable as "television," others reaffirmed this status in the context of these computer-like information retrieval and

and, reportedly, save \$50,000 in paperwork costs over the course of the system's first 16 months (Wortman 166).

⁶⁷⁷ Zworykin et. al., 36.

⁶⁷⁸ Zworykin et. al, 36; Schneider 27.

⁶⁷⁹ Zworykin et. al., 36.

transmission processes, claiming, “there is no substitute for the service that television can give.”⁶⁸⁰

Among the most active early users of ITV information transmissions systems were banks attempting to balance the efficiency of keeping centralized records where they could be easily updated with providing high levels of accessibility to information for their dispersed branches.⁶⁸¹ Rather than store depositors’ balance information and copies of their signatures for verification purposes at dedicated windows on site at each branch, ITV allowed banks to organize an off-site centralized record department instantly accessible to any of their employees. Banks across the country used varying systems—including drive-up kiosks and, eventually, videoconferencing—to re-organize the spatial layout of their banks and branches and increase the efficiency of their operations.⁶⁸² In the early and mid-1950s, banks including the Providence Institution for Savings, The New York Savings Bank, and Philadelphia National Bank used ITV to transform a common banking system whereby each of its windows was assigned a segment of the alphabet and catered to customers with last names falling within that range—meaning each clerk had access only to the records that concerned their window—to a more flexible arrangement in which any patron could visit any window.⁶⁸³ Using an intercom connecting each window to the centralized records office, a bank teller could request a signature clerk locate and transmit any signature card via a

⁶⁸⁰ Noll, 27.

⁶⁸¹ Schneider 27. This genre of use appears to have continued at least through the early 1970s: “CCTV verifier links remote bank locations.” *Banking* 65.9 (March 1973): 48.

⁶⁸² Trade journal reports and news articles describe systems installed in Massachusetts, New York, Connecticut, Washington, D.C., Louisiana, California, Pennsylvania, and Texas, though it is likely that such systems existed elsewhere as well. Mayers and Chipp, 90; Wortman 140-145; “Industrial Television Transmitted via Phone, 212; Peet, “TV’s Little Brother,” 12; “Philadelphia Bank Trying TV system” F4. Such systems were also in use in London. Schneider 27.

⁶⁸³ Noll, 24; Mayers and Chipp, 87; William M. Freeman, “Closed-Circuit TV Aiding Industry To Check Processes, Spur Output: Closed Circuit TV Boon” *New York Times* Mar 29 1953 F1, 5; “Philadelphia Bank Trying New System” F4.

camera in the records office to a monitor located in the teller's window; according to manufacturers, this system provided tellers with "a means of 'looking' into the files of the central record room" without moving from their post.⁶⁸⁴ Since any available teller could serve any waiting patron "in a matter of seconds—and without leaving their respective windows," fewer employees were needed to staff the floor; backups at certain windows were eliminated and tellers who would wait on patrons in less subscribed windows could be reassigned to other duties.⁶⁸⁵ In reaction to its successful installation, one bank official praised the technology, claiming CCTV "brings everything together much clearer, better and faster than was possible before."⁶⁸⁶ Other banks used similar systems, with the general aim of increasing the speed of data processing between banks and branches, increasing teller productivity and the speed and quality of customer service, and lowering the costs of information transfer and expanding the reach of systems by substituting phone lines for expensive coaxials and minimizing the amount of data filmed and sent.⁶⁸⁷ A secondary benefit of television's capability to reformulate space came in relocating records storage to less expensive property—even 40 blocks away, "[maximizing] utilization of limited space for customer service."⁶⁸⁸ CCTV could likewise be used for tightening security, not only in the form of surveillance systems, but also insofar as transmission systems allowed for the secure storage of important documents off-site.⁶⁸⁹

⁶⁸⁴ Schneider 27.

⁶⁸⁵ Noll, 24; Mayers and Chipp, 90. The language of "in a matter of seconds" appears again in Freeman, 5.

⁶⁸⁶ Mayers and Chipp, 87, 90.

⁶⁸⁷ "Philadelphia Bank Trying TV System" F41 "Industrial Television Transmitted via Phone, 212," F.K. Becker, J. R. Hefele and W. T. Wintringham, "An Experimental Visual Communication System" *The Bell System Technical Journal* (Jan. 1959) 141-176.

⁶⁸⁸ Zworykin et. al., 251; Noll, 25-26; Schneider 27.

⁶⁸⁹ Noll, 26.

The other major user of CCTV data transmission systems in the early experimental period was the transportation industry. Much like banks, travel-oriented companies used CCTV for the “accurate communication of rapidly changing information”—in their case, bookings and travel information—“to numerous outlets.”⁶⁹⁰ In a precursor to the departure and arrival screens that dominate contemporary airports, United Airlines worked with Kin Tel to install a four monitor system at the Portland, Oregon airport. Linked to a camera in the dispatch office, the monitors conveyed flight information to United’s telephone sales office, the Ramp Chief’s Office, and to public viewers in the airport lobby.⁶⁹¹ According to the company, television was chosen for being faster than telephone or telemeter—the airline’s previous methods—and avoiding error and duplicated effort.⁶⁹²

These same efficiency affordances were sought by Pennsylvania Railroad, which installed what was then (c1959) believed to be the largest industrial CCTV system in the world at a cost of over \$400,000 (over \$3 million in 2014 dollars).⁶⁹³ Comprising over 100 cameras and even more monitors, the system allowed booking agents to instantly examine updated availabilities for passengers up to three months in advance and complete ticket-ordering transactions by interacting with people in a separate office who reserved space and provided tickets. Incredibly complex, the system connected three different spaces: the ticket counter, the telephone sales office, and the coupon file center (where records were kept and tickets reserved). When a customer phoned in a request to purchase tickets, the operator first dialed a two-digit code representing the number of days in advance a passenger hoped to book, connecting their monitor to one of 40 cameras trained on specially-designed availability charts that showed the

⁶⁹⁰ Noll, 27.

⁶⁹¹ Mayers and Chipp, 84.

⁶⁹² Zworykin et. al., 181; Mayers and Chipp, 84.

⁶⁹³ Mayers and Chipp, 87, Zworykin et. al. 179-180.

relevant information for the passage requested. Once the customer made his or her selection, the clerk dialed an additional two-digit number connecting the clerk with one of 42 “coupon shaggers” in the coupons office who located the desired tickets and transmitted them to the ticket counter by placing them under a camera at their workstation. Once the clerk confirmed the coupon fit the desires of the caller, it would be held at the ticket office until they came to pick it up in person. The in-person process was similar, though it used a different set of audio-equipped cameras in the second step that allowed the clerk to communicate with the coupon center verbally to request tickets and display the space reserved by the coupon shagger to the present customer; the “psychology applied to the customer” by using high-tech gadgetry during the in-person reservation system was seen as a significant benefit of the system. When the selection was final, the coupon shagger sent a facsimile of the tickets to ticket agent via Western Union Intrafax—a process that took about 10 seconds.⁶⁹⁴ A photograph of the railroad’s ticketing office alludes to the massive size of this system, depicting dozens of uniformed employees sitting at one of several long, room-length double-sided benches, each worker with their own television monitor, headset, and dialing system.⁶⁹⁵ According to the system’s creators, however, it simplified the ticket reservation system that preceded it and added an element of rapid communication.⁶⁹⁶ The railroad also believed that the time saved in ticket sales would eventually cover the cost of the system, with rising levels of customer goodwill a desirable side benefit.⁶⁹⁷

⁶⁹⁴ J. W. Alinsky, “Dial-Selected Industrial Television for Ticket Reservation Facilities” May 1960, 79.2, *Transactions of the American Institute of Electrical Engineers, Part I: Communication and Electronics*. 175. When the monitors at the ticket counters were not engaged in ticket reservations, they provided information on train arrivals, institutional advertising, and other information.

⁶⁹⁵ Whipple, 29.

⁶⁹⁶ Alinsky, 174.

⁶⁹⁷ Mayers and Chipp, 87; The major report on the system, cited above, claimed that within its first year of operation it “reduced the impatient complaints to practically zero” (174).



It is not difficult to imagine this system as a giant, rudimentary computer in which each camera-availability chart exists as a file within a directory, say “Train availabilities,” and the camera-coupon shagger link exists as an executable program allowing the user to make changes in a given camera-availability “file.” However, this 100-plus node system is, of course, not a computer; it is an intricate, semi-automated system requiring manual inputs at several steps in the chain in order to facilitate the rapid transmission of data among disparate locations. Television, acts as a mechanism for re-thinking the structure and operation of information storage and retrieval at the same time it further—physically and intellectually—incorporates people into work processes.

While this image—which shows people literally bound into the machines that help regulate their work—may be the most explicit representation of the transformation and extension of the worker’s body through television, it nevertheless illustrates the phenomena I have addressed throughout this chapter by forcing the metaphor of the cyborg. Although cyborgs by name would not become a part of cybernetic research until the early 1960s, throughout this chapter, I have discussed uses of ITV that “deliberately incorporates exogenous components extending the self-regulatory control function of the organism in order to adapt it to new environments”—the definition of cyborg in the first cybernetics article to mention the term.⁶⁹⁸ Put a bit more plainly, Manfred Clynes and Nathan Kline, who wrote that article, refer to it as an “approach based on adapting the man to the environment rather than keeping him in a sort of environment to which he was naturally adapted.”⁶⁹⁹ As Sherry Turkle and others have noted in a somewhat different context, screen technologies hold the potential to function as prosthesis.⁷⁰⁰ In my earlier examples, ITV provides a prosthesis that makes the individual worker’s body invincible, adaptable, more perceptive, bigger, faster, mechanized, and connected in order to fit it to the shifting needs of post-war industry. In this last example, groups of employees are incorporated into semi-automated information systems often operating as a single node in a complex operation. Although we might say the bodies of some are augmented through artificial memory, this comes at a cost of reduced physical mobility and being forced to fit flexible staffing practices that presage on-call staffing. For others, being incorporated into such man-machine systems means taking up rote retrieval activities that would eventually be computerized.

⁶⁹⁸ Manfred Clynes and Nathan S. Kline. “Cyborgs and Space,” *Astronautics*, (September 1960): 26-27, 74-75.

⁶⁹⁹ Nathan Kline, quoted in Ronald Kline, “Where are the Cyborgs in Cybernetics?” *Social Studies of Science*, 39.3 (2009): 339.

⁷⁰⁰ Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Simon & Schuster): 1995.

These are not the revolutionary, multiple, mutating cyborgs of Donna Haraway.⁷⁰¹ Instead, they represent corporate experiments into developing utile relationships between workers and technologies. The “artificial homoestasis” of the ITV cyborg adapts bodies to the industrial environment.

Conclusion

Although Zworykin and his RCA colleagues waxed poetic about the sight-expanding capabilities of ITV, writing “the desire to extend vision beyond the horizon, to see the unseen, is as old as man’s ability to think, to ponder, and to hope,” ITV built its reputation on the far more mundane goals of reducing costs and increasing productivity in order to secure maximum operating efficiency across a range of industries in the growth of the post-war era.⁷⁰² These efficiencies arose from the use of television to properly manage bodies: controlling worker mobility and their use of time, preventing accidents, and building worker capacities so one man could take the place of two.⁷⁰³ Indeed, the promise to replace expensive human employees was often one of the biggest selling points of ITV equipment, quantified by the numbers of men and “pairs of human eyes” replaced, with one engineer pointing to a future in which cameras could send signals directly to control equipment—removing the need for human workers tout court.⁷⁰⁴ (Ironically, workers’ expanded capacities often had the consequence of reducing their physical

⁷⁰¹ Donna Haraway. “A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century,” in *Simians, Cyborgs and Women: The Reinvention of Nature* (New York; Routledge, 1991): 149-181.

⁷⁰² Zworykin et al., 1.

⁷⁰³ Sarnoff, “Radio Review...and a 1948 Preview” *Radio Age* 7.2 (1948) 5; Wortman 139, 160, 162; Whipple 30; Schneider 25 Lewis 34; Ashbridge 11; Peet 81-81; Reed 14; Wilson, “Television in Industry” 127; Michaelis 174.

⁷⁰⁴ PYE Advertisement “Do you employ people to watch clocks” *The New Scientist* Jan 7 1963; Alexander R. Hammer “Industry Posting More Electronic Guards.” *New York Times* (Oct 04, 1959): F1; “Closed Circuit TV Protects Defense Plant.” *New York Times* Aug 28, 1956. 33. Schneider 31.

mobility and binding them more tightly into semi-automated circuits.) The argument that television “reduces accidents...reduces operating costs...reduces capital investment” also fit into persistent contemporaneous discourses concerning the promise of the booming \$7-11 billion electronics industry to “revolutionize” industrial operations, boost productivity, improve standards of living and even safeguard the nation against the threat of war.⁷⁰⁵ Ultimately, in working to establish the value of prosthetic sight, discussions surrounding the development and implementation of ITV reaffirmed the long-standing relationship between industrial efficacy and moving image media made famous by Frank and Lillian Gilbreth.⁷⁰⁶

As this chapter demonstrates, however, ITV is more than just a mechanism of industrial efficiency. ITV provided an opportunity for engineers, public critics, and a wide range of industrial and commercial interests to explore the ideal relationship between the mechanized and mediated factory and the human worker; the size, shape, and location of the ideal workforce; the physical arrangement of the factory and workspace, and even the physical capacities of the ideal worker. It also provides us with an example of institutional actors working on the protocols of an emerging medium. As Lisa Gitelman argues, protocols are a “vast clutter of normative rules and default conditions, which gather and adhere like a nebulous array around a technological

⁷⁰⁵ Williams, “Industrial and professional applications of television technique, 167; Baker, “Electronics – Promise and Reality” 42; Hall 24. “Electronics for greater safety”; Smith 46; Wilson 125; Ernest B. Gorin, “Long Term Industry Outlook” *The Analysts Journal* 12.3 (Jun 1956): 80; “Big Rise Forecast for Electronics.” *New York Times*, Dec 19, 1955. 4

⁷⁰⁶ While the 1950s offered the most active period in which the affordances of industrial television were developed and negotiated, ITV continued to be developed along several technological trajectories: color, portability, microwave and telephone extensibility, miniturization, and, perhaps most tellingly for the devices in the next chapter—memory. For the most part, however, these developments were slight adaptations of technologies that had found their utility and meaning in established uses. Although ITV is still in use today, much of the information concerning its continued technological development—its incorporation with computer and other systems—comes from China and other Asian countries where high levels of manufacturing may support continued interest.

nucleus” and which “express a huge variety of social, economic, and material relationships.”⁷⁰⁷

A return to the emergence of ITV in the late 1940s and 1950s provides us with an alternative understanding of the full institutional ambitions that animated the development of closed-circuit television. It provides an anchor for thinking about workplaces’ ongoing attempts to manage employees’ physical, economic, and social relationships with media technologies in order to extend workers’ capacity to labor. Today we see this in technologies like scheduling programs, mobile phones and other tethering devices that attempt to better fit people to contemporary industrial desires for worker flexibility. At stake in such dynamics is nothing less than the question of who gets to help build our bodies and to what ends.

In the next chapter, I move away from television as an orientation machine in the second sense—an apparatus of logistical and coordinate management—to its function in the first sense—a content distribution mechanism and a media interface through which employees were asked to know the organization and their own place within it. In the next immediate chapter, I discuss a technology that has not, like CCTV, remained institutional. By moving on to an analysis of videocassettes, we can see how television deepened its industrial reputation as an efficiency machine at the same time it made additional claims about the efficacy of its pedagogical address. Furthermore, we can pursue the lost history of industrial involvement in the development of the home VHS.

⁷⁰⁷ Lisa Gitelman, *Always Already New: Media, History, and the Data of Culture*, Cambridge: MIT Press, 2006: 1. I argue that thinking of the emergence of ITV through the logics of protocol development—rather than Foucauldian discipline—allows for more nuanced attention to the processes by which specific technologies become meaningful within the particular context of business and industry.

Chapter Four

The Other Format Wars:

Industry Adoption of Early Formant Audiovisual Cartridges and Cassettes

Sitting on the vault shelves at the Hagley Museum and Library in Wilmington, Delaware are dozens of U-matic tapes with handwritten labels and titles like “35R1 Symbiont changes” and “351 Exec, CKPR/RSTART.” The videos themselves are no less arcane, in black and white featuring a single employee actor in a relentless medium shot breaking only occasionally for a close-up on a flow chart or title cards (8 ½ x 11 pieces of paper with single words or phrases like “Base Blank” and “exit” written on them in a confusingly small, but neat hand). Without any sort of introductory preamble, the presenters begin their talks, staring into the camera, stringing together impenetrable series of acronyms in gibberish incantations:

So we have to call on the IO complex. And ADH and IO talk back and forth there. ADH sees that it's a printer. Back to IO, back and forth there. There's a lot of interplay here that's too confusing even to put on a flow chart. We do the IO, wait for the interrupt. When all is said and done we're back to the Symbiont.

Fumbling their words and fidgeting with their hands, the narrators forge through their presentations as their clothes rub against their lavalier microphones and their visual aids demand regular readjustment. So proceed these tapes until they wind to their conclusions over the course of some ten to thirty minutes.

While a few of the confounding qualities of these videos originate from their highly specialized goal—to explain computer operating systems to professionals—this does not explain the contrast between their unusually Spartan production values and their commitment to a visual

form of presentation. Belonging to a larger collection of tapes produced by Sperry Univac in the late 1970s, these are the most rudimentary in their presentation. Certainly, the other tapes have their share of confused movements, boom mics falling into frame, jerky camera work and misaligned close-ups, people inadvertently exiting the frame while others mistakenly enter, and presenters who mumble, chew gum, smoke, pause awkwardly, avoid the camera's gaze and read slavishly from typed notes. Some of these other tapes, however, also make efforts to exploit the visual form of the video, sprucing up the *mise-en-scene* with plants, using color, adding animations and other visual interest, employing star power, like Kirk Douglass—a onetime spokesperson for Univac—and even drawing on narrative forms and modes of surveillance and co-presence constructed through moments like this one, which begins a video on the distribution industry:

[Open on a factory warehouse. A box with the title of the program, "Introduction to the Distribution Industry," works its way down a conveyor system to the camera until the text is in close up. We cut to a different space in the factory with a desk and the conveyor line still in partial view. A man in a light blue lab coat enters with a clipboard in hand. He pauses in the center of the frame and addresses the camera:]

"Oh hi, I'm Albert. Give me a second; you caught me in the middle of something... Of course, when you think about it, when you're in a warehouse, you're always in the middle."

When considering that color U-matic would have been available to Sperry Univac in the late 1970s when they made their operating system tapes, the contrast between the two modes of using video is remarkable, leading to a series of questions. Why would Sperry Univac employ impoverished production values when very small adjustments, e.g., typed intertitles, formal introductions, set décor, and presentation comportment practices, would have resulted in far more aesthetically engaging productions? Or, if they were not interested in visual presentation, why use video at all? The tapes I described at the opening of this chapter provide no information

that could supplement printed materials. Indeed, presenters often read chunks of text at a time and “explained” flow charts simply by reading aloud the names of the steps; it is hard to see how their “visual” presentation augmented the information in any way. Was Sperry Univac attempting to develop an alternative aesthetic mode based on flaws and heightened immediacy? What did they believe such a strategy accomplished? Given the many such U-matic cassettes in Sperry Univac’s collection, the company was clearly committed to the format, but why? This chapter seeks, in part, to address some of these questions by turning to the development of video recording and playback within the industrial sector.

In pursuing these questions, this chapter shifts from a focus on television as a means of visual extension and “body building” to its use as a distribution medium for recorded content. Drawing on underexplored trade journals in business and education, popular histories of the development of videotape, archival materials, and my own interviews with industrial media sector professionals who worked with tape throughout their careers, this chapter addresses a persistent gap in scholarly understandings of the development of videocassettes: their development in industrial (and educational) contexts before they wind their way into the home. In tracing the series of tensions that influenced manufacturers and users’ moves from reels to cartridges and cassettes, from film to video, and from playback only to record/playback, I outline those affordances and cultural meanings that this progression advanced, and those that were left behind in order to identify precisely how industrial users contributed to the development of videocassettes prior to “the” format wars, the battle between VHS and Betamax.

The basic contours of videotape’s development in the broadcasting industry are well known, if underexplored and undertheorized from a cultural studies perspective. For the commercial media industry, the pursuit of videotape built on earlier attempts of radio

broadcasters to sustain “the concept of the national audience” through the construction of “virtual real time” networks without the hassle of repeating live radio programs a second time and a few hours later for the West-coast audience.⁷⁰⁸ Bing Crosby, in particular, becomes a key figure in early experiments into both audio and video tape. Determined to record rather than repeat his radio program, *Kraft Musical Theatre*, Crosby pursued the development of recording technologies through his company, Bing Crosby Enterprises. Eventually, the star partnered with Ampex for the use and distribution of their reel-to-reel audiotape recorders around 1947; Ampex would go on to pursue the development of videotape, which would become a viable possibility—after numerous experiments using diverse techniques and materials—less than ten years later. Ampex demonstrated their video tape recorder (VTR) to the networks at several high profile events and in private meetings behind closed doors in 1956.⁷⁰⁹ Instantly “flooded” with over 80 orders for the machines, Ampex units were in operation at all three of the major networks by April 1957.⁷¹⁰ A number of scholars have addressed the affordances of videotape that made it appealing to the television broadcasting industry. For production workers, videotape often meant more flexible working hours, since programs no longer had to air live and repeats became unnecessary.⁷¹¹ Videotape—understood first and foremost as a transmission medium rather than a storage medium—was also cheaper, since a single tape could be erased and reused many times, and faster, since it did not need to be processed and could be shown immediately.⁷¹² Following

⁷⁰⁸ Brian Winston, *Media Technology and Society: A History: From the Telegraph to the Internet*. London: Routledge, 1998: 265, 267.

⁷⁰⁹ Albert Abramson, *History of Television, 1941-2000*. (Jefferson: North Carolina, 2003): 73.

⁷¹⁰ Abramson, 71.

⁷¹¹ Jeff Martin, “The Dawn of Tape: Transmission Device as Preservation Medium” *The Moving Image*, 5.1 (Spring 2005): 55; Winston, 269.

⁷¹² Martin, 55. Martin points out that 2-inch tape was actually almost three times the cost of 16mm film and kinescopes, but it was widely understood by the industry to be cheaper under the assumption that the tape would be erased and reused until it wore out. Furthermore, according to

from these affordances, certain special effects were also easier and cheaper on videotape, retakes could be done immediately, spontaneous gaffes and unsavory language could be avoided through tape delay, and, according to some, the “look” of video was better than the 16mm film or kinescope that videotape replaced.⁷¹³ These affordances enabled Ampex’s 2-inch format to remain the industry standard for the next 25-30 years. As I explore below, the industrial sector mirrors much of the broadcasting industry’s excitement over these features, including perhaps most unexpectedly, tapes’ promise to facilitate networked communication over vast geographical spaces.

With regards to cassette usage in the broadcasting industry, the story is a bit more threadbare. Christopher H. Sterling and John Michael Kittross address the use of cassettes in radio stations, noting that the tape cartridges that appeared in rudimentary form in 1960 enabled stations to adjust to faster-paced operations (such as top-forty, music-heavy formats) by making it easier to switch back and forth between content (no need to adjust a needle; “just grab the cart and shove it in”).⁷¹⁴ Although cartridges found their initial use in commercials, station IDs, and other very short segments, as the recording length of cartridges grew, they held programming as well. The use of video cartridges and cassettes in industry is less clear. Sterling and Kittross include the U-matic and unnamed 2-inch cartridges and cassettes in a chart describing “Some Video Recording Formats,” noting that they were used for commercials and “limited broadcast use,” but providing no other information.⁷¹⁵ This absence is reinforced in other books about the

Martin, since a single tape could be reused to transmit an entire month of programming, stations alleviated space and storage costs (57-58).

⁷¹³ Christopher H. Sterling, John Michael Kittross, *Stay Tuned: A History of American Broadcasting*. Third ed. (Mahwah, N.J.: Lawrence Erlbaum Associates, 2002): 348-349; Martin, 55.

⁷¹⁴ Sterling and Kittross, 409.

⁷¹⁵ Sterling and Kittross, 805.

development of video, including Frederick Wasser's *Veni Vidi Video* and, more recently Michael Newman's *Video Playtime*. While it is not my intention to address this particular gap, by turning to the industrial (and educational) audiovisual sector we can nevertheless trace the decisions and beliefs of other early adaptors of video cartridge and cassette technology to better understand what particular promise they held out for institutional and industrial communicators.

Video was increasingly important to the industrial audiovisual sector as the 1970s wore on. By the middle of the 1974, 34% of audiovisual managers responding to a survey in *Business Screen* reported video as the fastest-growing medium under their purview; the next year that number increased to 41%.⁷¹⁶ Although the voluntary survey results capture only the responses of the journal's readers, they nonetheless signify an important increase in video use among certain parties within the industrial sector. Behind this expansion were many of the same affordances that made the medium popular with broadcasters: speed and cost. The raw materials for ½ inch and ¾ inch tape (smaller than broadcast standards) cost less per foot than even Super 8 film, and as videotape matured, initially high equipment costs lowered as well.⁷¹⁷ Institutional users likewise appreciated tapes reusability and its instant playback. Although sophisticated editing technologies were eventually designed for video, those who did not want or have the money to invest in such equipment could shoot as many takes as they wanted without “wasting” tape. While video did not have the picture quality of 35mm film, its comparatively lower cost and

⁷¹⁶ “1974 Industrial A/V Survey” *Business Screen* 35, no. 4 (1974): 30; “Business Screen’s Second Annual Industrial AV Survey,” 36, no. 4 (1975): 21.

⁷¹⁷ For a detailed cost comparison between tape and film—and how this might impact the uses to which either was put—see Guy Cephas Gentry, Jr., *Videotape in Manpower Development and Training: A Study of the Use of Videotape in Business and Industry*, Unpublished Master’s Thesis. Florida Atlantic University (MBA), 1974: 21-28.

higher production speed made it an appealing medium for those working in departments that commonly felt the squeeze of institutional belt-tightening in lean years.⁷¹⁸

In addition to the fast-cheap-OK triad, videotape offered one more thing film could not: television. First and foremost, this meant greater access to audiences, since users no longer had to use complicated and expensive projection equipment. So argues Bill Smith, the founder of Allied Film and Video, a pioneer duplication lab that was one of the first companies to move into video. Emphasizing the usability of cassettes, he notes, “Film faded, film broke, film scratched, film did all kinds of things that were derogatory to the medium.” According to his experience, “film was an accepted medium, but when you wanted to get it into the classrooms and clubs and various enterprises...the film to tape transfer was a revolutionary process that just expanded that whole market.”⁷¹⁹ Furthermore, much like other moving image technologies, video was invoked in discussions of the post-war acceleration of information, consequent increasing knowledge and learning demands placed on workers, and the “diminishing impact of and time to use written communications.”⁷²⁰ Users likewise identified video as a solution to these problems with unsourced claims about the heightened “impact” of videotape audiovisuals—that, for example, “people remember nearly twice as much from videotape as from any other type of presentation.”⁷²¹ Where video diverges from film is in its close association with “television” as a

⁷¹⁸ Bunyan, *Practical Video*, 189.

⁷¹⁹ Interview with the author. Bill Smith, Founder, Allied Film. Allied Vaughn, Detroit, August 14, 2014.

⁷²⁰ Bunyan et. al. *Practical Video*, 3.

⁷²¹ Trudye Connolly, “Audio-Visuals in the Hosiery Industry” BS 37, no. 1 (1976): 30. At least one study undertaken in the context of teaching welding refutes this claim, as the researcher found no statistically significant difference between the success of students learning in person and learning via video except in one case where the video was less effective. Thomas Andrew Parks, “An Experimental Comparison of the Demonstration-Performance Method Versus Videotape Recording for Teaching Selected Welding Skills.” Unpublished dissertation, The Ohio State University, 1973: 78-80.

medium of intimacy, comfort, and cohesion. Discussions of video often invoke the experience of home viewing, whether to suggest the appeal of corporate television originates from the set's ability to use claims to "immediacy" to "captivate" its audience—whether the imaginary children of businessmen or personnel—or to imply gleefully, "TV is watching with cookies in bed"—intimate, comfortable, and ever-so-slightly transgressive.⁷²² Pepsi, a key early client of the U-matic, was even more explicit about how it hoped to channel the appealing qualities of television into its corporate skilling context: "TV places the learner in a situation that is informal, emotionally comfortable, and familiar—particularly in view of the fact that a trainee has probably spent more hours of his life before a TV set than in a classroom."⁷²³ The *feeling* of corporate communications became central in these discussions. Television—via video—became a means to transform the process of training from a potentially discouraging, uncomfortable, and even insulting experience (for the trainer as well as the trainee) into an "almost...fun" activity "sensitiv[e] to the feelings of the learner."⁷²⁴

In addition to building associations with terms like "reassurance" and "encouragement," video use also emphasized distinctly *personal* communication between distant parties.⁷²⁵ Guy Gentry, a researcher in "manpower development" suggests that one of the key reasons video became important to corporate and industrial trainers was the way it placed the instructor and the student "in direct contact with little distance between them"—an unusual claim for an explicitly

⁷²² James P. Smith, "Tape? Film? Both!" *Business Screen* 35, no. 3 (1974): 33; Clay Felker, Quoted in "Tape, 16mm and Super 8 Live Together at New York Magazine" *Business Screen* 34, no. 6 (1973): 23.

⁷²³ "Pepsi-Cola Bottlers Standardize on Video Cassettes" *Business Screen* 34, no. 3 (1973): 10.

⁷²⁴ "Pepsi-Cola Bottlers Standardize," 10, 15; "Video is Versatile at Foxboro" *Business Screen* 33, no. 1 (1972): 26.

⁷²⁵ "Pepsi-Cola Bottlers Standardize," 15.

mediated instructional method.⁷²⁶ Lord and Taylor, a major user of U-matic tapes, likewise suggested that videotape was *less impersonal* than *in-person visits* and other mediated forms of communication.⁷²⁷ This belief resurfaced in a survey that revealed audiovisual managers identified video's "personal" quality as its third highest advantage—right after instant replay (speed) and cost.⁷²⁸ A survey of the field in 1978 contains a laundry list of potential business and industrial uses for tape, many of which invoke the value of "face-to-face" communication, the emotional effectiveness of the (paradoxical) proximity of taped subjects, and video as a way to grant "access" to higher-ups and geographically distant workers. Furthermore, many of these uses revolve around communication not as training or merchandising, but as building relationships among people and with the firm: an interview with a successful female employee to recruit other women, a president's "motivational welcome" during employee orientation, the shareholders' meeting as "an excellent chance to tape top managers, who are normally inaccessible to employees," careful explanations of problems affecting the company that "make sure as many employees as possible get the word straight from top management on the issues that were troubling them," and introductions of new executives.⁷²⁹ Pat Bebee, a hosiery merchandiser for a department store, reported that she sent tapes to branches when she could not attend important meetings in person. In addition to helping her manage the "sheer logistics" of being in multiple places at once, she claims that use of audiovisuals makes sure people at the branches "don't feel neglected."⁷³⁰ How these authors discuss the use of video to manage

⁷²⁶ Gentry, *Videotape in Manpower Development*, 8.

⁷²⁷ Howard Geltzer, "A Retail Video Fashion Network," *Training and Development Journal* November 1973, 34.

⁷²⁸ Gentry, *Videotape in Manpower Development*, 36.

⁷²⁹ Bunyan et. al. "Practical Video," 11-12.

⁷³⁰ Connolly, "Audio-Visuals in the Hosiery Industry," 30; it is unclear if the author intended the hosiery pun.

emotions and interpersonal interaction portrays television as a “humane” medium; the “relatability” of audiovisuals becomes especially important “in an age of television.”⁷³¹ On the other side of the coin, these beliefs in the subjective qualities of television lead to the use of video as an affective tool to manage geographically dispersed organizations (assuring homogeneity in the process) and “to provide cohesion” among employees and management in companies experiencing political troubles or economic difficulties.⁷³² Summarizing many of these appeals—video’s immediacy, time-shifting efficiency, and speed—Dave Sobczak, a lead media specialist at Johnson Controls (JCI) reflects,

It was the hot technology, it was the bleeding edge internet of the day, except it was video. Getting that communication out and seeing people live and in person—being able to see it when *you* wanted to see it—was where everybody wanted it because everybody was busy and everybody didn’t have the time to jump in and do something when *you* said.⁷³³

Given these beliefs surrounding the advantages of tape’s cost, speed, and subjective impact, how did business and industry incorporate the new medium into existing operations? According to *Business Screen*’s surveys of audiovisual managers, many believed film and video would co-exist—if not forever, then at least for the foreseeable future—each taking up a specific role within audiovisuals. Film remained the gold standard for high-quality prints (or “slickness”) and media campaigns using a high volume of reusable prints projected by diverse users, since the cost of duplication lowered considerably when making a large number of prints and companies could rely on most outfits having easy access to a 16mm projector.⁷³⁴ Industrial users identified the fitness of tape for a project based on temporal and financial concerns. “Ephemeral by nature”

⁷³¹ Ibid., 31.

⁷³² Ibid., 30; Bunyan et. al. “Practical Video,” 189. This relationship between communication and “control” was made explicit in a review of Lord and Taylor’s use of videocassettes. Geltzer, “A Retail Video Fashion Network,” 34.

⁷³³ Interview with the author.

⁷³⁴ Gentry, *Videotape in Manpower Development*, 22.

according to one business and training researcher, tape was considered ideal for situations when

- 1) content would be quickly out-of date, making the tape a prime candidate for erasure and reuse,
- 2) users needed instant playback, e.g., for self-analysis of performance in a role-playing situation, or 3) the subject was lengthy, e.g., an investor's meeting in "real time," and economy recommended the use of video rather than film (particularly if few copies were needed).⁷³⁵

Audiovisual users likewise differentiated between film and video based on the desired audience of their program. Given the lower quality of tape, several suggested that it was best used for in-house and "informal" programs, while film carried more impact for outside audiences. Most also suggested that tape was best for smaller audiences, although the specter of 8mm haunted discussions of its difficult portability.⁷³⁶ As a result, one of the primary uses to which video was put was in internal role-playing and performance review training where participants acted out a scene or demonstrated a skill on tape and then evaluated their own performance on playback.⁷³⁷ For example, Sobczak noted that instant-replay role-playing training—identified by Gentry as the primary use of video at that time—formed a major part of their training efforts. At JCI, video was incorporated into a multi-week orientation training procedure in which employee students learned new skills before being taped using those skills in the classroom. After evaluating their results with an instructor, the employees moved out into the field for several weeks before

⁷³⁵ Ibid., 20.

⁷³⁶ "1974 Industrial A/V Survey," 30; Gentry, *Videotape in Manpower Development*, 23.

⁷³⁷ Gentry's study indicates a significant majority of industrial tape users employ the instant replay function of tape for these types of evaluation. Although he broke down responses based on "teaching method," leading to less clarity regarding the overall percentage of institutional users engaged in this activity, the numbers are nonetheless significant: 68.9% for role play, 60.7% for self critique, 45.2% for group critique, and 24.4% for critique in private. The overall number could be somewhere close to 75%, given the 101 out of 135 responses to a question about difficulties with using these methods that selected either yes or no. Gentry, *Videotape in Manpower Development*, 37-38.

returning to the classroom to repeat the role-play taping evaluation.⁷³⁸ Enabling employees to see their performance immediately was hailed as a highly effective (and humane) training method for “reshaping sales and management personnel”; the visual impact of self-observation was believed to deliver instant, clear, and irrefutable evidence of participant’s weaknesses, relieving instructors of awkward or uncomfortable criticisms.⁷³⁹ A secondary role for video was internal and external communications—for some (larger) companies, video operated as a “house organ,” providing important information to employees, building corporate culture, and boosting morale; for others video functioned as a means of customer education.⁷⁴⁰ These uses, however, were less frequent than video for training. In the same study referenced above, 43% of respondents used video for internal communications, while only 9.6% reported using video for external audiences—unsurprising numbers given the considerations of quality mentioned above.⁷⁴¹ Extrapolating from the results of his study—which identified instant-replay training as the primary use of video—Gentry concluded that, as of 1974, video was a medium defined by recording rather than presentation; the use of pre-taped programs—the “presentation method of the future”—was still “in its infancy” for most companies.⁷⁴²

If videotape promised speed, cost, and the affective impact of television, videocassettes promised all of this at “revolutionary” intensity.⁷⁴³ Referred to as “the single development which has most improved the institutional utility of television” cassettes were hailed as a technology

⁷³⁸ Interview with the author.

⁷³⁹ Progress Research Organization Study (1971), quoted in Gentry, *Videotape in Manpower Development*, 95; Richard E. Johnson, quoted in *Ibid.*, 94; 2“Video is Versatile at Foxboro,” 26.

⁷⁴⁰ Gentry, *Videotape in Manpower Development*, 102, 105.

⁷⁴¹ *Ibid.*, 106-107.

⁷⁴² *Ibid.*, 24, 112.

⁷⁴³ Buyan et. al., *Practical Video*, 3; 34, “When Pepsi went video, they selected the Sony Videocassette System.” *Business Screen* 34, no. 5 (1973): 12-13; “Telemation Places Large Order,” 40.

that could seal film's fate within the industrial sector.⁷⁴⁴ By 1974, industrial managers already identified the videocassette recorder as the machine that most "made their department's work easier and/or more efficient."⁷⁴⁵ The "radical" potential of cassettes originated from the union the above affordances of videotape with the portability and ease-of-use of Super 8 projectors, which I address below.⁷⁴⁶ As one cassette agnostic suggested, whatever the precise format that wins the video player war, "it must be demonstrably easier and less complicated. We've got to find more ways to get our information out to more people, more cheaply and with equipment easier to operate than ever before."⁷⁴⁷ In moving from ITV to the development of the videocassette, I have chosen to "fast forward," leaving aside a more developed discussion of videotape as an appendage to CCTV during a period of increasing emphasis on work architectures and the development of the mediated boardroom for another project. Instead, this chapter focuses squarely on cassettes and cartridges, which were positioned at the time of their adoption as a means to experiment with television at its most efficient and expansive, and as a mechanism for imagining corporate television as "networking."

Format Wars

Almost fifteen years before Betamax opened the field of home video, enlisting audiences against broadcaster wishes to "Watch Whatever. Whenever.," experiments with moving-image cassette technology provided a flashpoint for discussions about the use of televisual media within industrial and educational contexts. In the decade that preceded the introduction of video to home audiences, the industrial and educational sectors oversaw battles over video and cassette format standardization, prognostications on the proper path for future communications

⁷⁴⁴ Ibid., 193; "1974 Industrial A/V Survey," 30.

⁷⁴⁵ "1974 Industrial A/V Survey," 32.

⁷⁴⁶ Ibid.

⁷⁴⁷ "AV Man: James G Damon Jr.," *Business Screen* 33, no. 3 (1972): 22.

development, and experimentation with new teaching strategies using cassettes. In short, this period called for American industry to reflect on the shape and nature of ideal corporate communication, the role technology could play therein, and the new commodity form that audio/visual communication would take.

This early stage in the development of cassette technologies offers insight into ongoing processes of standardization, particularly in terms of how decisions made within one media sector—corporate communications—impacted decisions made in another—home entertainment—as technologies moved between them. Attuned to vacillations between hope and anxiety on the collective corporate emotional register, an analysis of the major discussions that defined the development of cassette technology indicates what technological capabilities industry sought, how they understood their users and audiences, and how different actors—manufacturers, professional organizations, corporate users, software suppliers—attempted to make affordances and choices between competing systems meaningful. Referring to standards as “politics by other means,” Janet Abbate points to how standards fundamentally shape a technology’s use and adoption with far reaching consequences that unevenly affect diverse stakeholders, e.g., competing businesses or public user groups.⁷⁴⁸ In following debates over standardization that accompanied the rise and fall of several cassette formats and their video disc siblings, we can identify shared concerns over the control of corporate communication technologies while simultaneously locating shifting nodes of power and influence within the corporate communications sector. In tracking these relationships “beneath, beyond, and behind the boxes our media come in,” this chapter builds on what Jonathan Sterne terms “format theory” and my own discussions of “threshold formats” as “those formats that never reached saturation

⁷⁴⁸ Janet Abbate, *Inventing the Internet*. (Cambridge: The MIT Press, 1999): 179.

or even standardization but which occupy pivotal positions within (material and discursive) experiments into how “old” technologies can be refigured to offer new possibilities and opportunities.”⁷⁴⁹ In the context of this chapter, such an approach offers an account of a little documented intersection between business and media history.

The introduction indicated the extent to which videotape’s arrival on the scene of media studies analysis has been a relatively recent development within the academy. I further noted the limits of current analyses of video, which focus almost exclusively on home entertainment or video art. Given this emphasis in the literature, most research centers on a small subset of video technologies that includes VHS and Betamax—the two most successful home video formats—and Sony’s Portapak, which was widely used by artists and media activists. As a result, these better-known technologies overshadow the wide variety of portable audiovisual cartridge and disk formats that emerged in the 1960s and 1970s and set the conditions by which users would take up home video. When devices such as CBS’s Electronic Video Recording (EVR) or Avco’s Cartrivision do appear in longer monographs on the history of the videotape, they often function as an amuse-bouche to the VHS-Betamax main course, a short but entertaining story of failed technologies that draws out the flavors of the central event: successful penetration of videocassettes in the home. Michael Newman’s cultural history of the videotape, for example, only hints at the massive use of video technologies prior to their adoption into the home in a single paragraph concerning institutional uses of U-matics, VTRs, and similar technologies.⁷⁵⁰ Unusual in his wide scope, Frederick Wasser, whose *Veni, Vedi, Video* offers one of the first

⁷⁴⁹ Jonathan Sterne, *MP3: The Meaning of a Format* (Durham: Duke University Press, 2012): 11; Kit Hughes, “Record/Film/Book/Interactive TV: EVR are a Threshold Format,” *Television and New Media*, 2 [Online First].

⁷⁵⁰ Michael Z. Newman, *Video Revolutions: On the History of a Medium* (New York: Columbia University Press, 2014): 22-23 in my copy.

scholarly monograph-length treatments of the history of home video, includes six early technologies as part of his pre-history of home video. Dividing each format into its own subsection, Wasser notes their distinguishing features, the motivations of their manufacturers, and the reasons for their ultimate failure—but only so far as each can be understood *as a home-entertainment consumer technology*.⁷⁵¹ Bypassing institutional users, Wasser sidesteps questions about how these “non-domestic” users may have influenced manufacturer strategies on both technological and discursive levels, and he ignores how alternative systems of content production within the business communication sector complicate his claims about the crucial role software played in determining the success of video formats. In so doing, Wasser creates a teleological argument for the development of the VCR that discards information extraneous to video’s victory in the home. Likewise, Max Dawson’s discussion of how television critics attempted to legitimize their cultural authority by discursively situating new home video technologies as high-brow alternatives to mass broadcasting touches on half a dozen often-forgotten devices, but only insofar as they were actors in the critics’ attempts to intervene in media consumption in the home.⁷⁵² James Lardner’s *Fast Forward*, a popular press account of the penetration of the VCR into American homes, provides a useful resource concerning Sony’s corporate strategy and copyright issues, but fails to consider the larger cultural implication of video outside the domestic space.⁷⁵³ Even if we take home use as the ultimate goal of manufacturers (though, of course, VHS continued to be widely used within industrial and educational settings throughout the format’s life), limiting our analysis to the formats that

⁷⁵¹ Frederick Wasser, *Veni, Vede, Video: The Hollywood Empire and the VCR* (Austin: University of Texas Press, 2002): 60-70.

⁷⁵² Max Dawson, “Home Video and the ‘TV Problem’: Cultural Critics and Technological Change,” *Technology and Culture* 48, no. 3 (2007): 524-549.

⁷⁵³ James Lardner, *Fast Forward: Hollywood, the Japanese, and the Onslaught of the VCR* (New York: W.W. Norton, 1987).

succeeded in that space ignores the extent to which institutional users operated as key intermediaries during experimentation phases of the medium, when its features and cultural meanings were under development.

As is noted above, this chapter intervenes in our understanding of “the” format wars. As it is commonly told, the story begins in 1975 when Sony brought its ½ inch videocassette player—the Betamax—to market under its infamous marketing campaign that promised consumers freedom from the broadcast schedule and antagonized content producers with the threat of decreasing control over their product. Those with an interest in corporate dynamics may reach back six years earlier when Sony partnered with Matsushita and Japan Victor Company (JVC) to collaborate on the standard for the ¾ inch U-matic. According to Wasser, due to Sony’s dominance in sales of the shared format, JVC and Matsushita became dissatisfied with the alliance and went their own way on later cassette development projects. Whatever the exposition of the story, the rising action occurs when JVC introduces its competing ½ inch format, the VHS, in 1977. Besides the loading mechanism, the primary difference between the two machines that otherwise used remarkably similar technologies for scanning, recording, and signal adjustment, was the length of their tapes.⁷⁵⁴ The Betamax initially offered one hour of recording while the VHS offered two. Following VHS’s entry into the market was a series of volleying price cuts and attempts to extend recording time on both machines. Although Betamax holds pride of place as the format that introduced and made meaningful the practice of time shifting as an audience behavior, the VHS dominated markets after a single year of global distribution.⁷⁵⁵

Infamous in media and business history, the battles between Betamax and VHS have been used to demonstrate numerous arguments about media standardization and consumer

⁷⁵⁴ Ibid., 151-52.

⁷⁵⁵ Wasser, 73.

behavior. These range from the importance of multinational corporate partnerships—as when JVC teamed up with Japanese electronics powerhouse Matsushita as well as key manufacturers and distributors Hitachi, Sharp, Mitsubishi, and RCA (which marketed the VHS as SelectaVision in the US);⁷⁵⁶ to the function of consumer choice—in this instance, for longer tape play capabilities—in building path dependency,⁷⁵⁷ the importance of sports to consumption of American broadcasting (since JVC’s decision to make longer 4-hour tapes was allegedly due to RCA’s request that they hold a full American football game),⁷⁵⁸ the pitfalls and idiosyncrasies of competing corporate research and development programs,⁷⁵⁹ the role software could play as a key “network externality” shaping consumer adoption,⁷⁶⁰ and the persistence of myths that imbue such key moments in business and media history with certain ideological import, e.g., that Betamax was higher quality and the adoption of its rival format therefore indicates the fallibility and unpredictability of consumer behavior.⁷⁶¹ Such treatments of the format wars emphasize questions of generalized market behavior and the impact of corporate alliances among manufactures and between hardware and software producers. At times—in business and economics literature in particular—authors seek prediction models to smooth economic damages that attend the development of technology innovations.

⁷⁵⁶ Ibid., 72-73.

⁷⁵⁷ S. J. Liebowitz and Stephen E. Margolis, “Path Dependence, Lock-In, and History,” *Journal of Law, Economics, & Organization* 11, no. 1 (1995): 205-226.

⁷⁵⁸ Wasser, 73.

⁷⁵⁹ Kalyan Chatterjee and Robert Evans, “Rivals’ Search for Buried Treasure: Competition and Duplication in R&D,” *The RAND Journal of Economics* 35, no. 1 (2004): 160-183.

⁷⁶⁰ Wasser, 75.

⁷⁶¹ Liebowitz and Margolis, 222. One of my interviewees confirmed that he believed that Betamax was higher quality, suggesting that their fatal flaw was actually releasing multiple models, each with a different tape speed, rather than selling a single device that accommodated different speeds.

What these treatments fail to do is consider the emergence and adoption of a videocassette standard holistically. Without considering earlier cartridge technologies and seeking ways in which their use informed understandings of the promise of videocassettes, and without moving outside of the singular context of the home to investigate the varied ways institutional users contributed to discourses and practical applications surrounding cassettes, our history of VHS's victory as a standard remains limited. Furthermore, although authors have addressed some of the social and cultural contours of home video,⁷⁶² discussions of earlier formats remain animated almost exclusively by an economic lens. This chapter offers a corrective to these earlier studies by addressing several interrelated questions: 1) In thinking through videocassettes as a new media technology, how does focusing on continuity with technological precursors—rather than ruptures—deepen our understanding of cassettes' technological development, adoption and use? 2) What role did businesses and trade organizations play as intermediaries in the development of cassette technology and the discourses that surrounded their use and proliferation? 3) What did the affordances of cassettes offer business and industry? 4) What do these affordances—and the series of successes and failures among a variety of competing standards—indicate about ideals of corporate communication in the 1970s and 1980s? 5) How might the answers to these questions revise assumptions regarding the place of the cassette as an audiovisual media technology developed within and for home entertainment use? In answering these questions through a series of three case studies—8mm cartridge projectors, CBS's EVR, and Sony's U-matic—this chapter reveals the limits of technological histories bounded by a single medium and the dangers in substituting

⁷⁶² Newman, *Video Revolution*; Lucas Hildebrand, *Inherent Vice: Bootleg Histories of Videotape and Copyright* (Durham: Duke University Press, 2009).

single-sector analyses—in video’s case, of the home market—for the history of a medium tout court.

Loops, Satellites, and Single Concepts: 8mm Cartridges in Education

The U-matic is remembered, when at all, as an institutional format. Finding favor with businesses, newsgathering outfits, and schools shortly after its introduction to the public in 1971, we might consider the U-matic the first successful videocassette standard—at least within the institutional sector—a status it reached by mid-decade. Institutional users, however, were never Sony’s primary target; the consumer electronics juggernaut was after the massive home audience.⁷⁶³ According to James Lardner, who used interviews to piece together Sony corporate history, the degree to which educational and industrial users took up the U-matic came as surprise to Sony, which subsequently responded to institutional interests by developing accessories and modifications that addressed their needs, e.g., for editing.⁷⁶⁴ While advertising suggests that Sony was well aware of the importance of the institutional market for the development of their technologies, their surprise regarding the level of support for the new technology may have been in part because, as Lardner points out, the company invested little time and resources into market research.⁷⁶⁵ Had Sony attended to these spaces—particularly within American markets—they would have noticed the steady, though unwieldy, development of a set of instructional technologies, exhibition practices, and theories of audiovisual learning and skilling that increasingly drew on cartridges. At the center of these experiments was the endless-loop cartridge, which preceded the introduction of the U-matic by almost ten years.

⁷⁶³ Wasser, 71. Lardner, 68.

⁷⁶⁴ Lardner, 73.

⁷⁶⁵ Lardner, 51.

In 1961, Technicolor introduced the first loop film projector. Neatly encased in a rectangular silver box without any visible supply or takeup reels, the seven-pound Technicolor 800 Instant Movie Projector looks like a cross between a slide projector and filmstrip projector. The “800” draws its film from Magi-Cartridges, small plastic cases also developed by Technicolor that house up to four and a half minutes of 8mm film. As in later loop film cartridges, the film is spliced together in a single, continuous loop so that as soon as the film completes its run it is ready to show again.⁷⁶⁶ Preloaded cartridges enabled users to quickly load films into a projector without threading or rewinding. An added benefit, according to the manufacturer, was the sealed clear plastic case that protected the film from dirt, scratches, the weather, and other threats to image quality.⁷⁶⁷ Although the “800” was silent due to the technical limitations of its small cartridge size, research and development lead to sound-capable machines six years later in the form of the “1000” Super-8 film projector. (Fairchild, Technicolor’s primary competitor in the early years of endless-loop projection, offered a sound rear-projection unit—the Cinephonic—the same year.) Although the Magi-Cartridge held less than five minutes of content, cartridges for later (and larger) projectors could hold up to 30 minutes of sound film by 1970.⁷⁶⁸

⁷⁶⁶ As J. L. Anderson points out, the 1960s practice of looping films for repeat showings is hardly novel; the Kinetoscope made use of a similar principle (though without a cartridge) to run film continuously for peep-show parlor customers. “Looking Back for the Single concept Film,” *Journal of the University Film Producers Association* 17, no. 2 (1965): 30. Image from “New Equipment” announcement in *Educational Screen and Audiovisual Guide* (April 1962): 223.

⁷⁶⁷ “Technicolor’s 8mm ‘Instant:’ Projector: Magi-Cartridge Makes Operation in Field Easy on Salesmen,” *Business Screen* 23, no. 4 (1962): 61. Judging from announcements of later “improvements” on early cartridges, however, scratching from the film rubbing up against itself was a problem.

⁷⁶⁸ For a brief, but clear discussion of competing sound cartridge formats, see Richard Kahlenberg and Chloe Aaron, “The Cartridges Are Coming,” *Cinema Journal* 9, no. 2 (1970): 2-12. The comparison chart on page 10 is particularly instructive.

Similar in practical application to endless-loop cartridges were a number of reel-rewind systems which stored their film in cassettes. These systems diverged from loops in that when loaded, reel-rewind cassettes automatically thread film onto a reel attached to the projector. Although not as neatly self-contained as loop films, reel-rewind cassettes allowed for strategic rewinding and reviewing of specific moments in a film—once a segment passes in a loop film, the entire film must be viewed before repeating. According to Everett Hall, an 8mm specialist who worked in industry and education, reel-rewind systems found favor with educators while industrial clients preferred endless-loop function, signaling something of a divergence between the two sectors.⁷⁶⁹ Technicolor's sales record also indicates that industry and business bought into the new technology at higher rates than educators in its early stages. In 1963-64, only 15% of the "800s" went to educators; except for a small number sold to amateurs, the rest went to business concerns. The following year saw educator purchases increase to 30% of total sales; however, the majority of machines continued to serve industry.⁷⁷⁰ By the time the U-matic was making inroads in the industrial and educational sectors, at least six different companies were in competition for the top spot in the endless-loop market, while six others invested in reel-rewind systems.⁷⁷¹ Software offerings were also on the rise. In 1970, users of Super 8 cartridges could choose from over 8,000 educational titles for purchase or rent.⁷⁷²

⁷⁶⁹ Everett Hall, "Audiovisuals of the 1970s," *Business Screen* 31, no. 6 (1970): 27.

⁷⁷⁰ James L. Page, "Closing the Film-Projector Availability Gap," *Journal of the University Film Producers Association* 17, no. 2 (1965): 20.

⁷⁷¹ Endless-loop manufacturers included the Technicolor and Fairchild along with Jayark, MPO, Panacolor, and Bohn-Benton. Reel-rewind systems were in production or under development for Eastman Kodak, Bell and Howell, Paillard E. P., Cameca, and Paximat. See note 22 and Roland J. Zavada, "The Standardization of Super 8" *Journal of the University Film Association* 22, no. 2 (1970): 41.

⁷⁷² Kahlenberg and Aaron, "The Cartridges Are Coming," 9. Eastman Kodak introduced Super 8 film stock in 1965. Although Super 8 was the same width as tradition 8mm film, its sprocket

Despite significant resources, energy, and interest poured into endless-loop and reel-rewind cartridges by a diverse set of institutions and agents in the 1960s and early 1970s, no scholars have yet addressed the possibility that these systems set the conditions by which videotape would be adopted. Even Wasser, whose catalogue of early cassette tape technologies is otherwise wide-ranging, mentions the possible relationship between videotapes and film loops only in an aside. In keeping with his project's focus on entertainment, he notes briefly that Noel Bloom, who would later become an important figure in Wasser's history, found U-matic tapes easier to use in pornography arcades than the by-then conventional 8mm cartridges.⁷⁷³ Rather than pursue the role film cartridges played in setting up circuits of distribution, exhibition practices, or ways of understanding the possibilities of tape, his brief note on pornography loop films serves as simple foreshadowing for later understandings of Bloom's role in the development of the video industry. The remainder of this section attempts to fill this gap by addressing the role film cartridges played in the development of new theories and practices of audiovisual instruction, discursive understandings of the promise of audiovisual technologies for corporate communication, and battles over standardization.

8mm Cartridges: the Medium of Flexibility, Precision, and Targeted Audiences

Evidence suggests little market demand existed for short, cartridge-based films prior to Technicolor's introduction of the "800." When introducing its machine to educators, promotional materials were certain to sell the pedagogical promise of endless-loop films:

'Only' 4 ½ minutes? Technicolor answers it's better that way because it eliminates running 15 minutes or more of film to find the short section you really want to use. This feature may commend itself to classroom use also for its greater flexibility in illustrating a specific part of a lesson. The film's immediate readiness for a second run may well

holes were smaller, devoting a larger portion of the frame to the image, resulting in sharper resolution.

⁷⁷³ Wasser, *Veni, Vidi, Video*, 71.

encourage repetition for emphasis. The 4 ½ minute film run may well prove a better teaching device for many purposes than a longer picture rushed through to fit a time schedule.⁷⁷⁴

Shortly after its introduction, experiments by teachers took up some of these theories of the utility of the cartridge's affordances, resulting in the "single concept" film, a testament to educators' ongoing strategies to adapt available technologies (in this case, loop films) to classroom goals.⁷⁷⁵ As a pedagogical approach to audiovisuals, single concept became synonymous with flexible, precise, and targeted media use—concepts promoted clearly in the above copy from *Educational Screen's* annual Audiovisual Guide. In contrast to conventional 16mm educational films that covered multiple facets of a broad topic (the planets in the solar system), films created for endless-loop projectors contained a single lesson (Saturn), and could often be arranged in series (each planet, the sun, and the moon would be 11 separate films in 1965). Single concept films' claims to flexibility came in part from their technological dimensions. Films' short duration and the quick set up of cartridge projectors made single concepts easy to integrate into larger lesson plans. Furthermore, early on, and even after Super 8 made sound cartridges possible, single concept films were often silent, "freeing" teachers to provide commentary suited to their needs or "personality."⁷⁷⁶ The limited scope of each film's content provided further flexibility to those who wanted to integrate audiovisual demonstrations or explanations into learning environments.

Likewise, such narrow topics increased the precision and utility of the information conveyed to audiences, at least according to practitioners. Charles "Cap" Palmer of Parthenon

⁷⁷⁴ "Technicolor's 'Instant 8'" *Educational Screen and Audiovisual Guide* (April, 1962): 223.

⁷⁷⁵ Curtis E. Avery, "Eights, Sixteens, and Satellites," *The Family Life Coordinator* 14, no. 3 (1965): 123.

⁷⁷⁶ R. C. Rowland Clark, "8mm Loop Films—As a British Publisher Sees Them," *Journal of the University Film Producers Association* 17, no. 2 (1965): 16.

Pictures suggests traditional 16mm films covering complex topics leave viewers with only a residual “general impression” of the film’s message. Single concept films, however, enjoin viewers to “understand and memorize” more concrete and compact lessons. Rather than leave audiences with an impression, single concept films provide audiences with a “load of hard material” to add to their “mental stock.”⁷⁷⁷ As such, single concept called for a “new grammar” of filmmaking that created films comprised only of essential information and avoiding content (e.g., stylized exposition) “that repetitive viewing may make annoyingly uninteresting.”⁷⁷⁸

A corollary to the increased precision single concept films promised educators and trainers in delivering specialized content to audiences is the degree to which these cassette-based films were positioned as a flexible exhibition technology capable of targeting highly-specific audiences. Although single concept films could be shown to medium-sized groups in classrooms and darkened boardrooms (the small gauge of the film prohibited screenings to larger audiences), it was also heavily promoted as a medium of individualized use and instruction. On the one hand, films that were first shown to an entire class could be repeated independently by any student needing review. This arrangement was celebrated as a means to “free the teacher” from the “burden” of “too much repetitive demonstration”—as well as to free them to accomplish other work while films “repeat, and repeat again” for their neediest students.⁷⁷⁹ On the other hand, some single concept films, particularly those attempting to teach manual skills, were designed primarily for individualized instruction so that users could follow along with the film as they

⁷⁷⁷ Charles “Cap” Palmer, “Single Concept Comes of Age,” *Business Screen* 32, no. 3 (1971): 27.

⁷⁷⁸ L. B. Happé, “The Silent Single concept Film” *Journal of the University Film Producers Association* 17, no. 2 (1965): 4; John P. Vergis, “Home-Made Films at Arizona State University” *Journal of the University Film Producers Association* 17, no. 2 (1965): 26.

⁷⁷⁹ L. B. Happé, “The Silent Single concept Film,” 7; Frank L. Moore, “Visual Cues for an Aural Art” *Music Educators Journal* 57, no. 5 (1971): 58.

tried to accomplish the task demonstrated by the film. A series of films explaining proper violin technique, for example, demanded students watch with bow in hand, ready to play along when instructed.⁷⁸⁰ In both instances, the supposed ease-of-use of cassettes (“no reels, no sprockets, no threading, no rewinding, no oiling, no cleaning”) for even the least skilled layperson (a child) became central to claims of their flexibility for varied audiences.⁷⁸¹

Another pedagogical approach using endless-loop films, the “satellite film idea,” attested to the perceived value of these qualities of flexibility, precision, and targeted audiences articulated to the “single concept” film. Developed by Curtis Avery and the E. C. Brown Trust Foundation, the satellite film concept used a mix of 16mm and 8mm films for a modular and extensible approach to teaching sex education to diverse audiences within schools and the community. Each set of films included a “standard” length “base” film (their examples were eight to ten minutes) in 16mm or 8mm that included “built-in launching pads”—points in the base film that could be expanded through the use of 8mm single concept films (the satellites that orbited the base film; this was, after all, the era of the Space Race).⁷⁸² As a sort of analog “hyperlink” system—again indicating the role television played as a ground for experimenting with what we now consider computer functionality—this approach intensified the flexibility of the single concept system in a number of ways. In terms of production, it allowed for “locally” produced 8mm satellites to extend commercial 16mm base films, and since “launching pads” were ideally camouflaged, many could be added to each base film even if only a few were to be used immediately by satellite films—the rest could offer space for future expansion.⁷⁸³ This

⁷⁸⁰ Moore, “Visual Cues for and Aural Art,” 59.

⁷⁸¹ “Technicolor’s ‘Instant 8,’” 223; L. B. Happé, “The Silent Single-Concept Film,” 3.

⁷⁸² Avery, “Eights, Sixteens, and Satellites,” 127-128.

⁷⁸³ Running throughout discussions of single concept films is the anticipation that teachers would themselves create classroom films for teaching purposes. See, for example, “Technicolor’s

system also partially protected the film's producers and users from future technological shifts in printing and distribution formats (key in a period of increasing non-standardization), since later satellites could be made with whatever small-gauge cassettes won the "film cartridge" format wars. Furthermore, proponents of the satellite film concept argued that by stripping down the content of the base film to general information and allowing users to customize their teaching with orbiting films, producers could maximize the appeal of their films to the widest number of users.⁷⁸⁴ Such a strategy was key to the satellite film, which imagined three targeted audiences: teachers in the classroom, students working on solo self-instruction, and parents who wanted to review or preview information with their children at home. The flexible logic of the satellite film and its wider audience may have been in part due to the nature of the E. C. Brown Trust Foundation, a non-profit affiliated with the University of Oregon that sponsored sex education initiatives. Its pilot satellite project concerned a set of films explaining human reproduction. Given the different rates at which children develop, the Trust imagined that satellite films could be used by parents when they felt their children needed them—whether or not their needs matched up with the lesson plans of their grade level—essentially customizing the audiovisual curriculum to the biological and social needs of each child.⁷⁸⁵ While it is unclear to what extent the "satellite film idea" became a significant mode of film production and use, it showcases how practitioners imagined the possibilities of cassettes as a hyper-flexible teaching tool. Examining how a subset of endless-loop 8mm cartridges became known as "single concept" or "satellite"

'Instant 8,'" 223, and the below discussion of "locally produced" satellite films. Evidence suggests "single concept" film production may have made inroads into higher education curricula, as demonstrated by one workshop held for audiovisual graduate students soon after the introduction of Technicolor's cartridge projector. Vergis, "Home-Made Films at Arizona State University," 22-26.

⁷⁸⁴ Ibid., 128.

⁷⁸⁵ Ibid., 125; Curtis E. Avery, "Some Thoughts on the Fourth 'R,'" *The Family Life Coordinator* 15, no. 2 (1966): 37.

films through the steady build-up of pedagogical experiments and the development of theories of audiovisual instruction reveals how the technological affordances of cassettes created by manufacturers became meaningful through the work of intermediaries in institutional sectors.

Industry borrowed—sometimes explicitly—several of these understandings of endless-loop film for the purposes of employee training and selling.⁷⁸⁶ In at least one instance, these overlaps became overt when single concept films became fodder for a “corporate citizenship” campaign that took place in high school classrooms. “Schooled in Safety,” a drivers’ education program sponsored by American Oil Company included eight cartridge films and ancillary material geared towards “young motorists and potential future customers.”⁷⁸⁷ As a “special supplement” to a national driver education curricula developed by the National Commission on Safety Education, the program built on the notions of teaching flexibility embedded in single concept; each of the films covered one topic—from dealing with emergencies to driving at night—that could be used to illustrate concepts in the main text if the teacher so chose. The primary appeal of cartridge technology for American Oil Company, however, may have been its associations with targeted audiences. Teenagers—as future customers and employees—had long been a desirable target for American Oil, and the company identified high schools as the only location to reach them.⁷⁸⁸ The company estimates that as of 1967, when 1,050 sets of “Schooled in Safety” circulated to drivers’ education classes, over 200,000 students watched their films every year. 150 additional sets circulated for other specialized screenings in court systems, at service clubs, and through individual American Oil dealers.⁷⁸⁹ While the example of “Schooled

⁷⁸⁶ Samuel C. Gale, “Super 8mm Today,” *Business Screen* 28, no. 8 (1967): 14.

⁷⁸⁷ R. L. Uttley, “American Oil Films Encourage Driver Safety; Build Company’s Image Among Teen-Agers,” *Business Screen* 28, no. 1 (1967): 122.

⁷⁸⁸ *Ibid.*

⁷⁸⁹ *Ibid.*, 201.

in Safety” indicates how industry directly intervened in ongoing educational experiments with single concept films—thus testifying to the persistent overlaps between educational and industrial media sectors—industrial users more often adapted the cassettes’ promises of flexibility, precision, and targeting to corporate desires of managing *internal* relationships between and among company employees, clients, and the company itself.

Small Gauge Cartridges in Business and Industry

Endless-loop cassettes found use in a variety of industrial settings. Chrysler sent its dealers cartridge sets for customer screenings of product information (introductions to new models, comparisons with other companies’ products) and for internal use (training in sales and service).⁷⁹⁰ Servis, an agricultural equipment manufacturer based in Dallas, provided its internationally distributed dealers with portable Technicolor Instant Movie Projectors and farm machinery loops that took the place of expensive and logistically difficult equipment demonstrations.⁷⁹¹ The company also reports using several rear-projection units simultaneously in their farm and trade show booths to drum up interested audiences. Rear-projection devices were also popular for point-of-purchase displays, aids to traveling salesmen, and on-the-job training. In each of these instances, industrial users adapted the technology that had been developed by educators to their specific needs.

Flexibility—and the efficiency it promised—remained central to industry’s use of single concept cassette technology, though the focus of flexibility in business and industry centered more squarely on temporal management.⁷⁹² While proponents of the single concept film for

⁷⁹⁰ “Chrysler/Plymouth-Dodge Dealers Switch to Super 8,” *Business Screen* 33, no. 4 (1972): 10.

⁷⁹¹ “Servis Demonstrates with Film,” *Business Screen* 30, no. 4 (1969): 191.

⁷⁹² “Flexibility” and “adaptability” operate as key terms threaded through trade discussions of equipment. “Technicolor’s ‘Instant 8,’” 223; Ott Coelin, “Sight & Sound at the Crossroad,”

business emphasize the ease of integration into existing training courses—just as educational filmmakers assured teachers of the flexibility of single concept or satellite films for their lesson plans—cassettes were also cast as an opportunity to revolutionize employee education strategies. Due to their short length and the relative ease of use of cartridge projectors, any employee without knowledge of projection techniques could ostensibly screen a film anywhere at any time. “Cap” Palmer, founder of Parthenon Pictures, a studio catering to corporate clients, even argued that the short length of single concept film was the pinnacle of proper audiovisual technique. He believed (or at least wrote) that teaching works best in small increments that give students time to “assimilate,” and attributed the length of most training films (20 or 30 minutes) to the “cost and clutter” of 16mm projection:

To show a 16mm movie, the sales manager has had to locate a projector, find someone who knows how to thread and operate it, reserve a room he can darken, and make miscellaneous other preparations. Having gone to all this trouble, he can’t show just two or three minutes of film to one waitress or mechanic or office worker, he has to make the effort worthwhile.⁷⁹³

Cartridges allow instead for the easy integration of screening (of precise blocks of essential “gut content”) into the rhythms of the workday.⁷⁹⁴ There is no need to put an entire office or shop floor off their work; instead, any individual needing training on a specific task can screen for themselves a “pamphlet-sized lesson” (as many times as they need, of course). Touching on a thread running throughout predictions of the utility of small-sized projectors within and outside of the industrial and educational sectors was the notion that the home could also be turned into an exhibition space—in this instance, for the benefit of the company. Proposed “Home Study” courses—replete with projectors, cartridges, and other texts for training after the workday—

Business Screen 28, no. 4 (1967): 4; “The Perfect Audio Visual System” *Business Screen* 33, no. 4 (1972): 41.

⁷⁹³ Palmer, “Single Concept Comes of Age,” 27.

⁷⁹⁴ *Ibid.*, 26.

became a way of asking employees to take responsibility for their own skilling.⁷⁹⁵ Single concept, as a technology of temporal flexibility and independent learning, thus promised business a highly efficient method to 1) train workers without losing productive hours and 2) better homogenize the skills of a diverse employee base.

In addition to teaching workers, single concept became a tool in the mission of “consumer education,” where the temporal flexibility of cartridge exhibition and notions of content precision were translated into methods of managing, i.e., not wasting, “customers’ time.”⁷⁹⁶ Put another way, shorter films maximized the salesman’s opportunity for valuable interaction with their target. In a promotional report on updates to its instant projector systems, Technicolor suggested that the endless-loop function was designed in part to accommodate salesmen who couldn’t “afford” the time to rewind a film upon its conclusion, when they (or a teacher, for that matter) needed to make a final point to drive the meaning of the film home to its audience.⁷⁹⁷ The repetitive capabilities of the endless-loop cartridge thus became articulated to the imagined rhythms of business. One Massachusetts-based company, Cabot Corporation, even attributed increased sales of Cab-o-Sil, a fumed silica product designed for wide industrial application, to the speedup in selling enabled by their use of Technicolor “1000” projectors.⁷⁹⁸

⁷⁹⁵ Ibid., 27. Here we might also think of these shifts of responsibility as a form of “work transfer.” Nonay Y. Glazer uses the term primarily to refer to the phenomenon in which tasks traditionally undertaken by paid workers is transferred to the home (and women) as part of increasing domestic responsibility, e.g., basic nursing care or “self service” shopping (6). While the gendered dimensions might not be exactly the same—it is often men who must take up the duty of self-training—both phenomena trouble boundaries between labor and leisure and the workplace and the domestic private sphere, all in the service of meeting the needs of industry (205). See Nonay Y. Glazer, *Women’s Paid and Unpaid Labor: The Work Transfer in Health Care and Retailing* (Philadelphia: Temple University Press, 1993).

⁷⁹⁶ “Training, Selling with Single Concept Loops,” *Business Screen* 30, no. 6 (1969): 18.

⁷⁹⁷ “Technicolor: Sound Plus Super 8” *Business Screen* 28, no. 2 (1967): 67.

⁷⁹⁸ Completed about six years after Technicolor introduced the original Instant Movie Projector, the “1000” model updated the “800” by switching out silent 8mm film for Super 8 stock that

Cabot believed the complexity of a new product like Cab-o-Sil required extensive “consumer education,” but found its initial methods (a four hour seminar for 100 chemists and a 25-minute 16mm film for medium-sized groups) difficult and inefficient due to the need for “elaborate planning” before each presentation.⁷⁹⁹ In the company’s promotion of its successful switch to Super 8, it claimed that cartridge projectors enabled them to shrink the preparation period for sales screenings from days and weeks to no time at all. According to Cabot, such “instant meetings,” which took advantage of cartridge films’ flexibility, not only allowed them greater control over the pacing of sales by allowing them to set up customer calls wherever and whenever, it also helped them reinforce their image as an “aggressive, modern, and well organized” company—no doubt the same impression Cabot hoped to leave with the readers of *Business Screen*, where its effusive praise for cartridge technology appeared. The same flexibility that ostensibly allowed teachers greater autonomy in incorporating audiovisual media into their lesson plans becomes, in the industrial sector, a means to better sublimate the use of media—for selling or skilling—to the temporal structures of the fiscal calendar or the workday (even when that means substituting “home study” for on-the-job training). This is a flexibility that is, above all, profitable.

Wound up in the appeal of cartridges’ flexibility were the same promises of perfectly targeted audiences prevalent in the context of audiovisual education. Industry was similarly interested in cartridge projectors’ ability to screen films for both groups and individuals. An advertisement for the Fairchild Cinephonic Sound Movie Projector, for example, boasts, “You simply pick it up and go...to

used optical sound. A redesigned cartridge also allowed for up to 30 minutes of playtime. On Technicolor’s transition from 8mm to Super 8, see “Technicolor: Sound Plus Super 8,” 67.

⁷⁹⁹ ““Instant Meetings’ Speed Sales, Customer Education,” *Business Screen* 30, no. 7 (1969): 20.

the right prospects in the right place. Show your story to one viewer, a dozen or a hundred at a time.”⁸⁰⁰

Despite the gesture to traditionally large audiences, individuals and small groups proved central to promotional discussions of cartridges’ capabilities; even in the case of the Cinephonic, only one of the five pictures accompanying the advertisement featured more than a single audience member, and even then only four men appeared, including the man operating the machine. A later advertisement for Fairchild’s Mark IV and V featured similarly small, situated audiences in nine vignettes that illustrated various uses for the projector in the overlapping domains of education, industry, and government; rear projection machines graced a variety of desks, trade show displays, shop floors, military briefing rooms, and even a medical examination room.⁸⁰¹ Unlike educational single concepts, which positioned the loop mechanism as a means for a given student to rewatch material until he or she mastered the material, the repetition built into corporate single concept loops served a desire to give a repeat performance for as many different viewers as possible, incrementally building a voluminous audience. Recalling discussions of single concept pedagogical beliefs that recognized the location a student needed a skill as the best place to teach it, business audiovisuals emphasized the importance of situated audiences. Screening films to customers where they bought (whether at point-of-purchase store displays or on the desks where they completed purchase orders) and training employees on site (“bring[ing] the training to the trainee”) became important facets of precise audience targeting.⁸⁰² While these training logics built on educational practices of situated learning, use of cartridge projectors for merchandising and in-person

⁸⁰⁰ “This is a Best Seller,” *Business Screen* 28, no. 5 (1962): 3.

⁸⁰¹ “Meeting of the Minds,” *Business Screen* 28, no. 3 (1962): 32-34.

⁸⁰² Palmer, “Single Concept Comes of Age,” 27. Here again, we might consider Anna McCarthy’s work on point-of-purchase television in retail spaces and how such uses were designed to act on the viewer in precise, spatially-motivated ways: “video on the sales floor must intervene in the space and time of the shopping trip, increase out interaction with merchandise, and generally make customers’ time in the store more ‘productive’ (i.e., produce more purchases).” Anna McCarthy, *Ambient Television: Visual Culture and Public Space* (Durham: Duke University Press, 2001): 156.

demonstration tied into longstanding beliefs about the impact of place and proximity on the effectiveness of sales.

There was, of course, strategic benefit for manufacturers of cartridge projectors and suppliers of cartridge films in promoting the value of highly individualized audiovisual programming. In an article designed to rally his fellow audiovisual men in the face of difficult and unpredictable markets for industrial media, Cap Palmer extols the virtues of cartridge projectors on the basis of their individualized users. Referring to individuals as the “ultimate big market,” he explains simply, “God made a lot more of them than group audiences.”⁸⁰³ Though cartridges may have appealed to businesses’ beliefs in the power of audiovisuals shown in key locations, manufacturers and film producers who generated much of the discussion about their possible use had a stake in promoting the highly individualized and situated medium. Positioning the individual rather than the sponsoring firm as their key user may have been part of a strategy to open up something closer to a “mass” audience within the limited scope of the industrial sector.⁸⁰⁴ Such a position also responds to more skeptical voices within the industrial sector that tied concerns over increasing corporate conglomeration leading to fewer “*real prospects*” to the risky development of new cartridge technologies without extensive market research of the needs of those prospects.⁸⁰⁵ Given the perennial difficulties plaguing the business audiovisual sector, it should be unsurprising that new media became a contested ground for positing the future of the industry. While this section has so far traced how educators and industrial outfits adapted

⁸⁰³ Charles “Cap” Palmer, “We Gotta Stop Pitching to Second Base.” *Business Screen* 34, no. 5 (1973): 29-31, 48.

⁸⁰⁴ Referring to the 8mm cartridge as the “paperback of audiovisual communication” performs a similar maneuver by using the cassettes’ size to align it with the popular mass media form. Robinson P. Rigg, “Has Design Initiative Passed from U.S. to Europe” *Business Screen* 27, no. 7 (1969): 14.

⁸⁰⁵ Ott Coelin, “Build Audiovisual Projection Sales Match the Markets to the Media to” [sic] *Business Screen* 30, no. 7 (1969): 16.

cartridges to both existing and newly pioneered pedagogical and business practices, such as “single concept” teaching and location-based training, we can also examine how—as in the example above—different parties within the industrial sector discursively positioned cartridges in larger debates over the ideal form and function of mediated corporate communication.

Cartridges for Corporate Communication

The twin terms at the heart of prognostications over the capabilities of cartridges for business are two concepts familiar to historical studies of communication technologies: expansion and efficiency. In this context, the notions of flexibility, precision, and targeted audiences that educators articulated to single concept films become coupled to capitalist industrial needs for constantly growing markets. Though I have already addressed the emphasis placed on cartridge projectors’ ability to navigate space and the importance placed on situated audiences, in the pages of audiovisual trade journals these capabilities are embedded within discourses of limitless spatial and geographic expansion. Discussions of cartridges indicate desires for communication that renders the world—customers, clients, co-workers, and employees—perfectly and permanently accessible. In this respect, early talk concerning cartridges’ colonizing capabilities can be understood as a continuation and intensification of the reception of electronic communication technologies such as the telegraph that placed the greatest emphasis on technology’s power to shrink space and time. On the most mundane level, projectors’ portability was a key point of emphasis in any advertisement, which tended to list not the size of the cartridge, but the weight of the machine (and whether it could fit nicely in a briefcase).⁸⁰⁶ This often appeared alongside a litany of locations that assured possible customers that cartridges could reach “exactly the right spots, from cafeteria to locker room to foreman’s

⁸⁰⁶ “Technicolor: Sound Plus Super 8,” 67; “This is a Best Seller,” 3; “Technicolor’s 8mm ‘Instant.’ Projector, 61; “The Perfect Audio Visual System,” 41.

cubicle to prospect's desk to machine-side.”⁸⁰⁷ Likewise, the durability of projectors and cassettes—insofar as they could withstand frequent or distant transport—was commonly invoked as a testament to their total portability. These machines were purportedly sturdy enough to “withstand rough riding in the trunk of a salesman's car” and “cop[e] with today's increasingly rugged shipping conditions.”⁸⁰⁸ These visions link cartridges with portability by aligning them with major forms of transportation. In this land-and-sea pairing, cartridges cover space on two distinct scales: the daily highly-targeted weaving and winding of the traveling salesman and the potentially less precise, but nonetheless globe-crossing leaps of a shipping vessel. In both cases, the technological build of cassettes makes them a “go-anywhere” technology.

The latter depiction of the cassette as a technology that might cross national borders coincides with representations of the machine as a device of international trade. In the same advertisement promoting their repeater's ability to withstand cargo holds, MPO claims it made adjustments to the device's cooling system for their clients who showed films “in the tropics.”⁸⁰⁹ Like many other technology advertisements in the period, MPO's also used outer space imagery—a satellite—to draw associations with high technological achievement and, in the context of the ad's copy, to suggest the machine's ability to cross even the final frontier. Less ambitious discussions of cassettes set their sights at still-distant territories on earth's surface, e.g., Europe and the “foreign office.” Editorials and advertisements discussed the prevalence of silent endless-loop films and extolled the ease of overdubbing onto new audio tracks, reinforcing the physically portability of the projector with notions of the linguistic flexibility of its

⁸⁰⁷ Palmer, “We Gotta Stop Pitching to Second Base,” 31.

⁸⁰⁸ ““Instant Meetings’ Speed Sales, Customer Education, 20.; “The Survival of the Fittest,” *Business Screen* 30, no. 7 (1969): 19.

⁸⁰⁹ “The Survival of the Fittest,” 19.

content.⁸¹⁰ Optisonics' Mastermatic endless-loop 35mm filmstrip projector—something of a sibling to 8mm motion picture machines—realizes this promise to an even greater degree through the use of two separate cartridges, one for the image track and one for the sound track that users can switch out “in a wink.”⁸¹¹ Billed as a “multilinguist,” the Mastermatic's duel cartridge system was advertised as a technological strategy for reaching both foreign and highly local audiences; while the device promised easy communication with foreign language speakers, the advertisement was just as invested in the possibility of creating tracks for local personnel using “their buzzwords.” The modularity afforded by exchangeable cassettes catered to ideals of fully extensible corporate communication that reached from the most local level to the global. Ott Coelin, in one of his editorials for *Business Screen*, touched even more explicitly on the possible role of cartridge machines—and, by extension, American corporate communication—in global trade.⁸¹² Locating a great need for skilled workers “in under-developed lands of Africa, the Near and Far East,” Coelin imagines the possibility of a second Marshall Plan comprised of “simpler, less costly, and highly effective” cartridge projectors and single concept films to teach foreign office, service, and sales workers. Underpinning these international aid efforts is a “wisely-selfish purpose;” for, he argues, “trade follows basic training.” Noting “over a generous quarter of U.S. business economy [is] dependent on overseas sales,” Coelin situates cartridges as a key tool in sustaining and stimulating this international economy. Though his prognostications were far more ambitious than any activity to come out of the industrial audiovisual sector in the late 1960s and 1970s, they touched on a current of interest in cassettes as a potential key player

⁸¹⁰ O. H. Coelin, “A-V for Trade & Training” *Business Screen* 26, no. 9 (1968): 10; ““Instant Meetings’ Speed Sales, Customer Education,” 20.

⁸¹¹ “I Talked for Two Hours But They Still didn’t Understand,” *Business Screen* 33, no. 2 (1972): 47.

⁸¹² Coelin, “A-V for Trade & Training,” 10.

in an ongoing and uneven process of international economic development and overdevelopment that would eventually be recognized in the popular imagination as globalization.

Efficiency, expansion's counterpart, likewise ran through discussions of the cassette's value to corporate communications. As mentioned above, the short length of cartridge films was sold as a long-awaited solution to films that (allegedly) bore a 20-minute run-time for no other reason than to make the disruption to the audiences' workday "worthwhile." Given the precision of cartridge films' message and opportunities for repetition, so the pitch goes, "*total instruction*"—without losing any details to overly-long exposition or stylistic excess—could be "embedded in [trainees'] functional knowledge inventory."⁸¹³ In this version of the cassette story, the technology offers shorter and surer instruction tailored to the tempo (and locations) of work. Cassettes were even attributed with the ability to speed up the pace of work—as mentioned above in the example of Cab-o-Sil's "instant meetings." Considered in conjunction with discussions of cartridges' ability to better facilitate communication at a distance—whether with foreign clients and colleagues or locals "speaking their own language"—the power of cassettes lay in promises of increased efficiency: greater logistical and organizational control using fewer resources.

Discourses concerning the efficiency of cassettes—like those surrounding CCTV—reached their apogee in claims positing the projector as a replacement worker. This is hardly unusual as a means of talking about the promise of new technologies; for only the most recent example, we could look to debates over Massive Open Online Courses and their perceived threat

⁸¹³ Palmer, "Single Concept Comes of Age," 27.

to the livelihood of university instructors.⁸¹⁴ In the world of cassettes, salesmen and employee trainers were both in danger. One advertisement, for example, positioned its cassette project as a “sales assistant,” an ambiguous title that cleverly muddies the distinction between an instrument and a worker.⁸¹⁵ In another story, a Servis dealer resolves this ambiguity by proclaiming his Technicolor repeater “the most productive and least expensive salesman in his organization.”⁸¹⁶ Projectors and cassettes could even replace entire departments; drawing on the association of “single concept” with “independent” learning, Palmer suggests that using cartridges can replace teachers and training courses altogether.⁸¹⁷ While constructing cassettes as efficient and cheap technological replacements for expensive human labor suits the men invested in pitching their projection products to potential buyers, underlying these efficiency discourses is the implication that workers are little more than vessels for corporate communication. Salesmen and trainers become hollow middlemen in the proliferation of the company message rather than autonomous, skilled workers. The image of the replacement machine can be understood as part of a constellation of corporate fantasies concerning limitless expansion and growth through the development of communication efficiencies.

⁸¹⁴ Steve Kolovich, Why Professors at San Jose State Won’t Use a Harvard Professor’s MOOC, *Chronicle of Higher Education* May 2, 2013, <http://chronicle.com.ezproxy.library.wisc.edu/article/Why-Professors-at-San-Jose/138941/>

⁸¹⁵ “This is a Best Seller,” 3.

⁸¹⁶ “Servis Demonstrates with Film,” 191.

⁸¹⁷ Palmer, “Single Concept Comes of Age,” 27. Of course, what he really means is that self-directed instruction could be a means of requiring every worker, no matter their specialty, to take on the additional tasks that would fall to an employee training and development department. As such, this suggestion coincides with the long history of employer “speedup” and contemporary trends of reducing staff and redistributing jobs to remaining employees. See, for example, Monika Bauerlein and Clara Jeffery, “All Work and No Pay: The Great Speedup” *Mother Jones* July/August (2011), accessed January 8, 2014. <http://www.motherjones.com/politics/2011/06/speed-up-american-workers-long-hours?page=1>

Accompanying these discourses of expansion and efficiency was another based less on the value of cassettes and projectors to companies and more on what machines could offer specific grades of individual workers. Charles Acland's history of the "subliminal thesis" details the extent to which "information overload"—as it was articulated to new electronic media, scientific questions about the limits of human perception and consciousness, and growing interest in urban and informational infrastructures—became a popular frame for understanding changes occurring in the 1960s.⁸¹⁸ The period saw the rise of concerns over "media clutter," increasing quantities of information—not the least of which were advertisements—delivered to the public ever faster from more sources (television, radio, print, experimental new technologies) than ever before.⁸¹⁹ As Acland points out, the solution identified by those concerned with the ill effects of media over-saturation was more than a little ironic; to manage the onslaught of information brought on by the proliferation of technologies, critics and information professionals locked on technologies as a beacon of hope. In some cases, the very same equipment that raised fears over the subliminal control of unwitting audiences became a mechanism for strategic media consumption within the context of highly individualized education programs.⁸²⁰

Cassettes and their projectors are not among the technologies Acland ascribes to these efforts to combat information overload; however, trade materials within the industrial film sector reveal a similar preoccupation with media clutter as well as its treatment through technologies.⁸²¹ Cap Palmer's criticism of the "clutter" of 20-minute 16mm films, for example, inveighs against

⁸¹⁸ Charles Acland, *Swift Viewing: The Popular Life of Subliminal Influence*, Durham: Duke University Press, 2012: 155-56.

⁸¹⁹ *Ibid.*, 233-234.

⁸²⁰ *Ibid.*, 191.

⁸²¹ Acland does mention the proliferation of "teaching machines," push-button operated devices that held lessons for individual learners. What relation these might have to single concept films is unclear. *Ibid.*, 177.

the volume of information presented in industrial films. Criticizing the length of these films for leaving only a “general impression” on an audience incapable of fully processing so much information at once, Palmer suggests such strategies of industrial education jam a “semester” of learning into a single sitting.⁸²² His solution is, of course, the single concept cartridge: “Lessons must be presented one at a time in doses small enough for the recipient to assimilate.”⁸²³ In this formulation of the “media clutter” problem-solution pairing, the precision of cassettes allows users to precisely target the information they need without being confused or distracted by mounds of mediated, though irrelevant, information. B. Y. Auger, General Manager for 3M Company, a major audiovisual equipment manufacturer and a key player in the development of videotape, echoed this sentiment in a larger claim about the future state of communications: “information is useless unless it is effectively communicated. And it is becoming apparent to more and more people that audiovisual devices are almost essential to communicate more pertinent information more effectively.”⁸²⁴ Another perspective that saw home study and corporate communication in direct competition with TV, magazines, newspapers, and “everything that vies for [employees’] attention” positioned Super 8 cartridges as an additional means to ensure the presence and saliency of the corporate message.⁸²⁵ Likewise, Samuel Gale of Capital Film Laboratories suggested that new tools were needed to augment the limited abilities of managers to *read* all of the information needed “to keep pace in today’s exploding

⁸²² Palmer, “Single Concept Comes of Age,” 27.

⁸²³ Ibid.

⁸²⁴ B. Y. Auger, “A Great Need for Versatile Equipment, New Concepts,” *Business Screen* 30, no. 7 (1969): 40.

⁸²⁵ G. Carleton Hunt, “The Impact of Visual Communications on Industry” *Business Screen* (67 or 68 probably): 26. Hunt served as the President of the SMPTE and the article published in *Business Screen* was taken from his address to the 26th Annual SMPTE conference (1967).

technological world.”⁸²⁶ Insiders in nontheatrical film studios and the audiovisual equipment industry like Palmer, Auger, and Gale positioned their extensive experimentation in the production of new “more flexible, more versatile” audiovisual devices and practices as an important strategy in the effort to help clients manage the “information explosion.”⁸²⁷ Users likewise seized on cassettes as a means to “keep pace” with technological innovations in non-communication fields. According to George Adsitt, who served as Marketing Vice President of Wisconsin-based paint company Bestt Rollr, Inc., technologies of painting developed so quickly that salesmen bore “a heavy burden” in keeping up with the latest paint application methods. An article explaining how the a Technicolor projector came to his aid expressed the kinds of frustration workers may have felt over their growing responsibility to master large amounts of new information; “Once, paint was paint and you applied it with a brush. Today’s paint products are legion.”⁸²⁸ Recalling Acland’s discussion of educational-sector technologies, cassettes—particularly in the context of the single concept film—were enlisted in the battle against information overload. Positioned as tools for screening and selectively consuming information, cassettes became a mechanism for improving communication as well as a means of sustaining product and performance knowledge that workers needed to succeed in shifting manufacturing and employment markets by enabling them to make more efficient use of the information at hand.

Lacking Standards

What might be missed in these enthusiastic endorsements of cartridges as weapons in the war against the proliferation of meaningless or inutile information is the extent to which

⁸²⁶ Samuel C. Gale “Super 8mm Today,” *Business Screen* 28, no. 8 (1967): 14.

⁸²⁷ Ibid.

⁸²⁸ “Training, Selling, with Single Concept Loops,” 18.

companies producing cartridge technologies were engaged in developing a dizzying array of new technologies—cartridges among them—spurred on by an infusion of government money into audiovisual education through the Defense of Education Act of 1958.⁸²⁹ The cartridge-load filmstrip, a close companion to Super 8 motion picture cassettes, testifies to this somewhat chaotic activity: 38 different machines, with nine different mechanisms for synching sound and image, and four different cartridge formats—only one of which was compatible with more than one machine—graced the market in 1970 alone.⁸³⁰ As a result, despite all of the predictions of 8mm cartridges’ ability to perfect corporate communications, the tone of those outside of the manufacturers’ circle was often tentative and skeptical. While one key issue was a lack of high-quality software to play in cartridge machines, an even greater concern was the lack of standardization between cartridges.⁸³¹ Foreshadowing the extensive competition between manufacturers of videotape cassettes and electronic discs, the producers of cartridge projection systems all created their own specifications for the technology. Even after Eastman Kodak introduced Super 8 film in 1965, and the format became “well standardized” by 1970, cartridges remained incompatible across machines.⁸³²

⁸²⁹ As a response to the successful Soviet launch of Sputnik, the bill devoted large sums to researching curricula and effective teaching, especially in areas with national defense implications, such as math and science. Part of the act, Title VII, addressed “New Educational Media,” and sought to better integrate radio, television, film, and other media into education. The bill also provided almost \$300 million to schools for modernization and the purchase of equipment, including audiovisual technologies. See Acland, *Learning with the Lights Off*, 180-188.

⁸³⁰ Robert L. Shoemaker, “The Filmstrip Future,” *Business Screen* 31, no. 6 (1970): 33-34.

⁸³¹ Ott Coelin, “Sight and Sound at the Crossroad,” *Business Screen* 28, no. 4 (1967): 4.

⁸³² Roland J. Zavada, “The Standardization of Super 8,” *Journal of the University Film Association* 22, no. 2 (1970): 40. Zavada, who was the Chairman of the Committee on 16 and 8mm of the Society of Motion Picture and Television Engineers (SMPTE) based his claims on SMPTE’s approval of standards and their anticipated of the adoption of previously drafted standards.

Up for debate were several key features. First and most divisive was their sound system. In a move that separated them from most other manufacturers of 8mm cartridges, Technicolor pushed for optical sound. Their reason—as communicated to the readers of *Business Screen*—was that their decision to pursue the professional/industrial market meant they needed to choose the most economical method of sound reproduction; industrial clients, unlike amateur consumers, needed to buy prints in bulk.⁸³³ Eastman Kodak spearheaded the drive for magnetic sound; the latter was widely recognized to provide higher quality sound in exchange for its more expensive price tag.⁸³⁴ Despite the fragility of magnetic sound—essentially a thin strip of magnetic coating on the very edge or edges of the film—a majority of cassettes employed this option. Yet another issue in non-standardization was picture-to-sound separation—the distance between an image frame and the corresponding section of sound on the magnetic track. At least four different picture-to-sound separations coexisted in 1970. (Fairchild alone supplied equipment with two distinct separations due to a switch from a minus-28 separation to the plus-18 separation championed by Kodak.)⁸³⁵ Other differences separating cartridge films were cassettes’ size and configuration, e.g., endless loop vs. reel-rewind. Given the variety of features a given machine might have under these conditions of non-standardization, charts comparing different makes and models proliferated in articles meant to guide consumers through the maze of options.⁸³⁶ Even if the single concept film had the promise to cut through media clutter, it

⁸³³ “Technicolor: Sound Plus Super 8” *Business Screen* 28, no. 2 (1967): 67.

⁸³⁴ Nat C. Myers, Jr. “The Years 8mm Cartridge Sound Film Came of Age,” *Business Screen* 30, no. 7 (1969): 39-40.

⁸³⁵ Zavada, “The Standardization of Super 8,” 41. “Plus” refers to the sound preceding the image track, while “minus” refers to separations where the sound trails visual frames.

⁸³⁶ Kahlenberg and Aaron, “The Cartridges are Coming,” 10. The same would happen with video systems. See, for example, “Comparative Analysis of Video Cartridge Systems” *Business Screen* 32, no. 2 (1971): 26.

brought considerable clutter of its own. By 1970, as many as ten different non-compatible cartridges for Super 8 circulated in the industrial and educational equipment sectors.⁸³⁷

It was widely believed that lack of standardization damaged 8mm's standing as a viable format. Leading to "stunted growth," unrealized potential, and wasted money, lack of standards were perceived to hurt most participants within the industrial sector: equipment manufacturers sell fewer products if consumers are worried about choosing the wrong format, film producers experience business losses due to the hesitation of clients unwilling to enter unsure markets, and—according to Ott Coelin—companies lose out on the benefit of audiovisual communications because they continue to wait for a standard to emerge.⁸³⁸ Standardization could further benefit equipment and software consumers by increasing competition among manufacturers and studios linked by their products' compatibility.⁸³⁹ Lack of standardization also complicated the work of the "AV men" whose job it was to manage media communications within their company by pulling focus away from the development of software and media practice.⁸⁴⁰ On the other side of the coin, equipment manufacturers and audiovisual managers anticipated an unprecedented boon for their field once this issue was settled. Nat Myers, of the Fairchild Camera and Equipment Corporation, predicted an "explosive expansion of the 8mm cartridge sound film market" would follow on the heels of standardization...to Super 8, magnetic sound, and plus-18 picture-to-sound separation—Fairchild's current format.⁸⁴¹

⁸³⁷ Ott Coelin, "Who Speaks for the USERS of Media in Setting A-V Equipment Standards," *Business Screen* 31, no. 7 (1970): 14.

⁸³⁸ Gale, "Super 8mm Today," 14; Rigg, "Has Design Initiative Passed from U.S. to Europe," *Business Screen* 29, no. 7 (1969): 15; "A-V Man: Michael J. Ritt," *Business Screen* 35, no. 1 (1974): 25; Coelin, "Who Speaks for the USERS of Media in Setting A-V Equipment Standards," 14.

⁸³⁹ Zavada, "The Standardization of Super 8," 1970.

⁸⁴⁰ "A-V Man: Michael J. Ritt," 25.

⁸⁴¹ Myers, "The Years 8mm Cartridge Sound Film Came of Age," 40.

Standardization of the film cartridge format—only one of many media devices produced by manufacturers and made available to users—was positioned as a major key to the sector’s overall health. Given the economic context of the 1969 recession, it is unsurprising that any perceived barriers to investment in equipment (which in turn impacted the production and purchase of cartridge films) were perceived as a threat to an industry with, as explored in the first chapter, a long history of difficulty building strong infrastructure. Entreating colleagues to rise to action, Coelin warned, “confusion which persists at a time of national economic crisis is going to be extremely costly.”⁸⁴² However, even when noting the potential impact of negative economic conditions, predictions for future growth tended to be sunny (given the right conditions of standardization, of course). Thomas Hope, in a preview of his 1970 report on the market, noted bleak results of the downturn—the folding of labs and studios on the east and west coasts, with “spots of gloom” in the Midwest—but pointed to Super 8 as a bright spot. Though use of the format stalled in 1970 after a precipitous rise in 1969, Hope predicted a gain in 1971—predicated on new models that will “catch on” with customers. Though it is unclear what Hope believes will appeal to customers, he does note the “confusion” that attends potential buyers of non-standardized technologies (Super 8 and videocassettes) that may make it difficult for new equipment to “make a significant splash.”⁸⁴³ The deeper, longer recession brought on by Vietnam War spending and the oil crisis that hit just a few years later allowed for a replay of the same economy-based arguments for standardization—complicated, this time, by the entry of several video players to the market.⁸⁴⁴ Each mention of standards “confusion” in trade journals

⁸⁴² Coelin, “Who Speaks for the USERS of Media in Setting A-V Equipment Standards,” 14.

⁸⁴³ Thomas Hope, “Forecast ’71: A-V Market Improvement,” *Business Screen* 32, no. 1 (1971): 18.

⁸⁴⁴ Reid H Ray, “Wide Acceptance of Technical Standard is Needed,” *Business Screen* 34, no. 4 (1973): 31. Hope even warned that a recession could kill the video player industry before it had

now had a longer list of culprits in tow: “Super 8mm film, cassettes, cartridges, video players, disc players, laser beam electronic scanners, magnetic and optical sound tracks in four different positions” or, for another common grouping: “films, slides, filmstrips, television audio and video tapes, transferred cassettes, cartridges, and [their] endless combination.”⁸⁴⁵ In the context of these conversations, standardization became both the monkey wrench and the silver bullet for the industry in a failing economy. As indicated by these later discussions of video and film, the economy was not the only threat that made audiovisual professionals anxious for a resolution to Super 8 cartridge standard “confusion.”

The first major cartridge competitor to Super 8, Electronic Video Recording (EVR), was announced in the pages of *Business Screen* in 1967.⁸⁴⁶ Featuring a spool of film encoded with an electronic video signal, the EVR’s 7-inch cartridges could play on any television set hooked up to a “bread-box”-sized playback deck. Despite the early announcement, however, the transformation of the machine from a prototype into a market-ready device took several years, placing its debut squarely in the midst of ongoing Super 8 standardization battles.⁸⁴⁷ As such, the device offered additional fodder to industrial market insiders’ call to clear up the Super 8 situation; warnings against “wallow[ing] in disunity” and video “clouds on the horizon” proliferated.⁸⁴⁸ Unlike the various Super 8 cartridges that were produced by educational and industrial equipment manufacturers (Fairchild, MPO, Bohn Benton) or big names in the film

time to establish itself. Tom Hope, “16mm Film Still Rules the Media Roost,” *Business Screen* 34, no. 4 (1973): 28.

⁸⁴⁵ Ray, “Wide Acceptance,” 31; Robert F. Unrath, “Communicators Will Have to Be Discerning,” *Business Screen* 34, no. 4 (1973): 32.

⁸⁴⁶ “CBS Announces a Pre-Recorded Film Playback for Home TV Set,” *Business Screen* 28, no. 5 (1967): 65.

⁸⁴⁷ Wasser, 60.

⁸⁴⁸ Gale, “Super 8mm Today, 14; Hedden, “From the Laboratories—Even Better Quality,” *Business Screen* 8, no. 31 (1970): 24.

industry (Technicolor, Eastman Kodak), EVR, produced by CBS, was a product of the television industry. Given the role the networks played in the development of video recording, the introduction of several different video playback machines which followed closely on the heels of the EVR—most of which came from outside of the key equipment manufacturers in the industrial sector—may have intensified the perceived need for a shared Super 8 standard.

Given the imagined benefits—and risk management capabilities—of standardization for a host of different actors and the sector as a whole, why was no standard forthcoming? One reason for this failure may be the *laissez-faire* stance taken by many in the industry who left it to “the market” to deliver up the winning format. Some belief in the role, responsibility, or capability of the market—short-hand for industrial users, but with the cachet of an unseen but powerful economic force justified by its “needs”—to choose the best format appeared throughout discussions of cartridge standardization.⁸⁴⁹ When “the market” hesitated in declaring a single standard, commentators suggested the possibility that the market actually needed multiple formats for maximum flexibility—every user needed a machine tailored to their very specific needs.⁸⁵⁰ Discourse surrounding the 8mm cartridges’ capabilities to meet individuals’ diverse needs shifts from pedagogical theories of software and “single concept” films to economic theories of hardware and user markets, meanwhile providing an example of a trade paper’s failed attempts to police the work of its members and affiliates.

Of course, some were more specific in their criticisms. Ott Coelin identified four groups responsible for standardization: 1) consumer groups in industry and education, e.g., the Industrial Audio-Visual Association and the National Educational Association’s Department of

⁸⁴⁹ “Build Audiovisual Projection Sales to Match the Markets to the Media to” [sic] *Business Screen* 30, no. 7 (1969): 16; Zavada, “The Standardization of Super 8,” 41, 42.

⁸⁵⁰ Zavada, “The Standardization of Super 8,” 41-42; Gale, “Super 8mm Today,” 66.

Audiovisual Instruction, 2) The Film Producers Association of New York (in the absence of any such entity with national membership), 3) the body representing audiovisual dealers and distributors, the National Audio-Visual Association (NAVA), and 4) the Association of Cinema Laboratories.⁸⁵¹ This insider's rundown of the stakeholders in the standardization debate belied the dominant role played by the manufactures; while a vague call to arms was leveled at most, the only actionable directive was aimed squarely at NAVA. Other observers, too, acknowledged manufacturers as the key leaders in the standardization debates, noting, for example, the tense emotions of the sector following any announcement by companies regarding the further divergence or rapprochement of their equipment.⁸⁵² It was within the capabilities of manufacturers to submit Super 8 cartridge standard proposals—which would act as guidelines rather than legal regulations—to SMPTE for their approval. According to Roland Zavada, SMPTE's Chairman of the Committee on 16 and 8mm, however, although the organization would have accepted such proposals in the earliest stages of the turn to cartridges, no manufacturers pursued this avenue.⁸⁵³

All of the cajoling of “the market,” as it turned out, was not enough to convince equipment manufacturers to collaborate on a standard. In their defense, Samuel Gale, a Vice President of Sales for Capital Film Laboratories, suggested that the profit demands of business required ongoing active sales—of products “needed *now* by their customers.” He continued, “It won't do any good to have the hardware manufacturers band together with the theoreticians to make a system that will sell 10-15 years from now.” Setting up a false dichotomy—and eliding

⁸⁵¹ Coelin, “Who Speaks for the USERS,” 14.

⁸⁵² Bill Hedden, qtd in Coelin, “Who Speaks for the USERS,” 14.

⁸⁵³ Zavada, “The Standardization of Super 8,” 42. The primary requirement that must be met for SMPTE to consider a given standards proposals is that the object it describes is available from multiple sources. Zavada singled out the early direct competition between two (unnamed, though likely Technicolor and Fairchild) cartridge projectors as a lost opportunity for standardization.

the years of research and development unconcerned with the desires of any “theoreticians” that had gone into cartridges by the time of his writing in 1967—Gale argued the behavior of the manufacturers was natural given their desire to compete within the young and unsettled market.”⁸⁵⁴ One of the few voices to justify non-standardization—though he did tack a perfunctory “there still is a need for getting together” on the end of his discussion—Gale points to the strong economic disincentives that were the most likely cause of stalled standardization efforts. Given the threat of increased competition and the loss of the possibility of a monopoly, near-monopoly, or major leadership position in an industry if and when their standard won out, manufacturers of Super 8 cartridges saw too little benefit in overhauling their existing products to offer consumers the possibility of interchangeability. Although economic incentives could drive early standardization—as Phillips demonstrated with its highly successful licensing of the compact cassette format, and as the dominance of Sony, Matsushita, and JVC’s U-matic videotape cassette would soon show—it seems that without early intervention, compromise and collaboration would not be forthcoming. A wide variety of Super 8 Cartridges were to persist for more than a decade, providing an elaborate equipment landscape for video players’ debut.

8mm film might seem an unlikely place to begin the story of the “other” video format wars. However, 8mm and Super 8 cartridges set the conditions by which video would be taken up by industrial audiovisual sector. Discursively, cartridges quickly came to mean a new method of audiovisual communication. More precise than ever before, cartridges promised users the ability to transmit exactly their desired message to a targeted audience—wherever (and whenever) that audience may be. Even after the development of longer capacity sound cartridges meant users were no longer constrained to single concept films—and could thus pursue more

⁸⁵⁴ Of course, Gale overlooks the extent to which the industry created machines first and then sold customers on their new audiovisual “needs.” “Super 8mm Today,” 66.

traditional genres of industrial film—cartridges maintained their reputation as uniquely portable and effective skilling and selling technologies. Offering new means of distribution and exhibition, the industrial sector promoted cartridges as ideal tools of corporate expansion and increased efficiencies. Salesmen became hyper-mobile distributors of the mediated company message as they drove along their territory, a Technicolor Instant Projector in their trunk. Using new modes of individualized exhibition, films took over desktops, shop floors, and merchandise aisles. According to their marketing departments and even some of their users, these cartridges allowed for a level of (what we might today call) interactivity with the screen that had never before been possible; by the height of Super 8 cartridges' use within the industry, various models allowed users to pause, rewind, and even screen in slow motion. Unlike traditional 16mm film projection, the audience (in addition to or in concert with the exhibitor) had the power to direct the process of projection. Discussed within education as a means for a pupil to control their learning experience by allowing them to learn at their own pace or follow along with instructions in real time, interactivity translated to the industrial setting both in terms of more efficient, individualized instruction and easier, more effective selling to prospects who become perforce involved—and, as the selling logic goes, more invested—in the salesman's pitch. New modes of textuality and production, e.g., the single concept film, exploited the early limitations of the cassette, newly valuable spaces of exhibition, and shifting theories of learning and reception. New relationships with audiovisual materials became possible for a variety of users and audiences: representations of commodities (e.g., of agricultural equipment or other large commercial products) became more portable than ever before, "consumer education" audiovisuals could address consumers almost anywhere, and trainers had the capability to mediate employees' workspaces. At the same time, battles over standardization offered an object

lesson to parties interested in entering the constantly expanding audiovisual market. Though cartridges never caught on in the industry as some predicted (or hoped), the extent to which the technology became widespread is less important than how cartridges, at least discursively, offered a coherent site for a discussion of ideal corporate communication that sighted new ways of using and understanding media. Despite the obvious self-interest that motivated Jeorg Agin, the Director of Sales Development for Eastman Kodak to argue, the “Super 8 sound movie is more than a different way of doing the same old thing. It is the beginning of a new concept in communications,” when we consider cartridges as the forerunner of videotape cassettes, he may not have been off the mark.⁸⁵⁵

From Super 8 to EVR

One of the first technologies to get taken up in discussions that had been formerly restricted only to Super 8 cartridges was EVR. As mentioned above, the product was introduced by CBS, though the government had a hand in financing early experimentation of the device by its inventor, Peter Goldmark.⁸⁵⁶ Despite CBS’s ownership of—and brand association with—the device, they never produced the playback equipment. Instead, the broadcast behemoth licensed the design to manufacturers—of home entertainment equipment—on a royalty basis. CBS maintained control over the production of EVR software, packaging its distinctive circular cartridges in its own plants.⁸⁵⁷ First demonstrated in 1968, the EVR was a technology perpetually

⁸⁵⁵ Jeorg Agin, “Super 8? Stronger than Ever” *Business Screen* Jan/feb (1975): 31; similar language was already in use by Sony to position the U-matic as “the new concept in communications.” “So Simple. So reliable. So effective. So successful. Sony.” *Broadcast Management Engineering* 10, no. 9 (1974): 9.

⁸⁵⁶ Wasser, *Veni, Vidi, Video*, 60. Goldmark, who had already had a hit with the long-playing record, was the president and director of research at CBS Laboratories, an arm of the corporation that collaborated with the government on a space research program. See also, “EVR—Promise of the Future?,” *Business Screen* 30, no. 2 (1969): 22.

⁸⁵⁷ “EVR—Promise of the Future,” 22.

promised to arrive. Release dates were set, and continually broken over the course of the next two years; initially expected on the market in 1969, it was not until 1971 that interested parties could try out the “newest” audiovisual player.⁸⁵⁸ Each cartridge could hold up to 750 feet of film which, in the EVR’s process of electronically scanning and transmitting the image, translated to 52 minutes of black and white and 25 minutes of color sound moving images that could be played on any television screen.⁸⁵⁹

From the perspective of the present, the EVR appears as an interstitial media technology occupying a unique position between Super 8 cartridges and videocassettes.⁸⁶⁰ Technologically, the device married film with the electronic medium of television. However, the differences between these two forms stretched beyond their foundation in chemistry versus electricity. Super 8 had been used extensively in industrial settings, but made fewer inroads into home entertainment beyond the amateur market, where some of its proponents initially hoped it would succeed.⁸⁶¹ Television, though popular in the industrial sector as Closed-Circuit Television, as I

⁸⁵⁸ “CBS Announces,” 65; “Motorola to Make EVR Player” *Business Screen* 30, no. 2 (1969): 23; “Motorola to Market EVR Programs, Player,” *Business Screen* 31, no. 6 (1970) 49; Hope, “Forecast ’71,” 18.

⁸⁵⁹ Initially, CBS intended to release a monochrome (black and white) machine in mid 1970, with the color version becoming available in late 1971. Due to delays in production, Motorola only ever released a color version. CBS-EVR Division President, Robert Brockway smoothed over the gap in availability by suggesting their research process led to “gaining a full year on the original timetable” for color EVR’s release. Robert E. Brockway, “EVR Moves from Promise to Reality,” *Business Screen* (2/1971): 28.

⁸⁶⁰ I use videocassettes here as a stand in for a wide variety of portable video “record” technologies from disks to tape.

⁸⁶¹ Although EVR used its own format of 8.75mm magnetic sound film without sprocket holes rather than Super 8, CBS’s choice to use film, rather than videotape, which had transformed the broadcasting industry and was rapidly gaining ground in the industrial sector indicates some continuity of thought with Super 8 cartridge devices and their capabilities. Although film (in the form of kinescopes) had long been used to record broadcasts, by the time Goldmark embarked on his experiments (between 1960 and 1964, according to Wasser), both tape and film could have been viable options for recording and playback on television. Furthermore, film cartridge technologies proliferated as Goldmark’s research progressed. While this potentially reinforced

discussed in the last chapter, had by this time been over-determined as a domestic medium.⁸⁶²

Although EVR cartridges required a custom playback machine, just as any film cartridge might, the deck transformed every television—home or office—into a potential exhibition site. In addition to offering a concrete manifestation of the beginning of a long transition between film and video production within the industrial sector, due to its ancillary status to a technology already adopted within business and the home, the EVR functioned as a particularly visible flashpoint for ongoing negotiations between home entertainment and industrial markets. As a result, examining the promotional materials, predictions, and industrial reception of the EVR also allows us to chart how audiences were imagined and defined within both arenas, which would have major consequences for how manufacturers and their constituents developed and understood future videocassette technology.

Although the EVR was intended, like many new electronics, to eventually target home audiences, CBS chose to market the machine first to industrial and educational users. Wasser suggests that positioning the device as an educational tool for the ever-growing knowledge industry enabled CBS president Frank Stanton to persuade network leadership that the device would not present a serious threat to the company's broadcast interests.⁸⁶³ Whatever the reasoning, EVR's early positioning as an industrial/educational tool became a major part of its marketing and development. An early review of the machine noted that the first model would be "an industrial-educational unit of 'ruggedized' design."⁸⁶⁴ Although it is possible this was due to

his decision to use film instead of video, it also helped situate the emergence of the EVR within the preexisting set of practices and discourses that attended Super 8 cartridge film. Wasser, *Veni, Vidi, Video*, 60.

⁸⁶² Lynn Spigel, *Make Room for TV: Television and the Family Ideal in Postwar America*, Chicago, Chicago University Press, 1992.

⁸⁶³ Wasser, *Veni, Vidi, Video*, 60.

⁸⁶⁴ "Motorola to Make EVR Player," 23.

engineering difficulties in offering a miniaturized consumer model early in the process of translation from the prototype, CBS maintained the plan for separate industrial/consumer models through 1971, indicating an understanding of the two markets as unique—in their ability to pay at different price points, if nothing else.⁸⁶⁵

CBS's decision to work with Motorola also underlines the importance they placed on the industrial market. According to Stanton, CBS chose the equipment manufacturer in part for their leadership in four important product categories: solid state color television, hotel-motel television, hospital communication systems, and educational television.⁸⁶⁶ The interstitial nature of the EVR appears again; while CBS did not choose a strictly industrial/educational equipment manufacturer, e.g., Fairchild, neither did they choose a company invested only in consumer entertainment products. Motorola's experience in the hospital, hotel, and educational fields became important to the development of EVR software. After initial announcements that Modern Talking Picture Service would transfer corporate sponsored films—alongside educational titles from their Modern Learning Aids Division—to the EVR format in the first wave of software available to the new system, Motorola reported they planned to offer “marketing related groupings of programs” targeted to their familiar markets: hospitals, hotels, and public safety outfits.⁸⁶⁷ A series of press releases from 1969-1971 reveals Motorola's ongoing development of software packages for a broadening horizon of institutional users, including universities,

⁸⁶⁵ “Comparative Analysis of Video Cartridge Systems,” *Business Screen* 32, no. 2 (1971): 26. This chart lists the industrial model at \$795 and estimates the price of the consumer model (not yet available) at \$300 - \$400.

⁸⁶⁶ Frank Stanton, qtd in “Motorola to Make EVR Player,” 23. Motorola Information Service Press Release, October 12, 1968, Motorola Solutions, Inc., Legacy Archives Collection, Consumer Products, Teleplayer, and Electronic Video Recording System series (MSLAC): 2.

⁸⁶⁷ “Modern to Offer Sponsored Films in EVR Format,” *Business Screen* 30, no. 5 (1969): 6; “Motorola to Market EVR Programs, Player,” 49.

retailers, and even the American Bankers Association.⁸⁶⁸ In the context of CBS's strategy for the EVR, Motorola's emphasis on these "specialized," i.e., non-domestic, markets became a hallmark of the device's promotion to the industrial sector.⁸⁶⁹ From hotels and hospitals, software interests quickly expanded to training and business education. Perhaps unremarkably, the first company to adopt the EVR as a training tool was Motorola itself, which announced software packages covering management, sales, training, and motivation developed for its distributors in 1970.⁸⁷⁰ As part of its efforts to pitch the dominance of the format—an obvious concern as the Super 8 debate rambled on—CBS announced deals with other industrial and business education early adopters. Among these were The Equitable Life Assurance Society, which ordered 1,200 Teleplayers—the name under which Motorola manufactured its device—for training and communications, and the University of California, Los Angeles, which "converted" small business administration courses to the EVR system.⁸⁷¹

Given the important role played by Motorola and early industrial adopters—in the identification of specialized markets, the development of software packages, and the promotion of the machine as an industrial/educational tool—it is easy to forget CBS's ultimate goal: home entertainment. Referring to hospitals and schools, Elmer H. Wavering, president of Motorola Inc. described the dual stages of their strategy in a 1968 press release, "These markets are not in any sense the outside limitation. Rather, they represent the most obvious needs to be served on a

⁸⁶⁸ Richard E. Kobak, "Motorola Systems, American Program Bureau Announce Plans to Bring Leading Personalities to Campuses via Cartridge TV" (Aug 1970); Lawrence R. Thorpe, "Polk Brothers First Motorola Distributor to Order EVR Teleplayer for Training and Education" (June 1970); Robert E. Bouzek, "ABA Names Motorola to Distribute EVR Programs" (January 1972), all in MSLAC. One of the more specialized uses cited in relation to retailers was using EVRs—loaded with NFL films cartridges—to demonstrate televisions to perspective buyers.

⁸⁶⁹ "Motorola to Market EVR Programs, Player," 49.

⁸⁷⁰ Lawrence R. Thorpe, "Motorola Distributor Organization First to Use EVR Teleplayers for Training and Education" News Releases, MSLAC (June 9, 1970): 1-3.

⁸⁷¹ Brockway, "EVR Moves," 28.

priority basis. These are markets in which we now provide other communications equipment and for which we have on board fully qualified engineering, production, and marketing people.”⁸⁷²

The home market would be integral not only to how CBS imagined the significance of their device, but to how the industrial market recognized the full potential of the EVR. Nor was CBS alone in their interest in home viewers. Throughout the short (and mostly imagined) life of the EVR, the what and why of home viewing were worked on by CBS, Motorola, and a range of intermediaries. In discussions that sought to locate and define the interests and potential media practices of the home market, lines between entertainment, edutainment, and corporate communication sectors began to blur; this indeterminacy between equipment and software sectors represented a potentially significant opening up of the home to the members of the industrial media field.

Different parties’ concerns with determining the possible relationship between the industrial communications sector and the entertainment field manifest in discussions surrounding the EVR’s software. In Brockway’s promotion of the machine’s purchase by an insurance company and a business school, the feather in EVR’s cap was a deal—of “strategic importance”—with 20th Century Fox Films; Fox CEO Darryl F. Zanuck announced 1,500 Hollywood feature films slated for release on the new system.⁸⁷³ While Brockway was no doubt interested in what this would mean for the primacy of the EVR in the emerging home video player market, the CBS executive explained the meaning of the deal to readers of *Business Screen* in terms of what it meant for the EVR’s position in possible standardization debates. Tucking the “Zanuck endorsement” into a longer discussion of the “corporate and educational

⁸⁷² Motorola Information Service Press Release, October 12, 1968, Motorola Solutions, MSLAC: 2.

⁸⁷³ Brockway, “EVR Moves,” 29.

community investment” in the EVR, Brockway implicated the home market in the success of the industrial market, concluding, “for education and business uses in the field of pre-recorded video, EVR will remain the dominant if not only system of choice.”⁸⁷⁴ Three years later, Motorola’s president Elmer H. Wavering employed this same strategy—exploiting software deals with the (here, loosely defined) entertainment field as a guarantee of success—when he publicized a software agreement with the National Film Board of Canada in the context of several companion claims regarding the imminent victory of the EVR standard.⁸⁷⁵

A more explicit acknowledgement of the relationship between the two markets came from one of Brockway’s customers, Thomas Hatcher, manager of learning systems at Equitable Life who also served as president to the National Industrial Television Association (NITA). In an article discussing the value and technological range of new “videorecords” systems, Hatcher directs a brief aside to producers of generalized informational programming (rather than studios that provided clients with custom content):

Don’t despair—remember that the users of these company systems are also consumers and, since the consumer market will mostly likely be developed through the institutional market, it may be wise for you to develop a shrewd marketing strategy that will allow you to identify these users and gain access to them. What better way to obtain consumer market demographics on a test basis, so you can have relevant and saleable programming available when the consumer market finally does break open.⁸⁷⁶

For Hatcher (and others, as I discuss below), a clear relationship exists between the industrial market wherein devices intended for the larger consumer market would be pitched first to institutional users that could spend more on early models—and that may have had economic and

⁸⁷⁴ Ibid.

⁸⁷⁵ Jesse Rotman, “Wavering Sees Rapid Growth of Cassette TV for Home Use” (April 16, 1971), MSLAC.

⁸⁷⁶ Thomas F. Hatcher, “Cassettes and Beyond—User Leaders Speak Out” *Business Screen* 32, no. 2 (1971): 32.

image-conscious incentives for early adoption of new labor and time-saving technologies.⁸⁷⁷

Success in the industrial market could then be parlayed into a stronger foundation for moving into the consumer market. Although this relationship is cited most often with chagrin, as industrial users criticize their perceived role as the “guinea pigs” for manufacturers, Hatcher points to the potential value of this arrangement for software interests in the industrial sector.⁸⁷⁸

As his logic goes, if manufacturers can benefit from the proximity of the two markets and the (roughly) two-tiered process of adoption typical of new technologies, so too can institutional media producers.

At first blush, the likelihood of corporate media producers creating content for the consumer market might seem strange given traditional constructions of the home as a site of leisure (for men). However, the software designed for the EVR continually crossed boundaries between work, learning, and entertainment, moving between the spheres in which we might imagine each of these activities to reside and collapsing the borders between sectors in which we might imagine this content to be produced. In Dawson’s discussion of the role cultural intermediaries played in fixing the meaning of early video players as high-culture alternatives to a broadcast system increasingly characterized as a lowbrow “wasteland,” he shows how CBS used software selections to give video “the sheen of high culture” in an attempt to hail a target market of higher-income, educated viewers (typical early adopters).⁸⁷⁹ Promotional materials and critics’ prognostications on the possibility of ballet, opera, and off-Broadway productions (to name only a few) positioned video as an “instrument for the edification of sophisticated connoisseurs and the self-improvement of status-conscious members of the professional-

⁸⁷⁷ As mentioned above, the post-Sputnik influx of money into educational audiovisuals certainly played a part in the identification of institutional users as key targets of new technologies.

⁸⁷⁸ “IAVA: Industry a guinea pig for manufacturers?” *Business Screen* 33, no. 1 (1972): 19.

⁸⁷⁹ Dawson, “Home Video and the ‘TV Problem,’” 539.

managerial class.”⁸⁸⁰ Even in the context of home “entertainment,” EVR software tied into discourses of independent learning and mediated education common to Super 8 cartridges used within educational and industrial contexts. While it may first appear that the audience for home EVR differed considerably from institutional users, consider the “professional-managerial class” Dawson mentions—a desirable demographic identified by *Variety* composed of “doctors, lawyers, teachers, and business leaders.”⁸⁸¹ The intended consumer audience for the EVR was not just a group of well-off elites; it was a *professional* audience, one that—perhaps with the exception of lawyers—was comprised by workers in key markets for institutional media production. Furthermore, with one exception, the high culture critics Dawson cites elide a key genre proposed for early domestic uses of the EVR system: home instruction. In industrial circles, “home use” of video players offered a greater opportunity than ever before to move audiovisual training and employee communication into the home, where users could learn at their own pace—provided they adopted the same format as their employer.⁸⁸² Although this “home study” often concerned content explicitly tied to a viewer’s employment, heavy emphasis was also placed on more generalized instructional fare, e.g., “teaching a five-year-old to read, learning a foreign language and improving a golf swing.”⁸⁸³ It was the possibilities inherent in

⁸⁸⁰ Ibid.

⁸⁸¹ Bob Chandler, “Where the TV Elite Don’t Meet,” *Variety* (29 March 1961): 1. Qtd. in Dawson, “Home Video and the ‘TV Problem,’” 538.

⁸⁸² “EVR—Promise of the Future?,” 23; Samuel C. Gale, “What about Software?,” *Business Screen* 32, no. 2 (1971): 29-30.

⁸⁸³ Hall, “Audiovisuals of the 1970s,” 28. Golf—taught by expert and celebrity golfer Jack Nicklaus—operated as a favored example of the “exciting and stimulating recreation” offered by the EVR used in marketing materials and critical reviews. “EVR—Promise of the Future?,” 23. The example fit well the strategy outlined above by 1) targeting a high-income, professional audience likely to engage in a range of (expensive) recreational activities beyond television, 2) positioning the EVR as an alternative rather than extension of the types of content found in broadcast television, and 3) associating the EVR with access to experts in a quest for self-improvement.

this larger, mass market for “knowledge industry” goods that excited content producers within the industrial sector and lead to outsized predictions that if the EVR caught on, producers would experience “demands for product far exceeding anything the industry has ever known” and it would be the “entertainment giants of Hollywood” that would be put on notice that *they* now have to “compet[e] for time on the same screen.”⁸⁸⁴ These constructions of the expanding EVR audience combined with an emphasis on skilling software—whether *Hamlet* or home study—again positioned the device as interstitial, a mediator between the growing knowledge industry, with its ties to the industrial sector, and the home entertainment consumer market.

While coverage of the EVR attempted to carve out space in the home for vocational improvement and corporate communications, marketing and critical reviews simultaneously positioned the workplace as a potential space of entertainment. A double-page EVR advertising spread in a June 1970 issue of *Business Screen* features three men in suits, important documents and EVR cartridge in hand, seated around an EVR playback machine hooked up to a television displaying two other men in suits.⁸⁸⁵ The space around the men and the machine is an empty white vacuum; their eyes and ours are trained on the screen image of a young man showing the contents of his suitcase to an older businessman at his desk. The tag line of the advertisement reads, “Your salesmen might bring in extra business if they spent more time watching TV.” The joke is clear, resulting from the unexpected juxtaposition of businessmen surrounded by the trappings of serious work with the common association of television with leisure and (popular) entertainment. The first line of copy confirms, “People like to watch television;” together the advertisement’s messages suggest to the reader that an EVR can help companies harness positive associations with television to increase worker performance. By this point,

⁸⁸⁴ Hall, “Audiovisuals of the 1970s,” 28.

⁸⁸⁵ “Your salesmen might bring in extra business if they spent more time watching TV,” *Business Screen* (6/1970): 16-17.

entertainment was no stranger to the industrial sector; “Edutainment” had long been used as a strategy to increase viewer engagement with topics perceived to be uninteresting, employee entertainment was hailed as part of a complete audiovisual communications package, and the earliest identified markets for EVR were industrial outfits (hotels, hospitals) packaging entertainment for *their* clientele (travelling businessmen, patients).⁸⁸⁶ However, not only did CBS market the EVR as a skilling, corporate communications, and entertainment device, it promoted all three of these functions in both domestic and work spaces, bridging once again major distinctions between the two markets.

Wasser positions the EVR as the pioneering home video player that first pressed broadcasters, manufacturers, software producers, and critics to consider the concrete possibilities and pitfalls of developing video technology for the home consumer market.⁸⁸⁷ However, as I discuss above, home entertainment—the primary concern of Wasser’s book—is far from the only use imagined by CBS for its perennially struggling technology. Indeed, engineers had grand designs for the technology, hoping that it could serve as a micro-film like information storage device and form part of interactive computer-like machines for distributing information and connecting people at a distance—ambitious plans for the technology that we overlook when we understand EVR as a failed version of the format that “wins” in the home.⁸⁸⁸ The industrial sector played a key role in CBS and Motorola’s two-tiered equipment development, product release, and pricing strategy. More importantly—particularly for a device that was never much used by anyone—the industry played a marquis role in the device’s marketing and critical reception, where the possibilities of the machine (and its software) were negotiated. It is thus important to remember that when the EVR was introduced to the varied players of the industrial

⁸⁸⁶ Hatcher, “Cassettes and Beyond,” 30.

⁸⁸⁷ Wasser, *Veni, Vidi, Video*, 61.

⁸⁸⁸ See Hughes, 2015. On EVR as a “redundant” relative to VHS—a position that teleologically attempts to rewrite the ambitions of the EVR—see Winston, 129.

sector, it was not a technology without precedent. Many of the major affordances of CBS's electronic/film player—highly portable software, easy operation for non-experts, display on a 'televisual' monitor, daylight viewing, individualized use—had been already made meaningful through years of institutional discourse and practice surrounding the development of 8mm and Super 8 film cartridges. Although marketing materials displayed an unsurprising level of willful amnesia in order to situate the EVR as a bold new product, we can trace the continuation of promises of expansion, increased flexibility and efficiencies, and perfectly targeted audiences—as well as anxieties over standardization and the production of quality software—from one cartridge film technology to the next.

The EVR's attempt to balance both markets—and its pursuit of affordances claimed by film cartridge projectors—are most prominent in two of Motorola's signature software initiatives. As noted, Motorola's partnerships with hospitals was a key reason CBS chose the manufacturer for its player. One of the first—and longest lasting—efforts made by Motorola to exploit this relationship came in the form of what they would eventually call "Prescription TV," a "Hospital TV Network" that included 126 cartridges comprised of "sports, entertainment, enrichment, motivation, training, and education."⁸⁸⁹ The first films produced especially for the "network" were an entertainment series produced by *Laugh In's* Rowen and Martin and starring Jack Benny, George Burns, and other comedians in features such as "Exercise...It Couldn't Hurt."⁸⁹⁰ Later programs included "three of the most exciting motor sports films ever produced," football and fight films, and more staid patient informational programming, e.g., "Your Hospital

⁸⁸⁹ "Motorola Introduces Closed-Circuit Hospital TV Network for Entertainment and Training" (September 14, 1970); Lawrence R. Thorpe, "STP Racing Films to be Converted to EVR Format by Motorola" (June 9, 1970), MSLAC. "Memphis Memorial Gets Largest Hospital Teleplayer System" *Voice of Motorola* XXVI, no. 1 (January 1, 1971): 2.

⁸⁹⁰ Charles A. Sengstock, Jr. "Motorola signs Rowan and Martin Company to Produce Shows for its EVR Teleplayer Series. Jack Benny, George Burns to Appear." (1970) MSLAC.

Bill.”⁸⁹¹ Motorola designed the program package explicitly to prevent male patients from becoming “restless” (and troublesome) in the afternoon when the broadcast schedule was filled with feminized soaps and game shows. According to experimental reports, EVR dramatically reduced male patients’ unnecessary use of the nurse call button.⁸⁹² Male patients, however, formed only one of Motorola’s highly targeted audiences. Other programs designed for the same network sought highly specialized healthcare worker viewers in shows like “Safety on the Job” and “Patient Feeding,” and still other medical uses for EVR included series for surgeons and anesthesiologists.⁸⁹³ In this example, Motorola exploited its relationship with institutional markets by creating programming for professional users while it simultaneously suggested to its patient viewers that the EVR was a leisure technology.⁸⁹⁴ Thus, at the same time Motorola attempted to exploit their relationship with narrow institutional markets, the manufacturer—which had never before entered software production—also looked for opportunities to market its machine to the future home market. This same strategy continued in its other major programming effort targeted at public safety organizations. While programs were initially and primarily geared towards police training (with programs such as “Shoot/Don’t Shoot” and series ranging from “Law Enforcement Training” to “Cops and other Humans”), the flexibility of the

⁸⁹¹ Lawrence R. Thorpe, “STP Racing Films to be Converted to EVR Format by Motorola” (June 9, 1970): MSLAC.

⁸⁹² “Motorola Introduces Closed-Circuit Hospital TV Network for Entertainment and Training” (September 14, 1970): MSLAC.

⁸⁹³ “Motorola Introduces Closed-Circuit Hospital TV Network for Entertainment and Training” (September 14, 1970); Daniel E. Lees, “Ayerst Laboratories Plans First Medical Use of Cassette TV with Motorola EVR Teleplayer Units” (May 5, 1971): both in MSLAC.

⁸⁹⁴ Indeed, in another press release, a Motorola executive suggests that since they do not expect a serious domestic market for the EVR until the late 1970s, a key constituency for the machine would be the high school and college-aged students who would be of consuming age by then; EVR’s explicitly educational offerings would thus be an ideal means to market the machine to future customers. “Motorola Executive Sees 1971 as ‘Year of Decision’ in clarifying ‘Cassette TV’ Confusion,” MSLAC.

EVR to exhibit non-specialized entertainment programming—“Imagine how a crowd of young people would respond to this renewed showing of attention and care when a policemen with a Motorola Teleplayer shows a great shorts film at a local store-front community service center”—became a secondary promise of its utility to the institution, transforming the EVR from a training mechanism to a public relations tool—for both the police and Motorola.⁸⁹⁵

For the EVR, its promise to aid in corporate expansion and the management of geographically dispersed holdings and workers came by way of its low cost, ease-of-use, and flexibility—terms well familiar to the Super 8 cartridge world. When promoting the cost of EVR players and cassettes, CBS compared their invention not to Super 8, the closest technological corollary, but to more expensive 16mm and video formats.⁸⁹⁶ In so doing, they were able to position their devices as an “economical” solution to corporate audiovisual needs that might require the mass duplication of corporate communications to aid in shoring up logistical control across a company or to ensure the homogenized performance of a geographically dispersed workforce.⁸⁹⁷ This latter possibility became the centerpiece of an EVR advertisement that linked the low cost of the device to Equitable’s ability to equip its 8,000 salesmen “located anywhere in the United States” with the projector.⁸⁹⁸ Cost becomes key to buying in volume, which in turn assures geographically expansive possibilities.

⁸⁹⁵ Daniel E. Lees, “Statement of Purpose by Motorola Systems, Inc. Regarding Involvement in the Law Enforcement Training Field” (1971); Daniel E. Lees, “Motorola Introduces a Professional Police TV Network for Use by Law Enforcement Agencies in Training and Community Relations”; Daniel E. Lees, “New EVR Training Package Unveiled for Police Chiefs by Motorola Systems, Inc.” (September 28, 1971), all MSLAC.

⁸⁹⁶ “How Equitable salesmen learn the facts of life,” *Business Screen* 32, no. 4 (1971): 12; Brockway, “EVR Moves from Promise to Reality,” 28.

⁸⁹⁷ “The Cassettes Are Coming,” *Business Screen* 32, no. 2 (1971): 23.

⁸⁹⁸ “How Equitable salesmen learn,” 12.

Just as 8mm and Super 8 cartridges emphasized their ease-of-use for a variety of users—including children—as a means to widen the technology’s user base and claim increased efficiencies through the ability of non-audiovisual professionals to take on projection duties, CBS sold the “convenience” of the EVR as a guarantee of the machine’s suitability for anyone, anywhere. Convenience, in this context, stood for a constellation of attributes: EVR’s speedy installation (“use a dime as your screwdriver”), easy operation for non-expert audiovisual users (though its hyped pushbutton control and automatic threading were not as novel as CBS wanted its consumers to believe), portability (just connect “to any conventional television receiver, regardless of its location”), to and the planned availability of software (“wherever people shop...in public and private libraries, in theatre lobbies, record shops, through cartridge clubs and probably super markets”).⁸⁹⁹ Although CBS’s desire to eventually break into the home market—literally everyone, everywhere—helped shape these technological (and software) requirements of user-friendliness, these very same attributes were attractive to a corporate communications sector that was increasingly transferring employee education and training responsibilities to workers—whether they learned “on site” or through home study.⁹⁰⁰ Likewise, industrial visions of a highly networked workforce in constant communication demanded full participation in audiovisual media by everyone in the workforce. As the 1971 president of IAVA suggested in his discussion of the promise of video cartridges “Television equipment cannot be the sole preserve of AV specialists at Headquarters if it is to reach its optimum

⁸⁹⁹ Brockway, “EVR Moves from Promise to Reality,” 28; “EVR—Promise of the Future?,” 22; “How Equitable salesmen learn,” 12.

⁹⁰⁰ For examples of the prevalence of home study and self-instruction in discussions of EVR—as well as the tendency to link self-instruction with more efficient use of professionals’ time, see “EVR—Promise of the Future?,” 23; “The Cassettes Are Coming,” 23; Brockway, “EVR Moves from Promise to Reality,” 28; Gale, “What About Software?,” 29-30; Benjamin DeMott, “EVR: Teacher in a Cartridge,” *Change* 3, no. 1 (1971): 41.

potential as a communications tool as commonplace as the telephone.”⁹⁰¹ EVR’s “convenience” could thus be read as a promise to increase efficiencies while expanding the flow of communication and the reach of the corporation.

Flexibility offered the final key element of EVR’s business-user marketing strategy that borrowed its terms from Super 8 cartridges. In a passage that could have been lifted almost wholesale from a Fairchild or Technicolor press release, a review of EVR proclaims,

With EVR, the teacher might integrate educational films more effectively into the smooth flow of his classwork. He could preview and choose. He could stop the program for comment for general discussion. He could schedule lessons at his own discretion, and show his films wither to individual students or to large groups simply by linking a single EVR player into as many television sets as he needs.⁹⁰²

Much like a Super 8 cartridge, the EVR promised the precise manipulation of audiovisual content, the folding in of media with the rhythms of the (teacher’s) workday, and the ability to scale the program to meet the needs of different sized audiences. While this flexibility offered industrial users the promise of increased efficiencies, as discussed in the context of Super 8 above, it also invoked another key capability of cartridge technologies: targeted audiences.

Again, like discussions that attended Super 8 cartridges, the ability of the technology to effectively penetrate a diverse set of spaces fed into a larger concern with specialized audiences and the value of a targeted, homogeneous viewership. Examples of these situated audiences offered by followers of the EVR hued close to those proposed for Super 8, such as “electronic merchandising” for point-of-purchase sales, but also included a wider range of home users bound

⁹⁰¹ Lee Coyle, “Cassettes and Beyond—User Leaders Speak Out,” *Business Screen* 32, no. 2 (1971): 31.

⁹⁰² EVR—Promise of the Future?,” 22. Undergirding the review’s forgetful elision of the EVR’s continuity with other film cartridges, is an attempt to position the EVR as an alternative to broadcast television rather than industrial film.

by profession, e.g., surgeons and paper merchants.⁹⁰³ Optimistic predictions speculated that with the low cost, convenience, and flexibility of the EVR, the industrial sector might even be on the brink of “increasing use of visual medias into areas untouched by conventional film projection as we know it today.”⁹⁰⁴ In these neglected and heretofore impenetrable spaces, so the argument goes, makers of sponsored media would find new audiences, such as adults working in isolated industrial parks—a ready (and captive) audience during breaks and lunch hours.⁹⁰⁵ Furthermore, building on concerns with “media clutter” developed in discussions of Super 8, followers of EVR suggested that effectively targeting audiences could offer a strategy for overcoming a saturated media environment that might otherwise interfere with the communication of their message. Citing the work of Alvin Toffler and Peter Drucker—two authors central to discussions of rapid accelerations in the pace of change and demands on individuals’ capacities to acquire information—Thomas Hatcher suggests to his fellow NITA members, “No longer can we afford to deal with these situations in the traditional manner of moving people to the information...we must find an effective way of moving visual information, supported with audio, to the individual, where he wants it, when he needs it.”⁹⁰⁶ Another strategy for targeting specialized—

⁹⁰³ Gale, “What about Software?,” 29.

⁹⁰⁴ Hedden, “From the Laboratories,” 24; Brockway, “EVR Moves from Promise to Reality,” 29; DeMott, “EVR: Teacher in a Cartridge,” 40-41.

⁹⁰⁵ Robert Finehout, “Please...Don’t Say Distribution!” *Business Screen* 30, no. 8 (1969): 28.

⁹⁰⁶ Hatcher, “Cassettes and Beyond,” 30. In particular Hatcher was concerned with circuits of corporate communication, e.g., “from a headquarters location to many detached offices, or from a central location to individuals working in the field.” These same concerns over information clutter appear in comments from Motorola executives regarding new computing and communication technologies that express fears that “man’s mind is becoming saturated with the rising flood of new information. His inability to cope with this ‘mental crowding’ impairs his decision-making ability and he makes more and more rules and regulations hoping to hold back the rapidly increasing sense of frustration and alienation.” Daniel E. Noble, Vice Chairman of the board, quoted in Charles A. Sengstock Jr., NR 06-23-51 Information Service June 1970. MSLAC. Promotional Material in the same collection celebrates the EVR’s ability to fit the “maximum amount of information in the minimum amount of space”—while this might aid in

even individual—audiences concerned the development of “conceptual packages” built from audience research to attract a user who would actively choose to watch EVR content “for his own benefit.”⁹⁰⁷ This emphasis placed on the EVR as a targeting technology—one so effective that it can persuade audiences to voluntarily screen materials for themselves—showcases the continuity with hopes for Super 8 cartridges while it simultaneously belies the desired shape of perfect corporate communication.

Of course, EVR shared one more defining quality with Super 8 technologies—a complex relationship with standardization battles. Mentioned above, the threat of EVR was used by some within Super 8 standardization debates as a rallying cry for action. Although CBS’s machine was the first viable cartridge video player made available to industrial users, its time on the market was so short lived that it missed the debut of most of the early small-format players that could have challenged its supremacy. Although institutional buyers would not have the opportunity to choose between the EVR and other video players that had not yet made it to market, anticipation of an additional round of format wars gave many pause. Discussed in the same breath as Super 8, VTR (Video Tape Recorders), and EBR (Electron Beam Recorders), the EVR was also positioned against “no less than 20 announced systems” of videocassettes and discs.⁹⁰⁸ In this context, the EVR presented the same problems as other undecided formats: non-compatibility with other devices required total investment in a single format and manufacturer, distribution of software across diverse users became difficult if they invested in different standards, lock-in to hardware could mean locking in to limited software offerings, a wrong choice made prior to the declaration of a standard bearer could mean the loss of significant investments.

pinpointing the correct information, it also meant cheaper shipping costs, since an EVR cartridges was literally smaller than a reel of 16mm film.

⁹⁰⁷ Gale, “What about Software?,” 29; 30.

⁹⁰⁸ Coelin, “Who Speaks for the USERS,” 14; “The Cassettes are Coming,” 23.

The anticipation of an expensive standards battle led Arthur Brockway to make the leadership of the EVR format within the (still, for the most part, hypothetical) videocassette playback market a cornerstone of his promotion of the device. In a move that foreshadowed similar campaigns by Sony for the U-matic, CBS and Motorola emphasized the sheer volume of interests that adopted their system to position it as the dominant format in an undecided marketplace. In particular, Brockway's strategy built on discourses surrounding the capacity of cartridges and cassettes to aid in corporate expansion by detailing a laundry list of countries with hardware and software agreements with the EVR Partnership.⁹⁰⁹ This touched on an understanding in the industry of the value of technologies that could move electronic messages across national borders. As onetime SMPTE president G. Carleton Hunt suggested in the context of competing color television scanning standards, as people work increasingly in companies with international branches or, "with the world getting smaller," find themselves employed in overseas industries, technologies that cannot easily transmit beyond U.S. borders limits rather than aids communication.⁹¹⁰ EVR's alleged dominance extended not just to diverse American markets (both institutional and, thanks to Fox and the National Film Board of Canada, entertainment), but to global interests key to continuing corporate expansion. Whether this

⁹⁰⁹ These countries were the United Kingdom, France, Italy, Germany, Austria, Switzerland, and Scandinavia. Brockway also mentioned demonstrations with "major electronics firms" in Japan. The EVR Partnership that backed the machine's development and expansion was comprised of CBS (50% ownership), Imperial Chemical Industries Ltd. (30%), and CIBA Ltd. (20%). Brockway, "EVR moves from promise to reality," 28-29.

⁹¹⁰ G. Carleton Hunt, "The Impact of Visual Communications on Industry," *Business Screen* 5, no. 28 (1967): 68.

rhretorical strategy could have worked for CBS is unclear since the company ended its participation the EVR project in 1971, less than a year after putting it on the market.⁹¹¹

A short-lived device with little in common with the tape-based video systems that would dominate industrial and consumer use over the following decades, the EVR might seem like little more than a technological curiosity. Indeed, the device was only one of almost a dozen different machines promised to achieve nearly the same basic thing: affordable and highly portable moving images hooked up to any standard television receiver.⁹¹² However, I argue that we can read the EVR as a material manifestation of negotiations over the relationship between the industrial and home entertainment markets, new leisure and labor uses of audiovisual media, expanding possibilities for cartridge and cassette software, and the increasing importance of targeted audiences to a range of media producers and sponsors. The results of these negotiations set the conditions for the further mediation of the corporation in the second half of the twentieth century through the adoption of satellites, DVDs, computing, and online technologies. While other devices were locked in to similar debates, the EVR offers a compelling pivot point from Super 8 cartridges to the success of the U-matic given its position as one of the first devices to catalyze conversations about the value of electronic televisual communication, its technological (and discursive) proximity to earlier and contemporaneous film cartridge systems, its close association in industrial trades with Super 8 cartridge standardization battles (despite the willful amnesia of its own promoters), and its unique position as a technology that was almost always

⁹¹¹ Richard A Donnelly, "Blank Cartridges? Video Cassettes May Be Way Ahead of Their Time," *Barron's National Business and Financial Weekly* (Sept. 4, 1972): 5. For a full history of the EVR's prehistory and short life, see Hughes, 2014.

⁹¹² Asking after the ends this affordance was imagined to serve for the consumers of each device differentiates the field, a point I explore below. The point is, however, that it was the capability of video players to playback an electronically encoded signal on a television that was used to discursively create the category of equipment that EVR briefly lead.

promised, and only briefly delivered. This last quality in particular, which meant the EVR was nothing more material than a site of speculation for almost three years, allowed room for discussion of the needs and desires of the industrial communication sector without restrictions set by the concrete manifestation of a functioning device.

Other Horses in the Race

Although space—and the vagaries of historical research into short-lived business ventures—prohibits a detailed rundown of the “no less than 20” interests that had, at one time, announced plans to enter the video player market, a look at a few of the major and most marginal devices showcases the diverse technological, marketing, and audience-based strategies that drove the development of video technologies. There are several profitable ways to divide up the mass of technologies that competed with Super 8 cartridges, EVR, and U-matic: playback only versus playback and record (Wasser’s choice due to his focus on copyright), technological base (film, disk, tape), key audiences (home market and/or institutional market) and the interests of financial investors (e.g., broadcasters, home electronics firms, film companies, institutional equipment manufacturers, content owners seeking distribution technology). However, it is more useful to understand how these elements (technological affordances, material, audiences, economic interests) converge in a couple of examples.

Even with all of the rosy predictions of videocassettes’ impending success as an industrial and home entertainment medium, Super 8 continued to be widely used as a corporate communications medium throughout the 1970s.⁹¹³ One company with a large stake in the ongoing use of film was Eastman Kodak. Undeterred by the failure of the EVR, the film

⁹¹³ See footnote number nine.

company developed its own film-to-video cassette technology.⁹¹⁴ Using Kodak's own Supermatic Super 8 film cartridges, the Supermatic film videoplayer VP-1 played black and white, color, sound or silent film cartridges on any connected television set. The same cartridges could be used in any Kodak projector for display on a traditional film screen.⁹¹⁵ Although Kodak had a clear stake in sustaining the industrial sector's investment in Super 8 (whether it came in cartridges or not), the firm emphasized business users' needs for "freedom" and "flexibility" as the logic behind the choice to develop a film-based system.⁹¹⁶ Eric Yavitz, the administrator in Kodak's Motion Picture and Education Markets Division who demonstrated a feasibility model of the VP-1 for attendees of the 1971 SMPTE conference, argued the VP-1 developed this flexibility by overcoming shortcomings of television-playback only systems: small screens, high costs, the television requirement, and—returning again to above conversations concerning the value of border-crossing technologies—incompatibility among foreign television scanning systems. Specifically targeting the "professional communicator," Kodak built its case on the ability of its system to serve audiences, whatever their size, anywhere, on any screen, and in volume (at low cost). In an announcement that directly invoked the cost of the U-matic to promote the value of the Supermatic devices, nothing was said about the other major shortcoming that separated the two systems: the inability of VP-1 users to originate their own programming for immediate playback or record off-air.⁹¹⁷ In aligning their device with the U-

⁹¹⁴ Kodak was not alone in the pursuit of another film-based video solution. By 1970, Nordmende, a German electronics firm, promoted a machine that could play Super 8 on television. Cassette Player Corporation, a fledgling upstart with a net worth of \$4,900 in 1972 hoped to make a splash with Super 8 cassettes as well. Both would go the way of the EVR. Kahlenberg and Aaron, "The Cartridges are Coming," 3-4; Donnelly, "Blank Cartridges?," 15.

⁹¹⁵ "Kodak Will Market Super 8 Film Videoplayer in Late 1973" *Business Screen* 34, no. 3 (1973): 53.

⁹¹⁶ "Newsreel: Super 8 Film Videoplayer Demonstrated," *Business Screen* 32, no. 9 (1971): 14.

⁹¹⁷ "Kodak Will Market Super 8 Film Videoplayer," 53.

matic, however, Kodak signaled their desire to compete with the major manufacturers of industrial video equipment.

A different tack was pursued by the backers of Cartrivision, one of the first video cartridge playback machines that allowed users to make their own home recordings. Developed by Cartridge Television, Inc. (CTI) (formed by Playtape, inc. in 1968) and brought to market by Avco, a manufacturing firm that acquired majority interest in CTI in 1969, Cartrivision skipped the institutional sector and targeted home consumers as their rollout market.⁹¹⁸ By June 1972, wealthy Chicagoans could purchase the Cartrivision unit—which included a color television, the playback deck, and pre-packaged films—at their local Sears.⁹¹⁹ The strategy shift, which mostly ignored institutional users, shaped the system’s design features as well as the key alliances brokered to sell the machine. On both of these points, CTI’s emphasis centered on software. Frank Stanton, the president of CTI—a different Stanton from the president of CBS—believed that whosoever controlled the home video entertainment software market would be able to promote its own hardware; this strategy was how he believed American companies could compete with Japanese electronic firms that were strong in innovative design but lacked the content available to American companies.⁹²⁰ It should be noted that Avco also owned Embassy Pictures, an independent studio and distributor, and a handy source of Cartrivision software. In terms of design, Cartrivision confirmed the pride of place content took in its design when Avco manufactured two different types of cassettes, one for pre-recorded rentals which prohibited customers from rewinding the tape before they sent it back to a rental center, and another for pre-

⁹¹⁸ An unlikely candidate for the consumer electronics market, Avco was an aero-military firm attempting to diversify their holdings following WWII; their share in CTI fell to 32% percent following a public offering. Donnelly, “Blank Cartridges?,” 15.

⁹¹⁹ Lardner, *Fast Forward*, 83

⁹²⁰ *Ibid.*, 87.

recorded purchased titles and blank tapes, which users could rewind and reuse at will. The unique design of the non-rewinding tapes was designed to protect copyright holders by providing greater control over the circulation of texts and was cited as the reason several content producers allowed their films to be offered on the format.⁹²¹ CTI's major partnerships also attested to the emphasis the company placed on the consumer market and the role they believed content would play in securing this market. As mentioned, the collaboration of copyright holders like Columbia Pictures—which not only allowed duplication of its films for cartridges, but became a partner in Cartridge Rental Network, the company that oversaw the distribution of rented cartridges—was central to building the machine's appeal to home consumers.⁹²² Likewise, the retailers CTI chose for its device—mainstream department stores such as Sears, Montgomery Ward, and Macys—and CTI's partnerships with major consumer electronics manufacturers like Admiral demonstrated their commitment to selling directly to the home market without the intermediary involvement of institutional users.⁹²³

While the choices CTI made in the development of cartridge television found them limited success in the consumer market, the experiment would ultimately end in failure, with the machines pulled from production after less than a year. A series of missteps plagued Cartrivision's attempts to cater to home consumers: CTI found that the department store salespeople were not equipped to sell a sophisticated, expensive, and still conceptually unfamiliar technology; the target audience for Cartrivision would likely be the same individuals who already invested in a color television and who would be less likely to purchase a player

⁹²¹ Wasser, *Veni, Vidi, Video*, 62; In addition to securing valuable content agreements, the rewind protections, unpopular with users, were also acknowledged as a possible source for the system's failure. Lardner, *Fast Forward*, 84.

⁹²² *Ibid.*, 82.

⁹²³ Donnelly, "Blank Cartridges," 5.

attached to a second set; the “semi-mythical library of pre-recorded tapes” was not enough to induce investment in the format; and, most disastrously, at one point in late 1972, CTI discovered that almost its entire stock of tapes had decomposed, leading to a massive recall of cassettes that damaged Cartrivision decks upon playback.⁹²⁴ Although Cartrivision’s strategy of going straight to the consumer meant that theirs was the first system available in retail outlets, forgoing the industrial sector meant a riskier route: more kinks, less time in development, and a business plan that depended wholly on a single set of users.⁹²⁵

A host of other ventures moved between these two strategies, developing equipment and software that could be targeted in varying degrees to multiple markets, though the ultimate prize in each case was the massive potential of the home consumer audience. While some used the popularity of LP records as a framework for understanding how users might eventually collect and reuse audiovisual software, others turned to the disc as the mechanism that would materially support their software. The TeD or Teldec system—a product of collaboration between Telefunken and British Decca—played a PVC plastic foil disc on a machine that bore striking resemblance to a record player. Demonstrated in Germany in 1970, the product became available to consumers in 1975. The disc’s limited playtime (about 12 minutes) restricted the usefulness of the disc’s economizing duplication feature to high-volume productions of short videos.⁹²⁶ RCA, longtime rival of CBS, marketed a disc player under the name SelectaVision. (They also

⁹²⁴ 311 films (200 for rental, 111 for purchase) comprised Cartrivision’s available catalog when it was first released. While rental cartridges featured popular Hollywood fare the likes of *Dr. Strangelove*, and *Red River*, cartridges for purchase hued far closer to the imagined offerings of the CVR—films from *Erica Wilson’s Basic Crewel* to *Fishing with Gadabout Gaddis*. Lardner, 83, 85; Bob Gerson, “An Honor Roll of CE’s Most Successful Failures,” *Twice* (9/15/2003): 18.

⁹²⁵ Although the industrial sector was not the intended audience of Cartrivision, they were aware of the device’s promise—particularly as a home entertainment technology. “AVCO TV Cartridge Plant Begins Operation,” *Business Screen* (9/1970): 43.

⁹²⁶ Hatcher, “Cassettes and Beyond,” 32.

marketed a hologram tape system (née Holotape), a MagTape system, and, eventually, their VHS equipment under the same name. For those at RCA, SelectaVision was a name “considered too good to be lost.”⁹²⁷ Never mind that by the time RCA used the name for its VHS technologies, it had already graced three major failures.) The SelectaVision VideoDisc used a stylus to read information encoded on a grooved disc, similar to a phonograph. After only three years on the market, the third incarnation of SelectaVision folded in April of 1984. Not to be outdone in the arena of snazzy brand names, MCA demonstrated a laser disc system they christened “DiscoVision” in 1972. In 1974, MCA paired up with Philips, a Dutch electronics company that had been in the midst of similar experiments on a disc system. After a couple of unsuccessful years on the consumer market, the device was rebranded LaserDisc in 1980 and enjoyed moderate success in niche markets.⁹²⁸ Although disc systems could generally offer better visual quality, they appeared in discussions of industrial media primarily as an additional complication to standardization troubles or as a measure of the complex diversity of multimedia possibilities offered by different video systems (i.e., disc, film, tape, playback only, playback and record).⁹²⁹

Other video developers may have been inspired by a comparable audio technology: the compact cassette tape introduced by Phillips in 1962.⁹³⁰ The majority of proposed systems, in fact, used videotape wound in small plastic cassettes. Ampex, the leader in the development of 2-inch quad videotape for broadcasters in the mid-1950s, pursued small format cassettes in the form of Instavideo. Using a half-inch format that met the first EIAJ (Japanese Electrical

⁹²⁷ George Brown, quoted in Lardner, *Fast Forward*, 79.

⁹²⁸ Wasser, *Vini, Vidi, Video*, 64-65.

⁹²⁹ Thomas G. Donlan, “Disc Jockeying: Competition in Home Video is Growing Stronger” *Barron’s National Business and Financial Weekly* (9/15/1979): 11; Hatcher, “Cassettes and Beyond,” 32; “More Video Tape Announcements” *Business Screen* no. 3 (1973): 15; Reid H. Ray, “Wide Acceptance,” 31.

⁹³⁰ Lardner, *Fast Forward*, 70.

Industry) videotape cassette standards, Ampex—a company without major experience in the home electronics field—targeted its device to institutional users in education, industry, government and medicine.⁹³¹ Although excitement met the demonstration of Instavideo in 1970, delays in development pushed the release date from 1971 to 1972, and the firm’s financial difficulties and the strain of producing what turned out to be a very expensive machine lead to the company eliminating production that same year.⁹³² Myriad other companies interested in the instant record and playback capabilities of tape tried their hand at similar technologies.

Panasonic and Norelco (the name chosen by Dutch Phillips to market its products in the U.S.) both had worked on prototypes that were far developed enough to earn them inclusion in growing laundry lists of videocassette manufacturers.⁹³³ The wave of videotape cassette development also saw a range of experimentation in a number of other firms that entered and quickly exited the early race for the home market. Among these were GE Sylvania, Cassette Sciences Corporation (which featured a computer as well as a playback deck in its system), and Norton Simon, Inc. (the parent company of Talent Associates, Inc. hoping to manufacture a home for its content).⁹³⁴

Sony’s U-matic: “a revolutionary new means of communication”⁹³⁵

Of all these, the U-matic was the first videocassette on the market—a position that would help lead to its success as a veritable institutional standard. Although Sony, a Japanese consumer

⁹³¹ “Ampex Instavideo Cartridge Meets EIAJ Standards” *Business Screen* no. 4 (1971): 10. Lardner claims that the device was targeted to the home consumer market, but does not offer an explanation. Lardner, *Fast Forward*, 80.

⁹³² Jeffrey A. Hart, *Technology, Television, and Competition: The Politics of Digital TV*. (Cambridge: Cambridge University Press, 2004): 79-80.

⁹³³ Richard Gilkey, “Instructional Media: Video Cassettes: Problem or Solution?” *The Clearing House* 45, no. 5 (1971): 319; Donnelly, “Blank Cartridges?,” 5; “Comparative Analysis of Video Cartridge Systems,” 26.

⁹³⁴ Donnelly, “Blank Cartridges?,” 5.

⁹³⁵ According to Sony. “The Sony U-matic” [Display Ad 52] *Wall Street Journal* (8/28/72): 11.

electronics firm, developed the U-matic in 1969, the machine would not be available to consumers for two more years. Unlike many of its more delicate counterparts, the delay was not caused by manufacturing issues. Rather, in the interest of presenting its format as *the* standard in videocassettes, Sony shared the technical specifications for its $\frac{3}{4}$ inch cassette with Matsushita and its independent subsidiary Japan Victor Company (JVC) in 1970 to build intra-industry support around their format and offset consumer hesitation to enter an unsettled market. After compromising on a few modifications to the original design, U-matics went on the market in 1971.⁹³⁶ Targeted to an institutional audience comprised of business, military, medicine, education, and government interests, the devices were adopted by a range of large firms, from Lord & Taylor department stores to Pepsi soft drinks (two companies that featured prominently in early advertising).⁹³⁷ 40,000 machines were sold to institutional users in 1972, with half of that number reaching industries and educators in the U.S. and Canada.⁹³⁸ Claiming a backlog of 70,000 unit orders by 1973, Sony announced plans to double production every year until it reached 1,000,000 player recorders manufactured by 1975.⁹³⁹ In short order, the U-matic became the frontrunner in the video player race—and it had a longevity that devices like SelectaVisison and EVR were unable to match. Almost a decade after its initial demonstration, a small, but

⁹³⁶ As with many of the technologies discussed in this chapter, the exact release dates of machines can be difficult to pin down, particularly as they were often pushed back several times after initial announcements. The emergence of the U-matic has been dated to a couple different years. Wasser dates the U-matic to 1969, though he is unclear on what event that signifies (*Veni, Vidi, Video*, 70), Lardner places the release at 1971 (*Fast Forward*, 73), and one news report places the date at 1972. Elliot Tiegel, “Sony’s Many Actions Keep it Progressing,” *Billboard* 84, no. 13 (March 25, 1972): 33. The 1971 date is substantiated by a news brief in *Business Screen* that claims the “Sony system” is “now in full-scale production.” “Sony—New York,” *Business Screen* 32, no. 5 (1971): 31.

⁹³⁷ “Sony—New York,” 31.

⁹³⁸ “Sony Corporation,” *Business Screen* 34, no. 1 (1973): 41.

⁹³⁹ “Telemation Places Large Order: Sony Looks to Manufacture 1 Million Units,” *Billboard* 84, no. 12 (3/8/1972): 40.

supposedly representative study of corporate television users in the United States revealed that every participant used $\frac{3}{4}$ inch cassettes as some part of their audiovisual program.⁹⁴⁰

Despite the dramatic impact of U-matic on the industrial sector (not to mention the other institutional users targeted by Sony's pre-Betamax technology), few pay it serious attention. The U-matic receives only a scant page in Wasser's history, where it functions simply as the second phase (of four) in the development of home video; even RCA's SelectaVision debacles receive about five times the space in the same monograph. Although Lardner is far more concerned with Sony's full corporate history, he positioned the U-matic first and foremost as a "*transitional product* in a long struggle by Sony to develop a videotape recorder for the home."⁹⁴¹ By centering home use as the ultimate goal of video recording, these authors (and others) fall victim to a teleological history in which the U-matic can only be read as a minor player in the context of evolving entertainment technologies—the use they both target as the logical conclusion of video experimentation. The implication is clear: *the U-matic is a failed technology*. The chapter argues the opposite. As I have demonstrated, the early stages of cassette technology became a ground on which different interests could imagine, experiment with, and wrestle over the ideal form of mediated corporate communication early in the second half of the twentieth century. The U-matic, more than any other device, represents a concrete realization of these goals.

Like Super 8 cartridges and other early video player systems, marketers and users pitched U-matic as an efficiency machine. Sony's cassette combined the flexibility of earlier systems with greater claims to expediency and economy. On the first count, tape could be erased and re-used at will to meet changing audiovisual needs. Furthermore, given their simplicity, cassettes

⁹⁴⁰ John A. Bunyan, James C. Crimms, and N. Kyri Watson, *Practical Video: The Manager's Guide to Applications*. White Plains, New York: Knowledge Industry Publications, 1978.

⁹⁴¹ Lardner, *Fast Forward*, 21. Emphasis mine.

could “provide freedom and flexibility” in training programs targeting a wide range of audiences and using diverse lesson plans: groups or individuals, supervised or unsupervised, as stand alone lessons or as part of a series.⁹⁴² Individual users could tailor their lessons by selecting only tapes that corresponded to personal skill gaps. They could even *create their own tapes*, decentralizing production and adding a new form of audiovisual communications flexibility that was out of reach for film-based and playback only systems.⁹⁴³ On the second count, the speed of video processing and the easy distribution of cassettes meant the U-matic was a uniquely fast means of audiovisual communication. This claim, of course, was not new; Motorola promoted the “rapid distribution of information” made possible by the EVR, boasting, “we can have a videotape made in less than a day.” The slippage between the technological differences between tape and film in Motorola’s comments belies the temporal difference between the two media; while Motorola could create a film quickly, processing time delayed cartridges’ distribution to “a little over two weeks.”⁹⁴⁴ For U-matic, however, producers could mail finished cassettes within 24 hours of their completion—and, Pepsi claimed, cassette use could “dramatically expedite information exchanges” between corporate partners.⁹⁴⁵ No one, however, promoted the quick efficiency of the U-matic quite like Sony. An ad that ran in the *Wall Street Journal* not only compared their machine to the transformational power of the printing press, it suggested that—because of its speed and ease—U-matic could save lives. Although the claim was based on a fictional scenario in which a doctor discovers a new valid treatment for cancer and records,

⁹⁴² Bunyan et. al. “Practical Video,” 14. Gentry, *Videotape in Manpower Development*, 57.

⁹⁴³ Connolly, “Audio-Visuals in the Hosiery Industry” 29; “The Sony U-matic” [Display Ad 52], 11.

⁹⁴⁴ Lawrence R. Thorpe, “Motorola Distributor Organization First to Use EVR Teleplayers for Training and Education” (June 9, 1970), MSLAC.

⁹⁴⁵ “2 Firms Aim for ‘Totality’” *Billboard* 84, no. 12 (3/18/1972): 40; “Pepsi-Cola Bottlers Standardize,” 10.

duplicates, and distributes his success immediately rather than wait for “some future medical convention,” the ad estimated a precise jump in survival rates from 30% to 50%.⁹⁴⁶ This dubious science aside, the ad centers on claims linking the speed of audiovisual distribution to increased access of knowledge and expertise. This emphasis continues in the third element of the efficiency triad: lower costs. While some address the U-matic as a lower-price substitute for film, others follow Sony’s lead to position the cassette as an ideal mechanism for cost-effective distribution of expertise—an important claim in an era that saw education and training costs rise; “excessive demands” placed on the time of internal experts; and new economies realized by information exchange between like firms.⁹⁴⁷ Some went even further to prop up videocassettes as a means to increase profits through the easy distribution of valuable knowledge.⁹⁴⁸ Furthermore, as with film cartridges, the individualized nature of cassette and set education allowed for (relatively cheap) individual, unsupervised training—one video training proponent even suggested that initial investments in tape equipment could be recouped in a year, since the cost hued close to the annual salary of the professional trainer who would no longer be needed.⁹⁴⁹ Together, the combined flexibility, expediency, and economy made the U-matic a highly efficient machine for the distribution of information-rich resources across an institution.

This easy distribution of materials that could be used by anyone—a formulation that recalled and intensified the logic of Super 8 cartridges and competing video systems—was a key principle of the videocassette. As companies continued to expand their geographical reach in the twentieth century, their communications needs grew accordingly. Building on practices set in place with Super 8, U-matic became the primary distribution method of video for increasingly

⁹⁴⁶ “The Sony U-matic” [Display Ad 52],” 11.

⁹⁴⁷ Donnelly, *Blank Cartridges*, 15.

⁹⁴⁸ Geltzer, “A Retail Video Fashion Network,” 35.

⁹⁴⁹ Gentry, *Videotape in Manpower Development*, 58.

complex and geographically dispersed institutions.⁹⁵⁰ One of the key functions of U-matic cassettes in supporting corporate expansion was operating as a proxy for important employees in spaces and situations where their presence was desired but the value of their time and the cost of travel restricted their attendance. As I discuss above, videotape—as a representative of television—was considered uniquely suited to putting viewers and mediated subjects into intimate, “personal” contact, and would thus provide an ideal means of simulating “face-to-face” communication, whether in the context of a distant European meeting or a visit to a regional department store branch.⁹⁵¹ A second feature of communication via U-matic cassette was its ability to ensure homogenous distribution of information across a company. Whether for training, employee information, or policy enforcement, the use of cassettes guaranteed employees at different locations received identical presentations.⁹⁵² This could be particularly important for large service-based companies where employees experienced heavy contact with outside clients, as in the case of Illinois Bell Telephone’s desire to achieve uniform knowledge and performance across its 37,000 employees.⁹⁵³ Likewise, cassettes could address the needs of loosely-bound organizational forms, as in the case of The Manufacturers Life Insurance Company which contracted independent agencies—“in wildly scattered locations,” eight countries spanning North America and Asia—that, among them, were responsible for 1800 field agents. U-matics promised a “uniform, cost-effective” method of communication and, potentially more importantly, control within complicated hierarchies and diverse employee bodies in these

⁹⁵⁰ Bunyan et. al. “Practical Video,” 10, 193.

⁹⁵¹ Connolly, “Audio-Visuals in the Hosiery Industry,” 30; Bunyan et. al. “Practical Video,” 87.

⁹⁵² Connolly, “Audio-Visuals in the Hosiery Industry,” 30; Bunyan et. al. “Practical Video,” 3.

⁹⁵³ Bunyan et. al. “Practical Video,” 88.

and other businesses with dispersed organizational structures, e.g., franchises.⁹⁵⁴ Emphasizing the role of cassettes and sets as far-reaching communications technologies, it was common for larger companies to refer to and treat their systems as “networks” linking their employees, partners, and headquarters. As we will see in the next chapter, discourses surrounding the desirability of cassettes’ ability to (relatively) quickly “connect” distributed users via tape distribution networks returns in companies’ promotions of new corporate satellite television networks. In the context of cassettes, the invocation of networking testifies to the U-matic’s perceived ability to offer of extensive distribution and perfect accessibility.

The third major promise made by cartridges and early video players—their ability to target audiences that had never before been accessible (or even legible as a cohesive audience)—appears throughout coverage of the U-matic. And, as we will see, becomes a cornerstone of promotions of satellite systems for business and education in the 1970s and beyond. However, by 1972 when Sony was making a major marketing push for its equipment, what was remarkable to proponents of film cartridges and very early video players became a matter of course for the U-matic. Small or precisely defined audiences attend almost every mention of the cassette’s practical uses. Sony’s own marketing materials imagine world-changing collaboration among professional colleagues—“long-distance teamwork among police in different cities. Among ecologists all over the world”—and small, situated audiences learning their trade in the same spaces they work, e.g., bottlers watching TV next to a Pepsi conveyor line and retail workers

⁹⁵⁴ Ibid., 96, 98; Geltzer, “A Retail Video Fashion Network,” 34. Perhaps because of these organizational forms, insurance companies are often among the earliest of adopters of new electronic communication technologies.

learning about suits in the menswear department of a Lord and Taylor.⁹⁵⁵ Coverage of how U-matic was used by its business clients often focused on the quantity and diverse placement of playback units in scores, sometimes hundreds of locations within internal company communication systems.⁹⁵⁶ Other reviews focused on the merchandising potential of cassettes for customers of big-ticket items like cars and exotic vacations—though left unsaid, a desirable, self-selecting audience.⁹⁵⁷ Despite the attention these reports give to detailing the nature of these extensive but narrowly focused systems, however, few emphasize—or even explain—the value of targeted audiences. As such, it is likely that the ability to communicate to targeted audiences was, by the mid-1970s, a well-accepted virtue of portable video technologies; in searching for continuities between new and preceding technologies rather than ruptures, these shifts in emphasis become meaningful.

Yet another continuity between U-matic and other video players was the role the industrial sector—along with other institutional interests such as education and medicine—played in Sony’s long-term plans to develop a home entertainment video player. Sony’s early marketing strategies indicate early hopes that the U-matic could serve the consumer market, even while institutional users remained central to their pitch. When demonstrated for reporters in 1970, the U-matic was presented as a home entertainment technology—suitable to the express purpose of timeshifting the broadcast schedule—that would be available to a luxury consumer

⁹⁵⁵ “The Sony U-matic” [Display Ad 52],” 11. “When Pepsi went video,” *Business Screen* 12-13; “The Sony Videocassette System proves that better sellers make bigger sales,” *Business Screen* 34, no. 6 (1973): 6-7.

⁹⁵⁶ “Pepsi-Cola Bottlers Standardize,” 10. Companies with substantial playback systems by the end of the 1970s included Illinois Bell Telephone, United States Gypsum Company, Prudential Insurance Company of America, Phillips Petroleum Company, and Mutual Benefit Life Insurance Company. Buyan et. al., *Practical Video*, 88-89, 98, 109, 110, 115; “Datsun Distrib Buys 24 Sony Units as Aide” *Billboard* 84, no. 17 (4/22/1972): 43.

⁹⁵⁷ “Datsun Distrib Buys 24 Sony Units,” 43; “Cartridge TV: ‘View Before You Go’ Goal of Travel Agency Service,” *Billboard* 84, no. 13 (1972): 33.

market in 1972 after their initial release to institutional users in 1971. Once these markets were adequately established, Sony announced they would target a less-expensive model to a mass consumer market.⁹⁵⁸ After two years of practical experience developing the U-matic, the consumer market began fading from certainty; the industrial, military, and educational markets remained central to U-matic rollout efforts, and the unavailability of U-matic devices for the shoppers who witnessed demonstrations in Chicago department stores was attributed to an order backlog for institutional users.⁹⁵⁹ The promise of the home market, meanwhile, found itself confined to occasional asides, as in an ad that wistfully suggests, “Perhaps, some day, there’ll be a U-matic in every living room.”⁹⁶⁰ Sony’s major marketing campaign for the U-matic which ran ads under the tag line, “Sony. The Proven One!,” staked a claim to the leader position in ongoing standardization battles at the same time it solidified the role of the U-matic as an institutional technology. Crowning the device as the soon-to-be “standard of the industry,” ads in the series often emphasized the scale at which the U-matic had been adopted, e.g. “thousands of users” and their “many thousands” of machines, within the context of the same litany of institutional users that appeared in almost every ad: business, industry, education, medicine, government.⁹⁶¹ Finally, Betamax sealed the U-matic’s fate as an institutional technology. A miniaturized, half-inch tape version of the U-matic that used slower tape speeds to economize on the amount of tape each cassette needed, the Betamax was designed to appeal to the home

⁹⁵⁸ Clarence Petersen, “TV Today: Sony Unveils Videocassette for Home Use” *Chicago Tribune* 11/24/1970. A13.

⁹⁵⁹ “Cartridge TV: Sony Plans Full Dealer Net, Ads For its System,” *Billboard* 84, no. 7 (2/12/1972): 23; “Tape/Audio/Video: Second Major Chain Shows Sony TVC Unit,” *Billboard* 84, no. 39 (9/16/1972): 57.

⁹⁶⁰ “The Sony U-matic” [Display Ad 52],” 11.

⁹⁶¹ “When Pepsi went video,” 12-13; “The Sony Videocassette System proves,” 6-7.; “So Simple,” 9; Another tack was emphasizing the market share Sony enjoyed, e.g., the “So Simple” ad referenced above quoted a study suggesting that 75% of those interested in purchasing a video player system in 1974 (the following year) intended to buy a U-matic.

market. In order to situate Betamax as a consumer technology when it was made available to consumers in 1975, U-matic became the “commercial model” against which Sony contrasted its new “home model.”⁹⁶² The split between users of U-matic and Betamax would not remain so clear in practice when smaller companies and those with highly diversified media practices adopted the cheaper Betamax system.⁹⁶³ However, the U-matic would remain a widely-used industrial technology well into the 1980s.

Several factors likely lead to the U-matic’s success. Following a collaboration strategy with other manufacturers that set them apart from other developers, the format bore the sheen of standard-bearer early. As a record and playback medium, U-matic—unlike film, disc, or even some tape formats—offered users the portability, flexibility, and ease-of-use of film cartridges alongside the ability to originate programming and efficiently reuse materials. When the U-matic offered to mediate business operations, it promised to perfect the distribution of scarce resources (expertise), offer a mechanism of management and control over diverse and geographically expansive companies, and strengthen corporate “networks” that reached targeted communities and audiences. Furthermore, on the level of economy, the U-matic supported industrial desires for cheaper individualized instruction that put greater responsibility on workers to teach themselves; workers could screen tapes on their own or make their own performance review tapes that revealed to them their flaws without the uncomfortable intervention of an instructor. These taped reviews asked workers to understand their screen image—and thus the self—as an object to be worked on for the betterment of the company. In an era of uncertainty—war,

⁹⁶² Anne Douglas, “Consumer-wise: Home video tape ready—again” *Chicago Tribune* 11/8/1975: N_B10; “Sony to Market Lower-Priced Model of Recorder Player” *Wall Street Journal* 4/17/1975: 24.

⁹⁶³ Ray Oviatt, “Goodyear Relies Heavily on A/V for Training, Sales,” *Back Stage/Business Screen*, May 1977, S-10.

recession, social conflict, information explosion—U-matic also offered television. Recognized by companies as a humane, personal medium that could deliver the company message to workers in comfort borrowed from their domestic watching habits, television entreated workers to understand mediated corporate communications as benevolent, a comforting technology that invited them to participate more fully in the aims of the corporation. This association with the home is ironic, since much like the EVR before it, the U-matic remained a home entertainment technology that darkened the doorway of few actual households.

Conclusion

Until now, the history of videocassettes has been confined to the home. When authors address the myriad video technologies that preceded the Betamax and U-matic, they position them as an intermediary step in a long quest to conquer the home market; authors do not address the connection between video and 8mm and Super 8 cartridges at all. By positioning early video players as a stepping-stone to consumer Betamax and VHS, they become the origin point for a later technology, rupturing the continuity devices like the EVR shared with its own technological predecessors. As a result, early format video occupies a place within media history as a succession of short-lived failures. The so-called “failure” of these technologies, in turn, becomes justification for ignoring them. This chapter argues that this is a mistake. By focusing only on the consumer entertainment market, videocassettes become synonymous with what home users made of them. Certainly, a big part of the history of video is home audiences pushing back against the broadcast schedule, confronting the power of copyright holders, sharing bootlegs, consuming and circulating pornography, participating in guerilla tape networks, making home movies, and making art. However, if we focus only on how videocassettes and recorders empowered

audiences, we miss how the flexibility, economy, and ease-of-use of cassettes *also served the needs of capitalism during a key period of national and global expansion.*

Considering film cartridges and early video formats as a part of a much longer “format war” that began well over a decade before the introduction of the Betamax activates the history of these technologies and the institutional sectors where they developed as significant influences on the cultural circulation of texts and technologies. Expanding our focus beyond the entertainment industries introduces a host of powerful actors interested in the development of portable, user-friendly technologies that smoothed institutional communication. It demonstrates the key role the industry played as an incubator for consumer electronics: a place where R&D expenditures could be recouped on higher-priced machines, where kinks could be worked out, and where companies could build brand recognition and interest in a new technological affordance, e.g., home recording, with the same individuals who would become the upscale early-adopters of their first home consumer models. It also deepens the discussion on videocassette format standardization by adding to current debates about the place of the home audience and marketing campaigns in the victory of the VHS standard. Different voices become important; institutional equipment manufacturers (Technicolor, Fairchild, Kodak), studios and software developers, broadcasters, engineers, and audiovisual professionals competed to mark out the most important elements of future standardization. In struggles that often ignored the fine-grained (and in some cases, meaningless) distinctions between non-compatible machines, manufacturers hoped for the victory of a proprietary standard, while audiovisual professionals within the industrial sector pushed for fast resolution of format “confusion”—a perceived threat to greater investment in their field—more than any specific set of affordances. It also reveals how early standards were determined (if at all), and who had the power (and who did not) to enforce their preferred standards outside of the home entertainment sector. While it may seem unusual to include such a wide range of technologies within the same

standardization debate—particularly since the U-matic was the only format to come close to SMPTE’s specifications for standardization—conversations that surrounded all of these machines in a short 15-year span spoke to how parties perceived the value of standardization writ large within their industries and illustrated reoccurring institutional desires surrounding mediated communication: flexibility, ease, economy, speed, the ability to pinpoint precise audiences.

Focusing on continuity rather than rupture—even if we can spot record/playback and the approximation of television as “winning” affordances—reveals the value that mediated communication promised to business and industry. In terms of operations, ideal communication machines were not only themselves cheap, fast, and efficient—they made the company cheaper, faster, and more efficient to run. The ease of distribution of film cartridges and videocassettes offered perfect access to any audience, anywhere, any time. In practice, they also promised low-level workers or distant company partners limited access to executives and other high-level employees via taped addresses—at little cost (time or otherwise) to upper-level management. Communication serves as an important form of organizational control; increases in mediated communication facilitated by prolific, easy-to-operate technologies helped companies manage dispersed operations, ensure homogeneity among employees, distribute information on company policy and product information, and allegedly—through the “power” of television and glamour of film—motivate workers. The place of employees—and the relationship companies imagine building with them—shifts throughout debates on portable television technologies. While early 8mm cartridges were often discussed as a replacement for employees—revealing an understanding of workers (salesmen) as little more than empty vessels for the company line—companies couched video and tapes in discussions of exploiting workers’ home media habits. Television became a means of “comfortable” and “reassuring” training in companies’ attempts

to appeal to workers while sometimes simultaneously shifting greater responsibility onto them, e.g., in self-teaching and home study.

The next chapter further explores this relationship between industrial media users and their imagined audiences by examining how and why companies turned to satellite systems to build intricate and expansive media systems—what I call “narrowcast networks.” Using two case studies—one that looks at satellite systems’ international distribution of live-seeming filmed programming with pinpoint accuracy and another that looks at how companies used satellites’ two-way capabilities for videoconferencing and action at a distance—I argue that satellite television offered the combination and culmination of orientation logics (within television) that sought logistical and cultural management capabilities; these are the same industrial desires that are currently fulfilled by computing technologies and the internet.

Chapter Five

Satellites, Narrowcast Networks, and the Utility of Liveness

The last chapter saw the beginning developments of a mode of thinking about corporate communication that prized increasing access, speed, spread, and precision. However, as long as videocassettes invoked timeshifting as a cornerstone of their flexibility, they could not allow for certain forms of communication—notably live communal viewing and instantaneous interaction—that bore potential utility to corporate operations. Coming a little over a decade after videotape became a practical reality, satellites built on many of the affordances of cassettes, while providing a workable system that enabled companies to both distribute live and taped content and hold live face-to-face meetings at a scale that matched their companies' increasingly global reach.⁹⁶⁴ While this chapter describes the rise of private business satellite television networks as yet another mechanism for increasing the scale of corporate empire, in this instance my focus rests on how companies took up satellite television networks to appeal more directly and more intimately to their own workers, emphasizing the affective relationships important to strengthening human infrastructure as a means to undergird expanding operations. Through two case studies, I describe how companies used, commented on, and attempted to formally augment satellites' claims to liveness and instantaneous global (but perfectly targeted) reach in order to work on their own corporate identities and position themselves *before their employees* as global powerhouses, generous purveyors of vital (weaponizable) sales information, and concerned

⁹⁶⁴ While CCTV circuits allowed for these uses, they could not meet the national and even global scale of satellite communications.

employers interested in developing community and shared understanding across corporate hierarchies.

The successful launch of Sputnik on October 4, 1957 helped set the dynamics by which satellite communication technology would be developed in the United States. Although a shock for some, National Security Council memos reveal that the CIA anticipated a Soviet attempt at a space launch as early as November 1957.⁹⁶⁵ Although analyses of public opinion before and after the launch of the first artificial satellite cast doubt on the extent to which the majority of the American public was overly concerned by gigantic full-page *New York Times* headlines and panicky news reports regarding the threat of Soviet scientific and technological supremacy, the launch certainly unsettled Washington.⁹⁶⁶ A National Security Council report suggests presidential concerns over national prestige and a keen interest in international opinion shaped U.S. strategies for satellite experimentation.⁹⁶⁷ Wernher von Braun, the first director of NASA, established the legitimacy of his office thus: "Overnight it became popular to question the bulwarks of our society, our public education system, our educational strength, international

⁹⁶⁵ National Security Council, "Discussion at the 339th Meeting of the National Security Council, Thursday, October 10, 1957," 11 October 1957, NSC Series, Box 9, Eisenhower Papers, 1953-1961 (Ann Whitman File), Dwight D. Eisenhower Library, Abilene, Kansas.

⁹⁶⁶ For a report on pre- and post-sputnik attitudes compiled for the U.S. President's Committee on Information Activities Abroad, see International Affairs Seminars of Washington, "American Reactions to Crisis: Examples of Pre-Sputnik and Post-Sputnik Attitudes and of the Reaction to other Events Perceived as Threats," 15-16 October 1958, U.S. President's Committee on Information Activities Abroad (Sprague Committee) Records, 1959-1961, Box 5, A83-10, Dwight D. Eisenhower Library, Abilene, Kansas.

William J. Jordan, "SOVIET FIRES SATELLITE INTO SPACE: IT IS CIRCLING THE GLOBE AT 18,000 M.P.H.; SPHERE TRACKED IN 4 CROSSINGS OVER U.S." *New York Times*, Oct. 5, 1957. Front Page; John W. Finney, U.S. Missile Experts Shaken by Sputnik: Weight of Satellite Called Evidence of Soviet Superiority in Rocketry, *New York Times* Oct. 13, 1957. 158; George Callup, "Sputnik Hurt U.S., Gallup Poll Finds" *Los Angeles Times* Oct. 21, 1957, 7.

⁹⁶⁷ National Security Council, "Discussion at the 347th Meeting of the National Security Council, Thursday, December 5, 1957," 6 December 1957, NSC Series, Box 9, Eisenhower Papers, 1953-1961 (Ann Whitman File), Dwight D. Eisenhower Library, Abilene, Kansas.

policy, defense strategy and forces, the capability of our science and technology. Even the moral fiber of our people came under searching examination.”⁹⁶⁸ The Soviet’s successful launch of a second satellite, Sputnik II with the space dog Laika, and the failure of Vanguard TV3, the U.S.’s first attempt to reach orbit, all by the end of 1957 further stoked the concern of government officials. When discussing the U.S.’s inability to match the Soviets with their own functioning satellite, CIA director Allen Dulles ruefully described the U.S. as “the laughing-stock of the whole Free World.”⁹⁶⁹ In response, the government founded a new major agency (National Air and Space Administration), created new political positions and committees (Special Assistant to the President for Science and Technologies, House and Senate committees for space and science), and developed a new office within the State Department dealing with the political implications of space issues.⁹⁷⁰ The U.S. also devoted major funding for missile and space programs and authorized hundreds of millions of dollars of spending on mathematics and science education (via the National Defense Education Act of 1958) to produce defense workers. Eventually, the U.S. successfully launched their own satellite, Explorer 1, in February 1958. In the ensuing decade, satellites would become inextricably tied to questions of national, global, and interplanetary power.

In this early experimental period, those within the industrial media sector participated in the space race primarily through the production, distribution, and promotion of sponsored films covering the development of satellites. In particular, companies with interests in satellite technology created and commissioned films promoting the contributions of private enterprise to

⁹⁶⁸ Quoted in Heather Hudson, *Communication Satellites: Their Development and their Impact* (New York: Free Press): 1990, 13.

⁹⁶⁹ National Security Council, "Discussion at the 347th Meeting" np.

⁹⁷⁰ See Edward W. Ploman, *Space, Earth and Communication* Edward W. Ploman (Westport, Connecticut: Quorum Books, 1984): 4.

science and American progress. *A Moon is Born* (prod. Transfilm Inc., 1957), a four-minute animated film sponsored by IBM, for example, previews the complexity of the eventual launch of the Vanguard Satellite and describes the company's own contribution—the computer that will track the satellite's continuously shifting orbit.⁹⁷¹ Other films featured in *Business Screen* include *Live via Early Bird* (Sponsored by Douglas Aircraft Company with the Communication Satellite Corporation, 1966), one of the aviation company's "'soft-sell' image builders" that promoted the transmission capabilities of the first commercial geosynchronous satellite, and *The Big Bounce* (Sponsored by the Bell System, prod. Jerry Fairbanks, 1960, 14min), which described "the breakthrough in audio-visual communication" enabled by Echo 1, the first passive communications satellite.⁹⁷² While these sponsors often worked with government agencies to secure their approval, ensure the accuracy of their information, to protect technical secrets, and for distribution purposes (*Live via Early Bird*, for example, was distributed in six languages by the United States information Agency), government institutions also commissioned films directly from industrial film studios.⁹⁷³ Raphael G. Wolff Studios created *X minus 80 days* (21 min) to promote the lead-up to the launch of Explorer I and the activities of the Army Ballistic Missile

⁹⁷¹ A description of the film with images can be found in "Preview of the Earth Satellite" *Business Screen* 18.5 (1957): 36 and Charles Sinclair "Moon is Born" *Billboard* 7/22/57: 20. In his review, Sinclair sets the film apart from its sponsored brethren, noting it was a welcome contrast to those "many free film handouts [that] are little more than press agentry-on-celluloid."

⁹⁷² *The Big Bounce* is available on the Internet Archive: <https://archive.org/details/BigBounc1960>. For descriptions of both films, see "Audio-Visuals are Working Tools at the Douglas Aircraft Company" *Business Screen* 28.3 (1966): 53; "Project Echo: the Breakthrough in Audio-Visual Communication" *Business Screen* 21.5 (1960): 29.

⁹⁷³ This would, of course, supplement the government's own high levels of content production, such as the television documentary series, *The Big Picture*, which featured an episode covering Army Satellites (Army Pictorial Service, 1957, 28 minutes). *Early Bird* would become further known due to its role in the broadcast of *Our World*. See Lisa Parks, "Satellite Spectacular" in *Cultures in Orbit*, 21-46

Agency, the Jet Propulsion Laboratory, and the California Institute of Technology.⁹⁷⁴ Returning to the concerns of chapter two, many of these films were shown on television, as well as more unusual contexts, such as scientific conferences.⁹⁷⁵

As communication satellites became increasingly sophisticated, industrial film producers watched with patient interest. While *Business Screen* cheered the 1962 launch of Telestar, AT&T's communication satellite and the first commercial satellite, as an indication of the service private enterprise has rendered the "space age," practical coverage of satellite technologies and their potential contribution to corporate communications was infrequent in the journal across the following decade. (In part, no doubt, because these conversations migrated to new journals like *Satellite Communications*, which was founded in the late 1970s.)⁹⁷⁶ Articles that mentioned satellites outside of the context of sponsored films tended to touch on them only briefly, primarily in the context of designing high-tech audio-visual facilities. These satellites were imagined to serve as supports for videoconferences, information retrieval, and live program distribution—but of course, their utility needed to be "proven" first.⁹⁷⁷ Occasionally, satellites

⁹⁷⁴ "Birth Sage of Explorer I" *Business Screen* 19.7 (1958): 48. See *Opening Space Research: Dreams, Technology, and Scientific Discovery*, George H. Ludwig. For a very brief description of the production of the film. This film is currently available to watch online at https://www.youtube.com/watch?v=G_ciZgIOPZY.

⁹⁷⁵ *X minus 80 Days*, for example, was edited to appear as a major segment of *You Asked for It* (DuMont 1950-51; ABC 1952-1959) and shown at the Western Space Age Conference in 1959. "Birth Saga," 48. The television distribution of *The Big Bounce* was the product of tight coordination between Technicolor, AT&T's motion picture staff, and Jerry Fairbanks Productions who provided prints to networks within hours of the satellite's successful launch, "Project Echo: the Breakthrough," 29. Not only was *A Moon is Born* distributed to 255 television countries spanning 12 countries, versions of the short film were edited for television and film newsreels (United Press TV, Movietone News, and Universal-International Newsreel), Preview of the Earth Satellite," 36.

⁹⁷⁶ [I think 1978; trying to get the date]

⁹⁷⁷ Ott Coelin, "The Role of Audiovisual Systems" *Business Screen* 30.9 (1969): 18; Michael J. Ritt, "New Communication Center at Chicago's Combined Insurance" *Business Screen*. 33.5 (1972): 41; Hubert Wilke, "The Bright Future for A-V Systems. *Business Screen* 29.2 (1968): 8.

and their cultural connections to scientific progress and global communication served a more rhetorical purpose, allowing industrial film producers to invoke their presumed eventual entanglement with the technology (for international distribution purposes) to situate themselves as facilitators “of worldwide understanding.”⁹⁷⁸ On a more mundane note, the “age of the satellite” was invoked as evidence for the importance of creating sponsored films with “science appeal” in order to follow new trends and “use this scientific revolution to [industrial film producers’] advantage.”⁹⁷⁹ As industrial film interests hesitated, waiting to see when space on commercial satellites would become easily available for the distribution of audiovisual materials, satellites became a site of experimentation (and uncertain policy) for a number of different interests.

Although the government funded and oversaw the initial research and development of American satellite systems, NASA clearly indicated as early as 1959 that they hoped to lay the groundwork for a commercial system.⁹⁸⁰ In 1962—the same year that launched Telestar 1—congress enacted the Communications Satellite Act, which created COMSAT (Communications Satellite Corporation), a partnership between existing common carriers (AT&T, ITT, RCA, Western Union), public stockholders, and the government, charged with overseeing the development and eventual operation of a commercial communication satellite system. At first, the vast majority of interest targeted international communications and, later, struggles over control of the domestic market lead to further developmental delays. As Heather Hudson points out, almost ten years lapsed between a private company’s proposal for a domestic commercial

⁹⁷⁸ Ott Coelin, “New Means of Projection Challenge to the Creators and Sponsors of Films.” *Business Screen* 22.4 (1961): 8.

⁹⁷⁹ Jonathan Karas, “Films with Science Appeal” *Business Screen* 21.7 (1960): 47.

⁹⁸⁰ Hudson, 16-17.

satellite (ABC) and the 1974 launch of Westar 1 (owned by Western Union).⁹⁸¹ In the interim, the U.S. turn to an “open skies” policy in 1972 allowed any qualified entity to operate a domestic satellite system, provided they obeyed antitrust laws. Although private domestic satellite operators assumed networks would be their most profitable lessees, existing agreements with AT&T and concerns over new technologies and the cost of adoption delayed their switch to satellite systems. Instead, pay television through services like Home Box Office (HBO) and cable providers became the major financial support for commercial satellites’ ongoing operation, becoming a \$10 billion industry by the late 1980s.⁹⁸² Following a different path, Comsat General (a COMSAT subsidiary), IBM, and Aetna Life and Casualty partnered in 1975 to develop and operate the first commercial satellite system targeted towards business users. Under the aegis of Satellite Business Systems, the group launched its first satellite in 1980 with the hopes of appealing to users with voice and data transmission as well as videoconferencing. It is the ambitions animated by these latter interests that offer the focus of the remainder of this chapter.

Following the money, so to speak, much of the academic attention given to satellites has focused on commercial entertainment industries and audiences, even if these are figured primarily in national and international terms. Scholars have traced (or registered their own) hopes and concerns regarding satellites’ capabilities to distribute cultural resources across national borders, “undermine twentieth-century sovereignties and their attendant social relationships and cultural and ethnic identities,” establish difference and distance, fragment audiences, and shape international relations.⁹⁸³ Often attuned to several of these issues, others

⁹⁸¹ Hudson, 40. As Hudson points out, part of this delay may have been strategic on the part of ABC, which saw domestic satellite service as direct competition (52).

⁹⁸² Hudson, 64.

⁹⁸³ David Morely and Kevin Robins, *Space of Identity: Global Media, Electronic Landscapes, and Cultural Boundaries* (New York: Routledge, 1995): 68-69, 226-228; Sara Fletcher Luther,

have taken up studies of policy and law to mark how satellite technology has been constrained along established lines of power, to map the consequences of utopian rhetoric in the development of satellite and cable policy in the United States, and to predict future policy needs with the coming of technological competitors, such as fiber optics.⁹⁸⁴ Still others created detailed chronologies mapping out industry dynamics and issues of competition, technological development and ownership in the multichannel era and earlier.⁹⁸⁵ Within cultural studies, researchers asked after the reception of satellites and viewer “mobility,” and the satellite dish as object and its places within taste hierarchy practices in England.⁹⁸⁶ The most in-depth cultural treatment of the satellite come from Lisa Parks, whose book *Cultures in Orbit* addresses the ways in which accounting for satellites demands we reconfigure and expand our understandings of television and the televisual.⁹⁸⁷ As I note below, Parks’ work in many ways lays the groundwork for my analysis of business satellite television.

Although these treatments tend to understand satellites as a distribution mechanism for audiovisual programming to national publics and paid subscribers (with Parks a notable

The United States and the Direct Broadcast Satellite: The Politics of International Broadcasting in Space (New York: Oxford University Press, 1988): 7; Ploman, *Space, Earth and Communication*, 1984.

⁹⁸⁴ Brian Winston, *Media, Technology and Society: From the Telegraph to the Internet* (New York: Routledge, 1998): 304; Thomas Streeter, “Blue Skies and Strange Bedfellows: the Discourse of Cable Television” in *The Revolution Wasn’t Televised: Sixties Television and Social Conflict* eds. Lynn Spigel and Michael Curtin (New York: Rutledge, 1997): 225; George A. Coddington, Jr., *The Future of Satellite Communications* (Boulder: Westview Press, 1990). Of course, practical manuals on satellite law, such as Stephen de B. Bate, ed. *Television by Satellite – Legal Aspects* (Oxford: ESC Publishing Limited, 1987), proliferated as well.

⁹⁸⁵ Hudson, *Communication Satellites*, 1990; Patrick R. Parsons and Robert M. Frieden, *the Cable and Satellite Television Industries* (Boston: Allyn and Bacon, 1998); Edward Binkowski, *Satellite Information Systems* (Boston: G.K. Hall Publishers, 1988).

⁹⁸⁶ Shaun Moores, “Satellite TV as Cultural Sign: Consumption, Embedding and Articulation,” *Media, Culture and Society* 15.4 (1993): 621-639; Charlotte Brunsdon, “Satellite Dishes and the Landscapes of Taste,” *New Formations* (winter 1991): 23-42.

⁹⁸⁷ Lisa Parks, *Cultures in Orbit: Satellites and the Televisual* (Durham: Duke University Press, 2005).

exception), the active field of satellite applications is much wider. After the distribution of television, voice traffic—some of which includes the transmission of other data forms—comprised the third highest use made of satellites in 1990.⁹⁸⁸ Data transmission spanned diverse commercial and governmental operations. A short list of such uses includes the distribution of market information to stockbrokers, client transaction information (car rentals, credit card verifications), information on agricultural goods' prices and availability shared across the U.S. Department of Agriculture's (USDA's) Agricultural Marketing Services' network of VSAT (Very Small Aperture Terminal) ground stations, and client records (as in the case of the insurance industry).⁹⁸⁹ Never quite losing the connection to their militaristic roots, satellites are also used for reconnaissance and information gathering, as well as many other "remote viewing" operations to gather data for studies in meteorology, hydrology and oceanography, agriculture, geography, and geology.⁹⁹⁰ Of course, work in these fields often has commercial applications, e.g., geological surveys to locate oil deposits. Satellites have also been used to aid navigation through global positioning systems, send distress signals, and develop early warning systems in the case of catastrophe. This list is not comprehensive; instead it is designed to indicate the array of uses and users that have been incorporated into satellite systems. This chapter adds to this list with an in-depth look at one more pair of uses adopted within the same industrial audiovisual sector described by the rest of this dissertation: 1) the use of satellites to build private corporate television networks for the distribution of industrial programming and 2) modified corporate

⁹⁸⁸ Hudson, 73. Of the authors noted in the previous paragraph, Hudson provides the most detail regarding what she calls "specialized services" provided by satellites. See chapter 6, 72-90.

⁹⁸⁹ Hudson, 80-81.

⁹⁹⁰ For a discussion of how such images reinforce certain modes of understanding the earth, affirm cultural and national hierarchies, and testify to increasingly close relationships between the military, government, and commercial interests, see Jody Berland, "Mapping Space: Imaging Technologies and the Planetary Body" in *North of Empire: Essays on the Cultural Technologies of Space* (Durham: Duke University Press, 2009): 242-272.

video “teleconferencing.” These “private” uses of satellites are rarely described in academic literature and have yet to be addressed at significant length.

Before advancing to the late 1980s and 1990s—the era in which businesses began to use satellites for program distribution and video teleconferencing—it is useful to examine how satellites had been imbricated in a host of information and knowledge building projects throughout the experimental period of the 1970s. As indicated by the previous chapters, the educational sector, which overlapped and ran alongside the industrial media sector, often took up similar questions—though to different ends—regarding new media and its relationship to content distribution, pedagogical efficacy, and the development of audiences. As satellites grew in technical sophistication, international organizations, governments, and universities increasingly placed the technology at the center of investigations into education reform, intercultural communication, and national development. These experiments set some of the conditions by which satellites would be understood within the business sector by 1) promoting expansive notions of learning by satellite with regards to its potential audiences and content flows, 2) establishing the geographical reach and power of satellite technologies, 3) contributing to ongoing discussions regarding the particular utility of television for teaching, 4) establishing satellite communication as cost effective relative to other technologies, and 5) linking satellites to discourses that would emerge as “globalization” in the 1980s and 1990s. I’ll address each of these in turn.

Learning

The experiments that marked the 1970s sought diverse audiences and attended to a variety of instructional and national concerns, positioning satellites as a flexible technology that

could serve educational ambitions as they were understood most broadly.⁹⁹¹ In several instances, the United States attempted to use satellites to reach isolated, “communications poor” communities—often also defined by low socioeconomic status (Alaska, Appalachia, the Rocky Mountains, and Hawaii).⁹⁹² In Alaska, the site of several experiments, satellites carried audio and, eventually, video to dozens of sites to meet a range of health, educational, and cultural goals. Using two-way conferencing, satellites connected village health aids to a Public Health Services doctor to obtain diagnoses and care information. For public audiences, they distributed programs on hygiene, American culture (*All Things Considered*), and native culture in the hopes of improving population health, ameliorating the sense of cultural isolation between Alaska and the lower 48 states, and providing meaningful programming for the state’s many Eskimos, Aleuts, and Alaskan Natives. Educators were served by two-way teleconferences that enabled teachers to obtain professional training from the National Education Association without undertaking expensive and difficult travel and to communicate more directly with their organization leaders.⁹⁹³ While these latter efforts attempted to strengthen the country’s formal education system, the focus remained on training the industry’s professionals rather than reaching schoolchildren directly. Likewise, with the exception of the distribution of programming, the other experiments focused on the ability of satellites to facilitate communication and information sharing between medical professionals.

⁹⁹¹ Many of these experiments used satellites launched as part of NASA’s Applications Technology Satellite (ATS) program, which comprised six satellites designed to run a wide variety of experiments, technological, scientific, and cultural.

⁹⁹² Kenneth A. Polcyn, *An Educator’s Guide to Communication Satellite Technology* (Washington, D.C.: Andromeda Books, 1975): 51.

⁹⁹³ For a more detailed description of these experiments, their goals, supporters, and outcome, see Polcyn, 39-41, 51-99 and National Education Association, *Appalaska Intercom: Report of the NEA’s Satellite Experiment-1977* (Washington, D.C.: National Education Association, 1977). This last set of users and uses was duplicated in the Appalachia area of the United States, where teachers also suffered from isolation.

Other efforts focused primarily on targeting populations directly. The primary users of satellite technologies in Hawaii, the Rocky Mountains, and Wisconsin were school children and college-aged students. Across these sites, satellite programs linked universities through voice, fax, and slow-scan television (Hawaii), attempted to provide preschool-aged students with programming to develop language, communication, and “reading readiness” (Rocky Mountains), and enabled foreign language students to practice their skills by interacting with their peers in other countries (Wisconsin).⁹⁹⁴ Likewise, plans in Brazil were primarily interested in classroom learning and the possibility of using satellites to correct steep imbalances in children’s access to education and to strengthen the country’s struggling national education system. Several proposals outlined programs that would target grade school students in 500 different sites (some remote) with a mix of television and radio programming materials in a variety of subjects from Portuguese to mathematics. Success of the experiment would be measured by the educational performance of students and the cost effectiveness of the satellite programs in relation to existing methods.⁹⁹⁵

One of the largest programs to distribute programming directly to non-professional audiences, however, operated outside of formal education contexts. Between July 1975 and June

⁹⁹⁴ See Polcyn, 41, 47; Delbert D. Smith, *The Use of Satellite Communication for National Development, Education and Cultural Exchange* (Madison: EDSAT Center, c1971): 148-153; Henri Dieuzeide, “An experiment in educational broadcasting by satellite: the Paris-Wisconsin project, 31 May 1965,” in *Communication in the Space Age: the use of satellites by the mass media* ed. UNESCO (Paris: UNESCO, 1968): 71-73. These projects also often had secondary aims for teacher training and technical experimentation, here, however, my emphasis is on how these programs helped broaden the imagined audiences for satellite communications.

⁹⁹⁵ This initiative formed part of a project called Satellite Avancado de Comunicacoes Interdisciplinares (SACI) which harbored the ultimate goal of providing educational resources to the entire country. Smith, 138-147. [According to this article written in Portuguese that I put into google tranlate] The SACI project ended before it began due to the federal government closing the experiment due to internal conflicts. http://www.scielo.br/scielo.php?pid=S1413-24782005000300011&script=sci_arttext

1976, The Satellite Instructional Television Experiment (SITE) program—a result of a partnership between India’s Department of Atomic Energy and NASA to share satellite equipment—distributed a wide variety of programming to 2,400 rural Indian villages. Morning hours were devoted to children’s educational programs while evening hours were geared towards adults with shows relating to “science, agriculture, health and nutrition, family planning, national awareness, news and public affairs, social problems, religious events, entertainment, domestic work, biographies, handicrafts and home industries, and animal husbandry.”⁹⁹⁶ Watched by an estimated 100,000 people per day, the program was designed to facilitate communal viewing (believed to increase the efficacy of the programs’ messages regarding health information and family planning) within the study villages.⁹⁹⁷

Across the experiments the educational and informational value of satellites was figured broadly as a technology that could reach diverse publics to strengthen formal education, create a more informed citizenry, and assist in professionalization and employee training. Indeed, in many instances, these goals overlapped with each other as cultural commentators sought solutions to systemic problems plaguing (in particular, developing) nations and isolated communities. In short, although many of these experiments were classified by their originators as educational, work and employment issues were never far behind, with some linking educational efforts to making the most efficient possible use of cultural, technological, and informational resources by attempting to simultaneously solve unemployment problems, e.g., “education for work.”⁹⁹⁸ Although not all of these plans came to fruition, they nevertheless provided a ground

⁹⁹⁶ Prakash M. Shingi, Gurinder Kaur, and Ravi Prakash Rai, *Village Affluence, Knowledge-Gap and Satellite Television* (Ahmedabad: Centre for Management in Agriculture, 1977): 1.

⁹⁹⁷ Shingi et al., 1; Smith, 126.

⁹⁹⁸ John Middleton, “Educational Needs in the Developing World,” in *Toward International Tele-Education*. Eds Wilbur T. Blume and Paul Schneller (Boulder: Westview Press, 1984): 16.

on which dozens of regional, national, and international organizations could collaborate in mapping out desirable relations between educational initiatives and new technologies.

Geographical reach and power

In addition to constructing the potential audiences of satellite projects as diverse in terms of age, profession, and information needs, these early experiments testified to the ability of satellites to reach distant and remote populations and users, transforming the entire globe into a series of accessible audiences for knowledge and information projects. Lawrence Grayson, deputy director of Division of Educational Technology in the U.S. Office of Education describes this “rendering accessible” capability as a function of the satellite’s homogeneous technological reach within the boundaries of its “footprint”:

A satellite offers a country that lacks ground communications a system that can cover a geographic area of a million or more square kilometers. It can broadcast to the entire region or beam its presentations selectively to specific areas for particular uses. It can reach isolated, mobile, and dispersed populations with an ease and total cost equal to that involved in reaching dense groupings of people. Unobstructed by mountains and rivers and ‘impassible’ terrain, it offers easy access to regions that would be extremely difficult or very expensive to reach by ground systems. Truly, satellites are a man-made resource having a potential to reach and affect everyone.⁹⁹⁹

The development of direct broadcast satellites (DBS), which enabled users to receive signals on their home set, lead the National Education Association (NEA) to reinforce the ability of satellites to reconfigure geographies, predicting, “A few decades from now, when satellites can reach individual homes and schools directly, the word *isolated* may well be meaningless.”¹⁰⁰⁰

See also Herschelle S. Challenor, “Current International Plans and Programs to Address Educational Needs in Developing Countries” in the same anthology, 29-42.

⁹⁹⁹ Parks, *Cultures in Orbit*, 49. Lawrence P. Grayson, “Education beyond the Horizon: Uses of Communications Satellites for Education in Developing Nations are considered” *Science* 170.3965 (December 25, 1970): 1376.

¹⁰⁰⁰ National Education Association, *Man-Made Moons: Satellite Communications for Schools* (Washington, D.C.: National Education Association, 1972): 8. Although authorship is not directly identified in this booklet, it should be noted that Grayson was one of its “preparers.”

Arthur C. Clarke, the science fiction author credited with imagining the possibilities of geosynchronous orbit (which revolutionized the efficacy of communications satellites), suggested even more vividly the satellite's ability to conquer topography (in part, quoting himself), “‘What we are building now is the nervous system of mankind...The communications network, of which the satellites will be nodal points, will enable the consciousness of our grandchildren to flicker like lightening back and forth across the face of this planet’...the conquest of space will be complete.”¹⁰⁰¹

Of course, in these projects, often guided by humanitarian goals, accessibility was generally figured as the good granted audiences (rather than the benefit accorded institutions, i.e., access to populations). These discourses often emphasized the extent to which people in rural and remote areas were newly granted the ability to access programs, services, and cultural goods otherwise unavailable to them; in other words, satellites become “*the key in making specialized resources from many places available wherever they are needed.*”¹⁰⁰² In the context of formal education, for example, satellites were imagined to provide students with a cornucopia of the highest quality educational materials and practices possible (notably while securing efficiencies in national educational systems):

How many nuggets of excellence have we in our schools that would contribute to the general enrichment if we could share them? A great teacher here. An exciting demonstration there. A challenging lecture or series of lectures in one place. A drama in

¹⁰⁰¹ Arthur C. Clarke, “Predication, realization, and forecast” in *Communication in the Space Age: the use of satellites by the mass media* ed. UNESCO (Paris: UNESCO, 1968): 38.

¹⁰⁰² National Education Association, *Man-Made Moons*, 13, emphasis in original; Mary Kay Platte, *The Beginning of Satellite Communication: Airborne ITV, MPATI, and the Ohio Story* (Dubuque, Iowa: Kendall/Hunt Publishing Company, 1982): 86; Polcyn, 51-52; National Education Association, *Appalaska*, 35-36; Smith, 138, 163.

another. How many truly excellent learning experiences like these might we share widely instead of restricting them to a single audience or a single class?¹⁰⁰³

Proponents also posited such accessibility could challenge wealth-based disparities that impact poorer students. Smoothing over systematic problems with the unequal distribution of education funding in the U.S., an NEA booklet suggests that, “the rural schoolhouse with a satellite antenna on its roof may be as rich in educational resources as the school in well-to-do suburbia.”¹⁰⁰⁴

While students are the primary benefactors of these resources, satellites also promised to transform the power of the educator by transforming him into a colonizing force, “For the teacher, the communications satellite becomes an Aladdin’s lamp through which he can command resources from over the entire globe. At long last, the teacher will be able to say: ‘The world is my classroom’”¹⁰⁰⁵ With fewer Orientalist ambitions, others imagined an “Open University of the World,” a radical expansion of the British distance-learning experiment that attempted to make higher education accessible to as many interested citizens as possible by removing common barriers to participation (like geography).¹⁰⁰⁶ And while some understood this incredible accessibility as a potential liability along the lines of cultural imperialism arguments—“cultural pollution” arising from the “indiscriminant exchange of programming and a large influx of foreign programming”—others believed that the same technology could be used to preserve at-risk cultures and languages by linking isolated communities together and promoting the

¹⁰⁰³ Willbur Schramm, “Instructional Television: Promise and Opportunity” *Monograph Service Issue 4*, Instruction Division of the National Association of Educational Broadcasters (January, 1967): 15.

¹⁰⁰⁴ National Education Association, *Man-Made Moons*, 19.

¹⁰⁰⁵ National Education Association, *Man-Made Moons*, 8.

¹⁰⁰⁶ Joseph N. Pelton and Robert T. Filep, “Tele-Education via Satellite” in *Toward International Tele-Education* (1983)l “Tele-Education via Satellite” Eds Wilbur T. Blume and Paul Schneller (Boulder: Westview Press, 1984): 161.

development of indigenous media and ensuring its distribution within those communities.¹⁰⁰⁷ As long as satellite content is the *right* content, access to cultural materials and informational resources can once again rendered an undeniable good for audiences.

Teaching

In addition to framing satellites as a mechanism of access to globe-strewn resources, these projects also further legitimated the use of television as an educational apparatus. Discursively, experiments offered grounds for extended discussions of television's particular efficacy in achieving learning objectives and connecting students and teachers. In India, for example, even before the major SITE experiments took place in the mid-1970s, television was contrasted with radio, film, and even the "conventional schools system" and found to

offer[] a unique communication process with *speedy and simple distribution* and [that] is immune to the barrier of illiteracy. It has been found to be *an intimate and persuasive medium*. It has the potential to bring *quality education to the masses*. It can help to a great extent in reorienting the purposes of education and revitalizing it; it can be a teacher of students and teachers *simultaneously* and can help immensely in the professional growth of teachers¹⁰⁰⁸

¹⁰⁰⁷ Smith, 286; The 1980s: A Decade of Diversity (27); Others suggested that the wide access to materials provided by satellites could actually better "meet local and individual needs" in part by distributing content to teachers "whenever they want." Here, somewhat in tension with the goals of many of the experiments to use satellites to equalize opportunity and knowledge, accessibility becomes a localizing rather than homogenizing force. Although much of the above is concerned with the spatial relations engendered by satellites, as I will show, timeliness becomes one of the major affordances celebrated by corporate users. (National Education Association, *Man-Made Moons*, 12.) Indeed, one observer of potential educational applications foreshadows these time-centered discussions—though ultimately tying them back into geography—suggesting, "Space communication should help to make it possible for education to win the race with time, particularly in the developing countries. Traditional school systems are expanding at a remarkable rate, but the addition of space communication would make possible a wide geographical expansion of education. It becomes possible at once to cover the whole area in which education is to be provided...In the near future all areas could have the same opportunities, regardless of geographical considerations." Henri Dieuzeide, "Possible uses of satellites in education" in *Communication in the Space Age: the use of satellites by the mass media* ed. UNESCO (Paris: UNESCO, 1968): 61.

¹⁰⁰⁸ Birendra Prasada abd Jai P. Singh, "ACME – A Hybrid Airborne Satellite Television and Communications System for India." In *Communication Satellites for the 70's: Systems* eds.

Later, the SITE experiments offered the opportunity to gather massive amounts of data to testify to these claims. One of these studies asked after the impact of television on the knowledge-gap between rich and poor farmers. As a result, over one hundred pages of analysis and scores of charts testify to the complex relationships between variables like age, social participation, the progressiveness of one's village, and exposure to radio and the success of educational satellite programming's influence on "the redistribution of knowledge within a given village."¹⁰⁰⁹

Satellite television's teleconferencing function—promising "the next best thing to being there"—was likewise identified as a novel but effective mechanism for education and information sharing.¹⁰¹⁰ In particular, authors dwelled on the affective experience of communicating across divides (geographical, cultural, or hierarchical) and its benefits. For the experiment that saw West Bend Wisconsin students speaking with their peers in Paris, students' "eagerness" and the spontaneity enabled by real-time discussion—resulting "in the same spontaneous laughter—transatlantic laughter"—were understood to somewhat successfully facilitate intercultural exchange.¹⁰¹¹ The Appalaska project found that teleconferencing provided a unique opportunity for member participation in organizational discussion and that the enjoyment members derived from talking directly with their superiors, peers, and potentially with their students, could be harnessed for more effective communication:

Nathaniel E. Feldman and Charles M. Kelley (Cambridge: Massachusetts Institute of Technology, 1971): 103. Emphasis mine.

¹⁰⁰⁹ Shingi et al, 106.

¹⁰¹⁰ This same author touched upon the ability of satellites to render resources accessible, transmitting them to users wherever and whenever they want, noting "Teleconferences move meetings to people." Gwen C. Nugent, "Innovations in Telecommunications" in *Instructional Technology: Foundations*. Ed. Robert M. Gagné. (Hillsdale, NJ: Lawrence Erlbaum Associates, 1987): 268.

¹⁰¹¹ Dieuzeide, "An experiment in educational broadcasting," 72.

We have learned that when people show up at the ground station, they want to be on the air, they want to be heard...People are talked at constantly via the printed work, television, commercial broadcasts, etc. All of our participants certainly seemed to enjoy talking with the experts and their colleagues (not necessarily in that order)... This is what people enjoy, and this is what teachers will need to help them communicate with 21st century kids.¹⁰¹²

Furthermore, Harold E. Wigren, the primary author of the NEA report, suggests that teleconferencing carried the possibility of building and strengthening members' relationships with the organization, in part by showcasing the organization's interest in meeting its diverse members' needs:

the NEA suddenly 'came to life' for many of its members for the first time. Sometimes considered by its members as an east-coast institution isolated from the real concerns of members in the field, the elected leaders and staff of NEA were able to talk directly to members in Alaska, Hawaii and the more isolated areas of Appalachia, respond to their questions on the air, and even engage in dialogue with them during the last half hour of the program. This provided a new dimension in NEA's outreach activities which allowed national leadership and staff to be in touch directly with members and keep attuned to local needs and problems.¹⁰¹³

Many of these arguments would be taken up directly in later industrial promotions of business satellite television. Of course, these qualitative assessments were also supported by surveys that attempted to quantify the efficacy of satellite television in relation to other activities and to face-to-face communication.¹⁰¹⁴ Furthermore, these conclusions often carried the imprimatur of major public and private institutions. The Appalaska Intercom experiment alone brought together the National Education Association, NASA, the Appalachian Education Satellite Project, RCA, General Electric, NEA-Alaska, the Public Service Satellite Consortium, Juneau Public Broadcasting Station, The Office of Telecommunications, the Governor's Office, Alaska, The Joint Council on Educational Telecommunications, and The Agency for Instructional Television.

¹⁰¹² Neal Hall, manager of NEA's Audiovisual Studio and project technology coordinator, quoted in NEA, *Appalaska Intercom*, 35-36.

¹⁰¹³ Harold E. Wigren, "Lessons Learned" in NEA, *Appalaska Intercom*, 55-56.

¹⁰¹⁴ *Ibid.*, 80.

Together, these organizations and efforts helped construct satellite television's unique potential as a teaching and information resource.

Cost-effectiveness

In addition to claiming distinction through the types of communication, resource distribution, and learning exchanges they enabled, satellites—according to their promoters—set themselves apart through their economy. Although satellite technologies required considerable up-front financial investment, educators believed they promised eventual cost savings through increased efficiencies. No small part of this belief arose from understandings of satellites' mastery over distribution. While above commentators focus on the cultural and educational impacts of satellite distribution, many likewise saw flexible distribution—in particular, of qualified labor—as the key to cost reduction.¹⁰¹⁵ Materials prepared for or by the NEA tend to repeat the assertion that satellites provide the capability to “magnify[y]” the “influence of quality teachers.”¹⁰¹⁶ In the Appalaska report, budget charts compare the (estimated) cost of travel incurred through face-to-face training programs to the satellite program that beamed the expertise of three educators into 30 sites simultaneously in an attempt to provide line-item evidence regarding satellites economizing capabilities.¹⁰¹⁷ Although cloaked in the language of the scarcity of quality, these claims echo and presage persistent discourses linking educational

¹⁰¹⁵ We might understand this economics focus as the counterpart to the above discourses that see satellites as a tool for smoothing over existing economical inequalities related to resource access, e.g., due to the U.S. public education funding model, which is based on highly divergent property tax bases. National Education Association, *Man-Made Moons*, 19.

¹⁰¹⁶ National Education Association, *Man-Made Moons*, 28; Grayson, 1378. (Grayson was one of the key contributors to *Man-Made Moons*, and much of the content of his earlier essay can be found in the later pamphlet.

¹⁰¹⁷ NEA, *Appalaska Intercom*, 117-118. According to this appendix document, satellites would provide a total savings of \$11,359 per meeting; in-person training was estimated at \$15,204 while satellite training rung up at \$3,845. In today's dollars, this would amount to a savings of about \$44,500.

technology to workforce efficiencies and controlling educational costs. Projects targeting developing countries also emphasized the ability of satellites to “improv[e] the availability” of highly qualified teachers.¹⁰¹⁸ Glossing over systemic problems regarding states’ willingness to devote adequate funding to the development of their citizenry, one author cites an educational economist to establish the utility of his project (developing low-cost satellite receivers). In so doing, he reframes a common utopian emphasis on intercultural communication and social change as the driving force of pursuing satellite efficiencies by focusing instead on the language of competition and the market:

Education is a ‘labor-intensive’ industry, using large amounts of high-level, high-cost manpower. In competing with less labor-intensive industries whose efficiency and labor productivity are steadily rising, education will continue to lose the race, badly, until it does more to improve its own efficiency and the productivity of the human talents it employs.¹⁰¹⁹

It is this particular emphasis on workforce efficiencies within the context of competition and productivity that will appear in later corporate uses of satellite technologies.

Globalization

Finally, as is clear from much of the above discussion of satellites’ world-spanning reach, satellites were a key ingredient in discussions of the onslaught of globalization and its implications. Although businesses eventually used their experience in satellite television to construct their identities as global powers, educational projects paved the way for thinking of satellites as a globalizing information technology. Indeed, satellites started as something of an international project, given Sputnik’s association with the International Geophysical Year (1957-1958), which brought together 67 countries in a collaborative effort to collect data relating to

¹⁰¹⁸ Janky, James M. “Low-Cost Receivers and the Use of Direct Broadcast Satellites for Instructional Television” *Stanford Journal of International Studies* V (June 1970): 139.

¹⁰¹⁹ Phillip H. Coombs, *The World Educational Crisis: A Systems Analysis*, 1968: 129. Quoted in Janky, 139.

several interrelated scientific fields. Educators further supported the association of satellites with global communication both on the level of policy and programmatically. As early as 1960, writers working with UNESCO recognized satellites as an international issue, not least because of the incredible resources necessary to fund technology infrastructures.¹⁰²⁰ Others focused on the questions of control, law, and policy that arose given satellites' capabilities to distribute cultural and material resources beyond existing national boundaries—including the problem of unwanted signals and cultural imperialism.¹⁰²¹ One such author suggested satellites “might penetrate or undermine twentieth-century sovereignties and their attendant social relationships and cultural and ethnic identities.”¹⁰²²

For educators focusing on programmatic features, satellites provided an opportunity to connect diverse people and cultures, as in the example of the Wisconsin and Paris high school students mentioned above. Even in domestic projects like Appalaska Intercom—funded under the Bicentennial theme of “A Declaration of Interdependence: Education for a Global Community”—users maintained satellites' associations with intercultural learning and cooperation through an emphasis on connecting diverse and dispersed users.¹⁰²³ Somewhat later, the United States government capitalized on these global understandings and affordances through Worldnet, a satellite television service in the tradition of Voice of America created under the United States Information Agency. When launched in 1983, Worldnet sought audiences with “foreign publics” in Africa, Europe, and the Middle East, with plans to expand to South America

¹⁰²⁰ Here we might think of projects like SITE which saw the partnering of two different countries and fairly diverse educational programs in order to share the burden of infrastructure costs. *UNESCO: Communication in the space age*, 61. UNESCO was also, of course, interested in the use of satellites for the distribution of information across national borders and even gave some attention to questions of cultural imperialism.

¹⁰²¹ Fletcher Luther, 7; Binkowski, 69-84.

¹⁰²² Fletcher Luther, 7,

¹⁰²³ NEA, Appalaska Intercom, 7.

and Asia. Billing itself as the “first live, global satellite television service,” Worldnet hoped to “harness this remarkable technology in the service of greater global understanding,” in the belief that “By showing the real America, Worldnet counters the stereotypes and misunderstandings that so often cloud our relations with other peoples” and could even help create a more peaceful world.¹⁰²⁴ Worldnet promised to “mak[e] the global village a reality” through the distribution of content and teleconferencing capabilities connecting foreign journalists and academics to American leaders.¹⁰²⁵ The USIA confirmed the link between technology, connection, and border crossing established in earlier educational projects, remarking, “satellites recognize no national borders.... Satellites have indeed made the world a smaller place.” Together with the educational projects that preceded it, Worldnet utilized the global capabilities of satellites while establishing international scale as the natural form of satellite communications.

As the meanings and uses developed by education projects continued to accrue around instructional satellite technologies, business became increasingly interested in their potential utility in the context of private, narrowcast networks. In particular, in the “information explosion” of the 1980s, business users hoped to take advantage of satellite’s increasingly multimedia capabilities: traditional voice channels (where satellites promised the most significant cost savings), teleconferencing and video teleconferencing, video and image distribution, and, especially, data transmission: linking electronic mail, facsimile, and diverse computer systems.¹⁰²⁶ While Chrysler, Hewlett-Packard, and Merrill Lynch were among the first companies to develop their own television and videoconferencing networks in the early 1980s, in

¹⁰²⁴ United States Information Service, “Worldnet: Putting Satellite Technology to Work for Global Understanding,” Washington, DC: USIA-TV, 3 (Pamphlet).

¹⁰²⁵ United States Information Service, 2.

¹⁰²⁶ Burton I. Edelson and Robert S. Cooper, “Business Use of Satellite Communications” *Science* 215 (12 February 1982): 837-838.

just over five years, over 50 companies joined them in the use of private television networks and the production of in-house satellite programming (projected to top 12,000 hours in 1988).¹⁰²⁷ Business sectors investing in satellite technology ranged from that perennial useful media pioneer, insurance (Aetna Life and Casualty) to hospitality and service (Domino's Pizza), retail (K-Mart, JC Penny, Micro-Age, Computerland), automotive (Ford, General Motors), electronics and computing (IBM), and hotels (Holiday Inn, Hilton, Hyatt, Sheraton, Intercontinental, Marriott)—who hoped to offer videoconference facilities to other business users.¹⁰²⁸ While companies used their systems to fill diverse needs (product introductions, distributing employee newsletters and up-to-date market and regulatory information, providing interactive channels of communication between workers at different steps in corporate hierarchies) the vast majority of satellite video use in the late 1980s and early 1990s—possibly between 75% and 90%—centered around training.¹⁰²⁹ To develop a more qualitative sense of how business users attempted to incorporate satellite technology into their own knowledge and information programs, the remainder of this chapter moves beyond these quick figures to focus on two case studies of corporate satellite use in the early 1990s. In so doing, I will continue this dissertation's interest in determining how television becomes meaningful within the context of business and industry and how corporate communication projects might destabilized some of our taken-for-granted understandings of what television is, who it's for, and what it can do.

The Employee Newsletter

¹⁰²⁷ Virginia A. Ostendorf, "Applying Business Television" *Satellite Communications* 12.9 (Sep. 1988): 19.

¹⁰²⁸ Binkowski, 24-25, 84; R. Michael Feazel, "The Birds Fly Low" *Channels '89 Field Guide to the Electronic Environment*, December 1988: 123.

¹⁰²⁹ Ostendorf, 20; Grace Leone, "Business TV Growing Up" *Satellite Communications* 13.12 (Nov 1989): 9A.

My first case study zeros in on a series, *JCI Report*, developed and distributed by Johnson Controls (JCI) to its geographically dispersed workforce. A company that began in environmental controls (founder Warren S. Johnson invented the electric room thermostat) under the name Johnson Electric Service Company, JCI was founded in 1885. Changing its name in 1974 to Johnson Controls, the company underwent significant change and expansion in the second half of the twentieth century. In addition to preserving environmental controls as a cornerstone of the business, JCI diversified by entering several other industries, most notably batteries, plastic containers, and car seats and interiors. Beginning with a European manufacturing facility the company built in 1964, JCI increasingly pursued international markets. In company promotional material, JCI refers to the globalization of the 1990s as a “title wave trend”—that they anticipated and responded to nimbly.¹⁰³⁰ Outsourcing in the automotive and building industries provided “new opportunities” for JCI to enter growing markets in Asia, South Africa, and South America. Furthermore, the dissolution of the Soviet Union left new countries open to privatization and commerce.¹⁰³¹ As strategy, JCI often acquired smaller foreign companies, like Roth Freres, a French auto seat systems company, in order to secure contracts with much larger businesses, in this example Renault and Peugeot.¹⁰³² JCI also saw the geographical reach of their ventures grow with the transformation of integrated facilities management into a large portion of their overall business in the mid 1990s, leading them to oversee diverse facilities for international and multinational corporations like IBM, Mobil Oil, British Petroleum, American Express, and Xerox.¹⁰³³ For JCI, its global transformation and its

¹⁰³⁰ Johnson Controls, *125 Years: Honoring our past. Inspired by our future*. Milwaukee: Johnson Controls, 2010: 43.

¹⁰³¹ Johnson Controls, 45-46.

¹⁰³² Johnson Controls, 44.

¹⁰³³ Johnson Controls, 48.

adoption of satellite technology are coterminous and form part of the same project. *JCI Report*, which I will address in depth, indicates how company leadership understood the promise satellite television both as a means to connect and unite a diverse workforce and to establish its reputation as a global power.

Before moving on to *JCI Report*, a brief overview of the JCI media collection is in order. Although I was not able to survey all of JCI's video holdings, the portion of the collection I explored spans four or five cubic feet of VHS cassettes. The tapes include program series, such as *JCI Report*, alongside stand-alone programs like quarterly reports and videos introducing new products and production methods.¹⁰³⁴ One of the longest running series, *Quarterly Reports*, features the CEO and executive personnel discussing major issues facing the company, sharing the financial health of operations, and promoting ongoing programs, e.g., one episode links compliance of environmental policy to competitive advantage.¹⁰³⁵ Together the video records of these satellite broadcasts and other VHS tapes provide a catalogue of how JCI packaged its economic performance for workers and attempted to encourage their buy-in to the company from 1992 through at least the early 2000s. Evidence exists of other series, such as *Straight Talk*, a call-in program that attempted to clarify what corporate policy and initiatives meant for workers in diverse markets. While stand-alone training videos might focus on particular processes, such as quality improvement or inventory control procedures, a significant number of videos discuss somewhat more amorphous corporate values (e.g., "Our Values" with CEO Jim Keyes, "Shared Values," "We Are Johnson Controls," and "Johnson Controls Centennial"). While the context for many videos is difficult to precisely locate, some indicate the context of their exhibition in

¹⁰³⁴ Sobczak describes the content of the product information videos as "features, benefits, how do you sell it" and competitive information.

¹⁰³⁵ CEO Roundtable and Second Quarter '94 Report, Trt 20:00

references to larger scale training programs designed to coincide with the video message, e.g., in the 3-minute “Diversity Message” Keyes indicates he regrets his inability to attend all of the simultaneous branch meetings to discuss diversity at JCI. Furthermore, while most videos appear to be edited programs that were only distributed via satellite (as well as on VHS), others indicate that live, interactive transmissions were also used on an ad hoc basis (rather than simply in planned series like *Straight Talk*). No paper records accompany any of these videos. Within this diverse collection, I chose to examine *JCI Report* given its series status and my ability to identify changes in style and address over the course of a number of years, its self-reflexive discussion and display of the value of satellite communication, and its manageable set of texts. Furthermore, as an update on a traditional corporate communiqué, the employee newsletter, *JCI Report* offers an opportunity for comparative analysis within a particular genre of corporate communications. While I will occasionally address some of the other videos found in the JCI collection in the following case study, I am leaving them aside for now to focus on *JCI Report*.

Employee newsletters are a well-established communication genre in the context of American industry. Dating to at least 1807 with National Cash Register’s house organ, employee newsletters have long held fairly set aims and conventions. To make this point, one commentator writing in 1990 describes the typical, potentially clichéd, format of an “80s” employee newsletter:

There are the usual personal items—births and, unfortunately, deaths. There are stories about company social events and sports groups and how the company band brings joy to its community engagements. There are reports about company performance—new offices opening up, promotions, awards won at trade fairs. There are employee profiles, mixing, as profiles are wont to do, little insights into a worker’s off-the-job activities with motivational messages about how the worker got to where he is today through hard work and loyalty to the firm. There are safety messages. There are details about how external conditions will likely affect corporate performance. There are explanations of company policies, such as a ban on smoking in the workplace. There’s even a story about a recent

strike—a story which dares to say that if management had handled things better, the strike might not have happened.¹⁰³⁶

By way of punch line, the author reveals the issue described above was published in the 1880s. If the format had little changed over the course of a hundred-plus years, neither did the letter's goal. Writing in 1920—boom times for the development of house organs—Peter Francis O'Shea outlines the five major goals of the employee magazine: acquaintance (among and across workers, executives, departments, plants, and the office), cooperation (by appealing to pride in individual and team work and workers' ability to identify with the "humanness" of their fellow workers), unity (explained as encouraging a worker to identify with the massive processes of production rather than his narrow function), morale, and education (both specialized worker knowledge and social information, e.g., "Americanization of workers").¹⁰³⁷ Together, these five functions of the newsletter are promised to support the management of workers by incorporating them more effectively and affectively into the workplace by "sell[ing] The employees to each other. The departments to each other. The plants to each other. The management to employees."¹⁰³⁸ Almost seventy years later, in the era of *JCI Report*, house organs were still understood as a significant managerial tool—one that could "upgrade the company's image, motivate the employees, encourage camaraderie, improve safety awareness, and provide employees with constant reminders of the management's desire to break down communication barriers between different levels of the work force."¹⁰³⁹ Again, the newsletter is part of a sales job: "the influence management has the opportunity to exert, via a newsletter, is tremendous. The

¹⁰³⁶ Abshier, Ann. "Stuck in the Eighties . . . how the Communication Profession Evolved from the House Organ." *Communication World* 7.6 (1990): 23.

¹⁰³⁷ Abshier, 23; Peter Francis O'Shea, *Employees' magazines for factories, offices, and Business Organizations*, New York: The H. W. Wilson company, 1920.

¹⁰³⁸ O'Shea, 8.

¹⁰³⁹ Paul Arvidson. "Manager's Journal: House Organ Will Play Your Company's Song." *Wall Street Journal*, Eastern edition ed.: 1. Nov 02 1987.

newsletter is the ideal vehicle for selling your company's philosophy and promoting strategic objectives among your employees."¹⁰⁴⁰ As we will see with *JCI Report*, these same objectives and content forms animate the satellite video version of the employee newsletter.

Johnson Controls was not alone in its attempts to update the house organ format. As intranet systems became popular with large corporations in the early 1990s, some of those responsible for internal communications experimented with transforming the traditional employee newsletter into an online format.¹⁰⁴¹ E-newsletters promised several benefits: costs saved in distribution, more timely responsiveness to current events and pressing company issues, and the possibility for interactivity. Not coincidentally, the move to online newsletters may be related to globalization. According to a spokesperson for AT&T, the appeal of an online letter arose in part due to AT&T's ongoing global expansion and the company's desire to flatten cultural and geographical obstacles to homogenous distribution of its corporate message: "Its immediacy helps break down barriers posed by time zones and slow mail delivery."¹⁰⁴² Likewise, editors believed the speed of online newsletters—which could be published at a higher frequency, e.g., daily, would encourage greater amounts of feedback and engagement.¹⁰⁴³ With regards to a different sort of interactivity, newsletter editors imagined search and hyperlinking systems that would enable users "to find information in a way that makes sense to the employee" or to read about seminars or health benefits and "simply...tap a key to sign up."¹⁰⁴⁴

¹⁰⁴⁰ Arvidson, 1.

¹⁰⁴¹ Holtz, Shel. "Intranets: What's all the Excitement?" *Communication World* 13.6 (1996): 54; McGoon, Cliff. "Putting the Employee Newsletter on-Line." *Communication World* 9.4 (1992): 16.

¹⁰⁴² McGoon, 16.

¹⁰⁴³ McGoon, 16.

¹⁰⁴⁴ McGoon, 16; Holtz 54.

Although *JCI Report* was not one of JCI's interactive satellite programs, it also attempted to reformulate the employee newsletter for the globalization age, in this instance by recombining it with the satellite news genre. As a result, *JCI Report* sits somewhere between a traditional employee newsletter, with its focus on human interest stories, safety reports, and motivation, and a more formal informational-educational news format highlighting strategic plans and new programs; I'll address this unlikely genre hybrid below. *JCI Report's* inaugural issue was aired on November 19, 1991 and ran on a fairly regular monthly basis through the end of 1997, spanning the entire length of JCI's engagement with satellite television. On average, episodes ran between 20 and 30 minutes and featured a news anchor—Jamie Marvin-Casey, who anchored formerly for a local Wisconsin news station—running through a perfect imitation of a television news broadcast with its top stories, in-depth and remote reporting packages, headline announcements, interviews, act breaks, interviews, puff pieces, and its varied aesthetic strategies. How this format enabled JCI to position itself before its employees as a global powerhouse—in the hopes of securing managerial benefits—is the concern of this section.

First and foremost, the replication of network news programming as the containing genre of their employee newsletter enabled JCI to borrow the authority and trustworthiness embedded in an established form, legitimate its own global power, and repurpose a particularly suitable televisual flow to its own ends. The “Premier Edition” of *JCI Report* (November 19, 1991) opens on a three dimensional graphic of the flattened earth and the *JCI Report* logo, which features a large white satellite dish, swooping in to fill a screen otherwise occupied by the live feed of the news studio. Lively orchestral fanfare—trumpets, strings, and the percussive staccato chimes of a xylophone—and a booming announcer voice—“From the studios...of the Johnson Controls Conference Network, this is...*JCI Report*. With your host, Jamie Marvin-Casey”—accompanies

the graphic and further distinguishes the program as a network-style (prime time) news program. A Marvin-Casey, in the power suit uniform of the anchor, sits at the news desk and welcomes audiences to the program in a cadence and tone of voice particular to and indistinguishable from news delivery speech endemic to broadcast news. Throughout the program, graphic intertitles, chyrons, and a faux in-set graphic “screen”—the kind that have become a hallmark of news reporting—accompany Marvin-Casey’s reading of the news and further mark the program within the genre of serious broadcast journalism. By cloaking their corporate communications in the costume of the news, JCI effectively borrows the authoritative “vantage point” from which television declares it knows the world and its inner workings.¹⁰⁴⁵

The heightened style (or, “televisuality,” following Caldwell) of television news—its liveness, jumbled temporality, graphics, and music—also allows JCI to position itself as a consummate communicator that can deftly use technology to connect different parts of the globe instantaneously and access and distribute valuable (market) information. Although *JCI Report* was almost entirely edited on film—not broadcast live—the nightly news genre’s associations with liveness helps create an illusion that suggests the *JCI Report* unfolds in real time, responding to breaking news all over North America. The temporality of the program’s many jumbled segments reinforces JCI’s claims to an ability to pivot quickly to react to current events. Previews of coming stories—both at the top of the episode and throughout as Marvin-Casey navigated each program’s numerous segments emphasized the forward momentum of the show and the tight control the anchor, and, by proxy, JCI, held over the unfolding of events. We see this same control in Marvin-Casey’s temporally marked speech, e.g., “Jim will join us again in a few minutes to announce the first ever best branch of the year award, but first, lets take a look at

¹⁰⁴⁵ Caldwell, *Televisuality*, 125.

some of the stories making headlines at Johnson Controls,” or “We’ll be back in a moment [...] but first a bit of trivia.” A “headline” feature that highlighted JCI branch activities enabled the program to move rapidly through stories spanning the country, e.g., one such feature mentions specific programs tied to the Southwest and Midwest regions and the states of California, Indiana, and Texas in less than 90 seconds. The scope and speed of this feature speaks to JCI’s managerial knowledge of its dispersed operations and its ability to understand and organize an otherwise dizzying array of different projects, geographical locations, and customers; it is the anchor’s unusual flowing cadence that strings each of these disparate stories together into a seemingly causal narrative.¹⁰⁴⁶ Combined, these strategies both reinforce the program’s claims to temporal and spatial control over heterogeneous but important information through conventions of the news genre, and they reinforce connotations of satellites—still a very new business communications tool in 1991—as a technology of instantaneous connection at incredible reach.

While the news genre accomplishes much in the way of insinuating liveness—which furthers the above goals with regards to establishing JCI’s corporate communications identity—producers also used various strategies to “cheat” the look of liveness. A common feature on each episode of *JCI Report* is remote reporting. Working with JCI producers, freelance reporters created news packages on location that were built into the overall news narrative of the program. In a December 1992 edition, Marvin-Casey follows up a story about a North American employee meeting in Acapulco with a discussion of a new value pricing pilot program for the South West Region and a cut to a reporter on the scene “joining them today” to talk more about the program. During their conversation, the program moves into a split screen featuring both reporters in framed boxes with the flattened globe image behind them. The date (December 29th, 1992) runs

¹⁰⁴⁶ Caldwell, *Televisuality*, 125. Not coincidentally, this flow is highly reminiscent of the shop-at-home programs discussed in chapter two.

along the bottom of the screen. As Marvin-Casey asks questions, the other reporter pauses thoughtfully—earpiece visibly displayed—before responding in detail. Marvin-Casey concludes the piece, remarking to her interviewee, “I appreciate your time today.” Given the near perfect replication of a live two-way satellite feed, I asked producer Dave Sobczak about the sequence and why they might go to such lengths to invoke liveness.

Me: “To me it looks like [the formal elements mentioned above are] implying that it’s happening live”

Sobczak: “It was all faked. [Laughs] No, I mean we never did any double satellite feeds.”

Me: “But it’s meant to look that way.”

Sobczak: “Yeah.”

Me: “And why would it be meant to look that way?”

Sobczak: “Because that’s the way she—Jamie—would have normally done that conversation, so we mimicked it. We wanted to look not any worse than any regular television news show that you had. So, no. Literally, sometimes we were shooting that with the freelance team. She was on the phone asking the questions. So they’d answer the questions And then we brought it back here and just edited it with her. On [making] television, favorite saying: doesn’t need to have to be, just needs to appear to be.”

In this instance, professionalism standards—set by the entertainment industry—and Sobczak’s desire to meet these standards in the context of corporate communications result in tactics used to cheat far more expensive production values.¹⁰⁴⁷ Earlier when first talking about Marvin-Casey, Sobczak likewise noted she “raised the professionalism” of *JCI Report* “because she came with

¹⁰⁴⁷ By way of introduction, Sobczak noted that he had worked early in his career in broadcast television for nine months before leaving due to its intense demands on his time and flexibility. Specifically, he noted that the common practice of split scheduling made it impossible for him to carve out time to attend to any personal needs or desires. Later in our conversation, he mentioned that Marvin-Casey left broadcast television for somewhat similar reasons; she decided to have children and the schedule would not permit her to attend to her kids as much as she would like. The schedule of corporate communications production proved more amenable to both.

that experience,” adding “Because us doing a news show in a business was kind of foreign.” Sobczak both invokes Marvin-Casey’s experience to align *JCI Report* with high-quality commercial news programs and set it apart as a novel production in the context of corporate production. Notably, faking liveness was not restricted to *JCI Report*. On occasions when JCI programs were re-convened several hours later for the West Coast, rather than performing an entire program a second time—the bane of Bing Crosby—producers aired a recording of the main presentation (if it went well) and the performers (employees and executives) would appear live on air only for the question-and-answer portion of the program. Rather than produce and edit a “main presentation”—one that could make use of graphics and other visual and audio tools—that would show for both audiences prior to a Q&R, JCI maintained the illusion of live presentation for both east and west coast audiences. Liveness, and in particular, live remotes work to establish the company’s communications as technologically sophisticated on the level of national news—just as CBS Evening News might span the country over the course of a half hour, so too could JCI survey and connect its employees and operations, wherever they might be.¹⁰⁴⁸

A third reason news may have been an appealing format for an electronic employee newsletter is its compartmentalized structure and the efficacy of its flow. As mentioned above, every episode of *JCI Report* contained dozens of stories (one 17 minute episode hosted 18 different sequences, the 30 minute premier episode has 26). While longer stories that contained video packages and in-studio interviews might hit 5-7 minutes on the high end, they more often clocked in around 2-5 minutes. The vast majority of the program, however, featured news items

¹⁰⁴⁸ As the years wore on and, perhaps, as satellite networks became less novel in the context of business communications, JCI began dropping its claims to liveness, turning instead to a more traditional video format with shot-reverse shot and other noticeable editing.

ranging from 10-90 seconds. The segments might describe changes in compensation packages, cover the ongoing introduction of new products, provide financial reports and business sector overviews, celebrate new initiatives at various branches, declare product promotions a success, challenge workers to meet various goals, post opportunities for training seminars, discuss plans for corporate expansion, introduce new executives and branch managers, interview executives on their upcoming strategic plans, invite viewer participation in sweepstakes and competitions, promote the company's success with major contracts, announce celebrated retirements, and feature frontline workers in human interest pieces, e.g., "New Year's Resolutions." The news format of *JCI Report* allowed producers to fold the heterogeneous content of the employee newsletter into a video presentation that provided an added level of cohesive flow, in the Raymond Williams sense. As I noted in chapter three, flow refers here to broadcast programming's streaming "series of differently related units" in which the discrete contours of presentations are disrupted and reorganized with commercials and trailers to serve the needs of broadcasters to maintain viewership throughout the course of an evening.¹⁰⁴⁹ While we might consider the flow of all of the programming on Johnson Controls Conference Network (JCCN), *JCI Report* offers a micro-level view of these textual patterns. In this instance, it is not comedies, sports, and dramas interlaced with ads, but financial reports, human-interest stories, and new product descriptions bound up with "fun" quizzes and advertisements for future JCI training sessions that create television's flow.

JCI Report smoothed the flow of its disparate sequences through two major strategies. On the one hand, stories are often sequenced to exploit tangential thematic relations between consecutive items, e.g., branch activities. On the other, the cadence of the anchor and aural

¹⁰⁴⁹ Raymond Williams, *Television: Technology and Cultural Form*, London: Routledge, 2003: 93.

transitions stitch disparate items together. For example in one episode, Marvin-Casey concludes a piece on a hospital program, noting the hospital was happy “to receive support” and—without missing a beat—suggesting to viewers, “you can receive support” for working with centripetal chillers—a technology unrelated to the hospital story.¹⁰⁵⁰ We see both of these strategies in this four-story sentence sequence (quoted and paraphrased as relevant):

Marvin-Casey: “At SSD’s national sales meeting in Acapulco last month, Brian Stark said that performance contracting represents a new opportunity for branches. [beat] One branch that’s capitalizing on this new opportunity is Rockford Illinois. It all started with a relationship it had formed with the local school district.” [Video package about school facilities and savings possible with energy efficiency and how the branch negotiated work with all of the district’s buildings.] Ends with JCI supervisor reflecting, **“If I could point to the strength of what I’ve seen since we’ve got involved it would be that partnership relationship.”**

Marvin-Casey: **“Now the best way to develop a strong partnership is to understand your customer’s needs, and that’s the underlying message of a videotape which features Shriner’s hospitals and their affiliation with Johnson controls.”** [Story describes how the tape, distributed to all branches earlier that month, can be used with any hospital to show how Johnson controls supports the mission of its customers.]

“Hospital administrators and facility managers across the country should have a better understanding of how they can benefit from JCI’s facility management systems. Johnson controls and other healthcare products was just featured in a program called *Lifeline* that featured various health products on a satellite channel available “to hospitals around the country.”

“Now that the interactive injury reporting system has been online for about a week, the Controls’ Group Safety and Health Department wants to address some of the questions you might have about the systems” [Points of clarification on the new system].

Each story flows in and out of its surrounding segments without a break in Marvin-Casey’s news patter. Though the first two stories are fairly different—one focuses on schools and energy efficiency, the other on hospitals and marketing efforts—they are linked together using a verbal emphasis on “partnership.” We might also note that the sentence structure of the first two lines

¹⁰⁵⁰ March 28, 1995. Sat 3032895 Trt: 20 min

of the initial story habituate the listener to expect sentences to have additional retrospective significance. In this instance “the opportunity” carries us into the case study at Rockford, reinforcing the connective power of flow across segments. The three stories following the segment on schools all concern hospitals and health to some degree, smoothing over their edges and their varied relevance to audiences.

For Williams, while television programming reveals the “flow of meanings of a specific culture”—its larger cultural and belief systems—it also serves an ideological function to encourage consumption.¹⁰⁵¹ Not only does the flow of *JCI Report* allow us to identify elements of the corporate culture of JCI, e.g., its emphasis on worker initiative, economic markers of productivity, and expanding market share, it also reveals JCI’s own ideological appeal to its viewers to consume. In this instance, however, the “mutual transfer” works across segments describing initiatives designed to help workers, awards for workers’ good service, humanizing profiles of management, detailed corporate plans, displays of JCI’s power within its industry, and bland human interest stories. Packaged within the high production values of the satellite news broadcast with all its claims to authority, skill, and power, this flow does not sell commercial goods; it “sells” the traditional product of the employee newsletter—the company.

In the context of *JCI Report*’s adoption of the national broadcast news genre, which enabled the company to position itself as a national—even global—authority, JCCN’s narrowcast “network” becomes an additional method of highlighting Johnson Control’s technological prowess and its ability to carefully manage information, people, and places (for the ostensible benefit of its workers). If the area covered by the reach of a satellite is its “footprint,” JCCN’s satellite is wearing cleats; their signal is best described as scattered points

¹⁰⁵¹ Williams, 120.

of highly intentioned contact rather than homogenous coverage. While this narrowcasting was enforced technologically through encryption (and, to some extent, financially through the prohibitive expense of receiver stations), JCI also worked to discursively position its programming as narrowcasting.¹⁰⁵² Many of the segments mentioned above indicated their highly targeted audiences through content with very narrow and fairly mundane appeal (the energy efficiency retrofit business, frontline sales promotions, JCI's fiscal health), segments featuring ostensible audience members (branch workers with innovative ideas, the winners of an employee competition) and their workplaces (regional reports that highlighted branch activities), and highly specialized insider language, for example, these "tips" to viewers on meeting their FY92 fiscal goals:

Achieve the fiscal year bookings and markup plan, drive to a 60-40 mix, seek out a 75% markup on new PSAs, look for a 50% portfolio markup, ask at least a minimum 8% escalation on PSA renewals, go for a 90% markup on unscheduled, improve executed markups in construction and retrofit—a one point improvement is worth 3.6 million dollars—continue the excellent performance in cash collections and managing the receivable portfolio, control capital spending, improve field productivity, and manage field controllable spending to plan.¹⁰⁵³

Taken together, these strategies emphasize JCCN's small, specialized audience. This might cause some tension with *JCI Report's* emphasis on its global reach through the national news genre, satellite and globe iconography, and its emphasis on the more than 170 geographically dispersed branches—across the U.S. and Canada—that receive its transmission. However, the construction of JCCN as a "network"—terminology used by the media professionals who worked on the satellite programming and invoked routinely at the start of many of JCI's varied shows—mediates this tension between local and global concerns by invoking logics of

¹⁰⁵² According to my interview with Dave Sobczak, privacy—especially from competitors like Honeywell—was a major concern for JCI in the 1990s.

¹⁰⁵³ Jim Wilson, *JCI Report*, November 1992.

connection *and* expansion; the corporate narrowcast network becomes the ideal tool for establishing the technological, informational, and communicative acumen of the company while managing a heterogeneous, dispersed, and expanding workforce. This self-positioning is, in turn, packaged as the corporation's interest in serving the employee audience, as we see in this description of the purpose of *JCI Report* in its first airing:

Marvin-Casey: Communication is a key ingredient to the success of any corporation or organization. In a company like Johnson Controls where employees are spread throughout the United States and Canada, the task of effectively sharing information can be difficult. When communication breaks down, barriers go up. In the next half hour, we will bring you news and information that will help break down those barriers. The program will focus on strategies, goals, and objectives in a consistent and straightforward manner. We will feature in-depth interviews, financial reports, and we will bring you some of the success stories that exist in the branches.

Marvin-Casey's first guest, Jim Wilson, Vice President and General Manager of the Systems and Services Division, further describes the purpose of the *JCI Report* project, reinforcing the size of JCI and its desire to help its workers become successful through communication, "In our organization, as large as we are, communication is a challenge and an opportunity. Any thing we can find to improve branch to branch, Milwaukee to branch communication, it's important to us." Noting the program will primarily feature "stories *from* branches *to* branches that convey success that others may be able to use," Wilson reinforces the benefits arising from the connectivity of narrowcast networks at massive scale.

While the next section turns to the way in which interactivity built into satellite programs reinforced these notions of networked connectivity, *JCI Report* also used exhibition and production strategies to create and exploit workers' feelings of connection to the company and each other. First, although the show itself was only edited to appear live, the recording was itself

“broadcast” only once on its release day, intended, ideally, to be seen by everyone in the branch offices at the same time.¹⁰⁵⁴ According to Jim Wilson,

The intent here is that all of our people—in the field, in our branches, our frontline service providers—have an opportunity to view this information with the branch management teams and have some healthy discussion about things that may be very germane to their particular operations.

Although not technologically interactive, like many other JCCN programs that featured question and answer sessions, *JCI Report* hoped to draw together branch workers in a communal reception setting so that they might use the program as a springboard to interact with one another, ostensibly across employee hierarchies. Due to the vagaries of work and architecture at each branch this idealized mode of viewing was not always possible. Even in these instances, however, Wilson attempted to maintain the social experience of communal viewing through suggestions like (self-funded) pizza parties,

Frankly, many of our offices simply don’t have conference rooms large enough to hold all members of the branch and so there are going to have to be some efforts made to make it available and to make space available at various times and play the video for each group. And, you know, John DeVars thought a clever idea would be to have a pizza party and you know, four bucks, four bucks, four bucks, and I don’t care if it’s blintzes or pizzas or what it is; I sure would like to hope that everybody in the branches gets an opportunity to see this program.

Further reinforcing the construction of the viewing audience (employees) as a close community with a stake in the *JCI Report* and the company it represented was the appeal to viewers at the close of many episodes to provide suggestions for future content. Using these strategies, JCI attempts to cultivate and discursively demonstrate a certain level of community and participation in the company to an extent that would be difficult for an employee newsletter to match.

¹⁰⁵⁴ According to Dave, shows would be scheduled between 10:00 and 2:00 when they knew the entire country would be at work and available to see their programming.

Ultimately, the satellite experiment was relatively short-lived at JCI. Recounting the initial development of the system, Dave Sobczak, who began building the satellite program for JCI (and who spearheaded much of their video production beginning in 1975), noted “back when [JCI executives] were really lacking good communications between [headquarters] and our field offices,” (that is, around 1990), he proposed “trying to do a few things via satellite to get things out to our field office faster.” Painting a picture of their pre-satellite systems, Sobczak invoked the image of 30 workers sharing the lone PC in a branch office and corporate communications distributed almost entirely via “snail mail.”¹⁰⁵⁵ According to Sobczak, one of the key reasons the top brass was so accepting of the satellite television proposal related to otherwise distinct information needs. Increasingly the company needed to send massive volumes of information to well over 100 North America branches. Since they were contracting with satellite systems (Private Satellite Network and Scientific Atlanta) for data distribution, they could easily use the same system for business television; Sobczak suggests “it was a perfect fit.” Although Sobczak created a modest proposal to develop several strategic Ku Band satellite downlinks, his boss actually increased the scope of the project, asking for receiving dishes to be installed at every branch office that could possibly receive signals. As a result, satellites became the primary mechanism of video distribution (which had been up to that point carried out through evolving tape formats, from reel-to-reel to VHS), with recordings of satellite broadcasts serving as a secondary mode of distribution. While the company’s evolving data and information needs enabled the founding of the system, they also contributed to its eventual collapse. As the internet became faster, it became a preferable mechanism of data transfer, not least because of the rising cost of satellite time. Sobczak noted that when he began programming

¹⁰⁵⁵ All quotations come from an interview with the author at Johnson Controls Headquarters, 7/21/2014.

broadcasts in 1991, the cost to run an hour of programming on an occasional use satellite was roughly \$350. In 1997—the last year the satellite network was in major use—decreasing availability of satellite time related to demand caused by older satellites’ eventual failure and several failed satellite launch attempts meant the cost of an hour of use skyrocketed to \$2500. While Sobczak and his team attempted to adapt to the rising expense by using more pre-recorded material to better control and “tighten” time usage, the costs were significant. Furthermore, due to shifts in work strategies—the front line technicians that formed the large part of branch offices began increasingly working on location and calling in rather than physically checking in to the branch office—fewer workers actually watched live broadcasts. Sobczak wryly noted, “by mid 95, the satellite network became the most expensive video tape distribution media there was because they would put a tape in and hit record.” JCI’s satellite network ceased operation after 1997. JCI continues to produce and distribute significant levels of media for their employees, but their primary distribution mechanism is the internet. According to Sobczak, however, one of his employees who still works in JCI production is currently trying to recapture the aesthetics of their earlier satellite broadcasts due to its exciting and personal appeal.

Phoning it in

While satellites offered a novel mechanism of distribution for business television in the early 1990s, corporate users often drew on satellites’ discursive meanings and technological capabilities to position satellite television as a cutting-edge tool that offered a new, valuable service to company employees. One such user was Steelcase, a manufacturer of industrial and institutional furniture, interiors, and office technologies. Headquartered in Grand Rapids, Michigan, the company was founded in 1912. Like JCI, Steelcase is an international

organization. The company began investing in overseas operations in the mid-1970s through partnerships with companies in Japan and France that appealed to the Asian, European, and North African markets. The company entered the Middle East shortly thereafter with the establishment of dealer distributors in six countries in 1977.¹⁰⁵⁶ By 1991, Steelcase's manufacturing operations alone spanned 11 countries; their products, meanwhile, could be purchased in 68 countries.¹⁰⁵⁷

The archival collections at Steelcase comprise over 1,200 videos spanning about 30 years of the company's communication strategies. The oldest video, PaperFlo (STCS-F01), dates to c1975 and spends 15 minutes introducing the company's PaperFlo office system via Timothy, an animated Tiger. The most recent videos included in the system were produced in 2007 and feature hour-long sales strategy meetings and several hours of material relating to a Sustainability Town Hall held at New York University. The bulk of the collection, however, concerns the 1990s and the very early 2000s. Although some materials were produced by outside companies, e.g., a broadcast news package and a documentary on the manufacturing history of Grand Rapids, the vast majority were created by Steelcase or by Steelcase in partnership with another organization, e.g., the International Facility Management Association. The length of tapes—now digitized on DVD—ranges from 30 seconds (advertisements) to 90 minutes (often business meetings). While most of the tapes might be classified as training, the collection provides an overview of a variety of Steelcase communication practices: speeches by executives, motivational programs, *Town Meetings* (a call-in question-and-answer show), descriptions of

¹⁰⁵⁶ J. A. Andrews, "Steelcase Sets Up Dealer Distribution System in Six Mid-East Countries" 1977. Steelcase Centennial Timeline Exhibit, <http://timeline.steelcase.com/timeline/#/e/middle-east-dealer-expansion>.

¹⁰⁵⁷ Steelcase Centennial Timeline Exhibit: "Global Presence Expanded" <http://timeline.steelcase.com/timeline/#/e/global-presence>.

employee benefits, shareholder and (international) management meetings, yearly reports from the NeoCon commercial interior design conference, product introductions that include selling points and marketing techniques, Dealer Alliance (their sales internal trade group) informational and training programs such as *Duke's Gym*, quarterly updates and market forecasts, user product orientation, commercial news stories, and even some webcasts. In addition to formally produced presentations, the collection holds a significant amount of raw footage—b-roll and interviews with various Steelcase employees. All of the holdings are carefully annotated to make it easy to identify programs in which particular executives and key employees appear.

For this case study, I chose to analyze a series of videos produced under the umbrella of BTV, Steelcase's internal satellite network.¹⁰⁵⁸ These four recordings, which self-reflexively comment on the company's satellite communication strategies, document Steelcase's understanding of the value of satellite television as a corporate communication tool. Shifting my attention away from satellites as a distribution medium, this section focuses primarily on satellites as a medium of interactivity. My analysis will therefore center on a particular genre of programming that became popular with internal satellite networks in major companies—the call-in show. This type of programming—also featured in the JCI collection—often begins with some sort of formal presentation by executives or other prominent employees which is followed up by a period of “open lines,” when, ostensibly, any of the hundreds or thousands of viewers around the country “tuned in” to the program can call or fax in their questions to be answered live and on-air.

Although the four programs are not all of this sort, they all comment on the interactive form to varying degrees. The four programs I have selected are 1) “**BTV**” (STCS-V60, n.d.), a

¹⁰⁵⁸ BTV is also a generic term used to refer to business television. Through the remainder of this chapter, “BTV” is always used to refer specifically to Steelcase's satellite network.

six-minute promotional reel pitching the content and value of BTV to Steelcase dealers, 2) “Broadcast Coordinators Equipment **Test**” (STCS-V397, 1991, 84 minutes), a taped troubleshooting program in which BTV network coordinators provided tips for better using the system and asked its receiving branches to call in so on-site technicians could better calibrate their systems in light of recent technical difficulties, 3) “Larry Leete’s BTV **Message** to the Sales Organization” (STCS-V59, 1994, 22 minutes, possibly an episode of a program called *Steelcase Live*), in which Leete discusses the value of corporate communications to his employee viewers, and 4) “BTV Enhancing **Productivity**” (STCS-V67, 1995, 89 minutes), a program for which Steelcase partnered with the International Development Research Council (IDRC) to distribute information about work spaces and productivity to an audience comprised of representatives of major companies (Microsoft, AT&T, Cisco Systems, Federal Express). Ultimately, I will argue that Steelcase positions satellites both as a cutting-edge sales weapon to be wielded against outsiders and as a mechanism for collaboration and community formation for insiders in order to build a desirable and highly consumable identity as a powerful and appealing employer and business partner.

Steelcase took significant advantage of the meanings accruing around satellites to position themselves—as the providers of satellite communication—as powerful, cutting-edge leaders providing their troops with the necessary equipment to win battles on the ground. Routinely in the videos above, executives like Larry Leete promote the value of BTV for its audiences, linking it to associations with satellites as fast, globally responsive, and targeted. “Productivity,” for example, contextualizes the program as part of an educational effort attempting to distribute research—“current information” on “critical” issues—to those “in the field as quickly as possible.” “BTV” is even more explicit, stitching together Steelcase dealer

testimonials along with a promotional address from the Steelcase Dealer Council Chairman to translate the speed of satellite BTV communications into competitive advantage:

BTV has been a good tool for us to use. It's allowed us to get our groups together and to gather information from Steelcase on a very timely and cost efficient basis. We'd like to see more of it so that we can continue to advance and learn more at a faster pace and at the least cost involved. **Tommy Young, Young Office Supply**

BTV has been an asset to our sales people. One of the biggest things it does is that it enables us to get real time information to our sales people that they can then deploy against the marketplace...And, so along those lines anytime we can get information from Steelcase through the dealer to the customer in a more timely manner that's a valuable tool. **Ed Bonner, Office Environments**

I'm real pleased to be talking to you about BTV, we're excited about BTV, always have been very pleased to say that Dealer Council strongly endorsed BTV from its inception and strongly endorses BTV as a communication medium in the future. We think it's state of the art, we think it gets the message out there quick. We think it's going to grow to interactivity. And we think it gives us an edge on the competition. It's a communication edge and I would encourage you to use BTV. I wouldn't be without our BTV. **Mark Mayhew, Chairman, Dealer Council**

Others testimonials, like that of Paul Philip, representing Mayhew and Peterson, build on notions developed by educational satellite users regarding the particular efficacy of television as a pedagogical tool, in this instance claiming, "Definitely the product training that is going on through BTV is much superior in forcing people to actually do the training and retain it and testing I think is helping quite a bit, both with new people as well as people who've been in the industry for a long time." Still others invoked vague language mostly celebrating the "power" of the technology. Gary Machabe of Machabe Office Environments suggested, "We're very optimistic that BTV can be a very powerful tool in helping us to develop training and manage our sales organization." In the context of the six-minute promotional reel, this praise for the speed and power of BTV comes amid short previews of BTV programs, which, in their truncated form, promise to provide "tools for your edge," "action steps," "competitive review," and "success chat." Between each of these previews, a short interstitial animation runs through its

own brief pitch of the channel, cycling through flashing text promoting BTV offerings: “corporate information faster,” “digital communication,” “interactive experience,” “sales opportunities,” and “training.” Discursively, Steelcase builds on the notions of satellite television as a cutting edge tool in order to establish the company’s own ventures into the technology as a boon for its dealers.

Yet another strategy Steelcase used to reinforce the high-tech meanings of satellites—and its own technical and communicative capabilities—was aesthetic. In its short six-minute run time, “BTV” runs through seven different programs aired on the channel, displaying many of the hallmarks of what John Caldwell calls televisuality—an excessive and exhibitionist style described by “acute hyperactivity and an obsession with effects” that programs used to distinguish themselves as inventive and exciting amid the clutter of cable’s expansion in the 1980s.¹⁰⁵⁹ The extravagant and flashy style of the BTV reel draws on associations of satellites with futuristic imaging and communication to posit Steelcase as a hip, high-tech, and innovative company. The reel begins by prominently displaying an *I Want my BTV* slogan amid flashes of bright colors and rapid-fire buzz words backed by rock music. It’s a clear allusion to MTV’s “I want my MTV” campaign which used massively popular rock stars like Mick Jagger, David Bowie, and Pat Benetar (and, of course, space imagery) to promote the new cable channel. The reel’s pastiche structure and collage aesthetics invoke high postmodern style to align BTV with vanguard audio-visual trends, juxtaposing the channel’s mock workout program (*Duke’s Gym*) with talk shows, training films, and satellite news coverage.

This collage style even structured differences within showcased programs. One segment, for example, begins with a very dramatic fantasy-style commercial that opens on a gothic

¹⁰⁵⁹ Caldwell, 12-13.

skyscraper built of rock standing tall against a post-apocalyptic landscape. The image is dark, with a grey pallor saturating the entire scene. A zombie-like crowd of people in suits shuffles towards the castle and the commercial cuts to a medium close-up of a man lifting a computer monitor over his head. A booming announcer chides, “It is foolish to think that technology alone can solve our business problems. People, and how well they work together will. We can show you a way. Steelcase furniture and office environments: a smarter way to work.” After a cut back to the faces of the mob, the camera moves even more tightly into a close-up of an eye. Without conclusion or resolution, the BTV reel cuts, jarringly, to a clownish set reminiscent of a children’s program. A man in a bright teal shirt and vividly patterned tie stands amid blockish, brightly colored geometric forms—one with a TV embedded in it with the screen reading “Television Campaign”—designed to add visual interest to the otherwise sparse scene. Gesturing wildly, the man explains with an excited voice fitting an infomercial, “I told you it had wow power! Can you believe it! And that’s just the beginning. That’s Television!” Leaving the irony of the commercial’s dismissal of technology in a promotional reel to promote BTV satellite service aside, the contrast between the commercial—developed for broadcast distribution—and the BTV show promoting the television campaign both intensifies the high production values of the commercial and testifies to Steelcase’s ability to manipulate different visual styles for persuasive communication.

Steelcase also used verbal and aesthetic strategies to reinforce its claims to satellites’ expansive global reach and, consequently, their control over the distribution of information. During call-in segments, mediators frequently emphasized the reach of each broadcast, describing for viewers the number and scope of cities and countries participating. In “Productivity,” for example, the moderator mentions that the program is being broadcast to 1,500

people in “22 sites internationally” (referred to less ambitiously as a North American audience later in the presentation). The wide reach of satellites is also reinforced through visual strategies. Again in “Productivity,” each time a caller poses a question, they are asked to identify themselves and their location. For the duration of their question, a map of pinpointing their location—but not including their name—remains on the screen, emphasizing the power of satellite television to connect the dispersed international audience (whomever that might actually be) with the home office in Grand Rapids, Michigan. The weight placed on location as *the* relevant information in this process is further reinforced by those callers who fail to mention their names, identifying only by their location, e.g., “Hi, this is Chicago.” The other relevant on-screen graphic for this ritual is the prominent display of telephone and fax numbers. Emphasizing connectivity, these numbers interpolate the audience to participate in cross-country conversation and, like the maps, gesture towards Steelcase’s ability to use cutting-edge technologies to service and connect with its employees or, in this case, its potential partners.

Sometimes the very content of the satellite programs reinforced Steelcase’s construction of satellite technology as a competitive advantage and cutting edge tool—at the service of the company and its allies. “Productivity”—Steelcase’s partnership with IDRC—focuses on the latter firm’s research into how shifts in the spatialization of office work can lead to higher levels of productivity and the retention of high-quality employees. Over the course of an hour and a half, the program’s three panelists each discuss a different facet of workspace reorganization, such as telecommuting, “productivity centers,” and hotelling (a practice in which workers have no assigned office resources, like desks, phones, or printers, and instead “check in” to use equipment from a general bank; according to the seminar, hotelling enables companies to purchase fewer resources and reduce waste, since everything is shared and nothing sits idle for

long). Much of the focus rests on how 1) new technologies (cell phones, laptops, pagers) enable traditional office employees to work from anywhere, and 2) their jobs increasingly demand mobility (to work from planes, from home, in client lobbies). For Steelcase (and IDRC), the use of *satellite television* specifically—itsself a vanguard technology that restructures communication and workers’ spatial relationship to their workplace and company—reinforces their corporate identity as a high tech, cutting edge, global power that understands and can anticipate major shifts in its chosen market for the benefit of its employees and, in this instance, partners.

All of this identity work was particularly valuable to Steelcase in the early 1990s. According to “Message,”—which was directed narrowly to “Steelcase sales people”—Steelcase turned to BTV to increase communications in 1994-95 “in a time of transition and turbulence.” Although, and perhaps because, the network had already been in use for several years, it is noteworthy that Leete suggested that BTV would provide a novel solution for “a critical point in a critical year for the Steelcase sales organization...a time of change and challenge that is unprecedented in Steelcase history.” Leete invoked a laundry list of factors affecting the company, including “implementing a new organizational structure, moving into and learning new frontline roles and responsibilities, refocusing our dealers on their lead sales role, and making the personal transition to a new compensation program” as well as the president’s resignation, delivery problems, and a new early retirement and voluntary separation program that shrunk their workforce. Throughout, Leete’s message identifies BTV and increased communication as Steelcase’s answer to some of its pressing problems. His introduction, for example, uses the BTV broadcast as direct evidence of the company’s efforts:

the real purpose of this broadcast [...] is to begin the process of improving our communications with you. As you know, this broadcast is only for Steelcase sales people. This is the first time this year that we’ve used BTV exclusively within our sales organization, but it won’t be the last. We recognize the need to do a better job of

communicating with you. We know that we haven't done it well enough in this time of transition and turbulence. We intend to improve our performance in the communication arena and we're taking a first step right now.

In so doing, Leete, and, in turn, Steelcase, attempts to assure—rather spectacularly—its many geographically dispersed workers in a period of turmoil and restructuring that the home office has the plan and, especially, the technology needed to overcome these challenges.

Steelcase subscribed to a second strategy for positioning its satellite use for its workers. In addition to presenting satellite communications as a tool or weapon to be “deployed against the market,” programs and their hosts also worked to establish the capabilities of satellites to build intimacy among workers and strengthen the Steelcase community. In Leete's message for his salesmen, this approach appears in a further description of what he believes communication can accomplish:

Better communication wouldn't eliminate the problems you faced this year, but it would go a long way towards helping you develop a *better understanding of the corporate situation*, which would allow you to develop a *better personal perspective* on the customer and dealer situations you've been managing on our behalf. It would also give you *added confidence* to know that the people in grand rapids are aware of the difficulties you face and are acting to correct these difficulties (emphasis added).

For Leete, the desired outcome of increased communication in this instance is not information to mobilize in the context of sales, but a closer communion with the head office—by sharing their understanding and vision—and increased awareness and recognition of one's own position and role within the company. (Although much of Leete's message reads as a mea culpa for the company, the emphasis placed on a solution that targets the perceptions and understandings of workers neatly absolves Steelcase of total blame, since it is a change to workers' capabilities that provides an answer to this crisis.) This emphasis on creating a close community and greater alignment in thought and belief between headquarters and the field surfaces in several other strategies.

Key among these is the routine emphasis on a certain kind of interactivity and connection enabled by satellite programming. Above I have already quoted Mark Mayhew, Chairman of the Dealer Council, linking BTV to the development of interactivity. Though Leete remarks that BTV might not function well for “true conversation,” he nevertheless includes the network in the context of a full slate of two-way communication technologies and an increased concern in the interests, needs, and input of employees:

When I say communications, I am referring to communication that is ongoing and frequent, targeted at the items and concerns that you care most about and related to this last point, communication that is definitely two-way. We know we need to listen as well as speak. For example, BTV is a great way to get information to you.

Likewise, Leete suggests that BTV can open up relations between workers and executives by granting “access” to top brass. In his comments below, we also see a reiteration of the logic of shared “understanding” between worker and headquarters as the solution to corporate troubles.

You should have access to all areas of the company and to the decision makers that most affect the work you do. One of these decision makers is [COO] Jim Hackett. Jim is setting the direction for all of us in North America and it is critically important that each of us understand his values and philosophies regarding our business. You’ll be hearing a lot from Jim Hackett in the coming weeks and months. In fact, he’ll be appearing on our next BTV broadcast to the sales force.

To introduce this notion of increased access—and to reinforce the reciprocal communication relationship promised by BTV—the broadcast cuts to a clip of Hackett telling an audience of Steelcase dealers in Colorado Springs that, with regards to problems they have had in the recent past, “we hear you.” “Productivity” goes even farther, emphasizing that its program “*is* a discussion” (again, designed to make their research more “accessible and user-friendly”).

Through the display of phone and fax numbers and periodic invitations (“we very much welcome your calling in, faxing,” “We would be delighted to hear from you. Call or fax and we will try to answer whatever questions that you have”), the program’s hosts both interpellate viewers to

participate in the “discussion” and repeatedly demonstrate the accessibility of the expert panel. Several comments complimenting audiences’ proper participation also reinforce their claim to facilitating a discussion (“OK, we’ve got some more questions and it’s great. You’re doing what you’re supposed to and what we hoped you would, which is calling in,” “Thank you very much for participating, *you’ve* done a great job and we look forward to working with you again. Emphasis in original.). Concluding their program on yet another note that establishes the corporate satellite broadcast as a mechanism of collaborative communication, the host requests that all participants complete the survey being distributed to them in their receiving sites.

As I mentioned in the beginning, this is the first of a new venture really for IDRC working in conjunction, in this case, with Steelcase, to try to link in a strong and powerful way the research that IDRC has been funding to the educational programs that it wants to and is delivering to you its members. This program which is again a first use of this business TV and video media, this channel, uh I think is one that IDRC sees itself using more in the future and they very much would like your feedback about how did it work, what would you like to see different or changed, how could it be made more effective for you.

Again, satellite technology claims to cater to its audiences by folding them more deeply into circuits of corporate communications and, possibly, even decision making.

Reinforcing these overt strategies of interactivity display were more subtle linguistic tools that reinforced the connection between company and audience. In some instances, intimate language binds the two groups together in a mode common to corporate media:

I want to *personally* thank you for the sacrifice and effort you’ve put forth this year. And *I will hope you will join me* in looking forward to the days ahead which I believe are bright...*you’ve made it possible for us all* to look forward to the team satisfaction and personal fulfillment that will come from leading *our* dealers and *our* company into the future. Thank you. (Emphasis added.)

In others, highly informal, casual language breaks down hierarchies between groups, creating further intimacy, as we see in this excerpt from “Test,”

Hi and welcome to today's broadcast. It's nice to have you back again with us. I know that I told you all at one time that you'd never see my face again but I lied to you... We're going to keep this really informal. We haven't prepared much for today's broadcast so if we make some mistakes, you'll just have to bear with us with on that.

The host of "Test" further exploits humor to establish videoconferencing as a practice of proximity and community. In the portion of the program in which he speaks to each receiving station in turn, he invokes inside jokes with representatives (the trauma of a portable dish falling off a truck on the way to a broadcast), and makes a number of other jokes throughout—referring to himself as Ted Koppel, admonishing a caller to not say the service is "too good" lest they charge Steelcase more, and, in response to a silence, quipping self-deprecatingly, "I understand that if you had to watch me for the last 45 minutes I probably put you asleep." The host's use of humor helps legitimate a sense of community among the various call-in locations and characterizes the satellite videoconference as a site of intimacy. Combined with the techniques above, this side of Steelcase's strategy uses satellites to assure workers that they are part of a team, and, further, that Steelcase is *sincerely* interested in developing a sense of reciprocity between field workers and the home office. Both their externally and internally directed campaigns (satellites as sales tool, satellites as community builder) likewise enabled Steelcase to ensure its geographically dispersed workers in a time of trouble that they have employees' best interests at heart (and are willing and able to spend the money on the technology to prove it).

Aesthetically and technologically, Steelcase exploits liveness in its attempts to further develop this sense of community. According Paddy Scannell's recent work on commercial television, liveness "is the *worked at, achieved and accomplished effect* of the human application and use of technologies whose ontological characteristic is immediate connectivity."¹⁰⁶⁰

¹⁰⁶⁰ Paddy Scannell, *Television and the Meaning of 'Live.'* Cambridge, UK: Polity, 2014: 99. Emphasis mine.

Corporate satellite television uses diverse strategies to establish liveness—and a sense of community arising from co-presence—as a fundamental characteristic of satellite television. Notably, both of the uses of satellites’ “immediate connectivity” explored above do not operate on the same level of interactivity as the technologies and practices that many—including scholars John Carey and Martin Elton—consider to fall under the umbrella of videoconferencing.¹⁰⁶¹ While corporate satellite systems did occasionally incorporate true two-way communication capabilities along the lines of the educational experiments explored above, I will leave these uses aside here to focus on satellite usage that worked even more explicitly to establish liveness and co-presence as an “effect” of its technology. The most direct of these efforts were the many shows that incorporated call-in segments to various degrees. Technically, this might be best described as (unidirectional) point-to-multipoint videoconferencing with parallel audio conferencing that enabled people at receiving locations to call in to the broadcast site. Steelcase, like JCI, however, used various strategies to imply their system was far more multidirectional. “Message,” for example, uses a technique similar to *JCI Report* in insinuating a dual satellite pickup when the host pretends to cut to a live feed of the President of IDRC, Ken Filbrick, who could not join the group “in studio.” After Filbrick concludes his welcoming

¹⁰⁶¹ There is much to add to Carey and Elton’s discussion of the development of videoconferencing. Since they trace a genealogy of videoconferencing directly from teleconferencing, they are interested primarily in how the new technology fared in relation to its ostensible forerunner. I argue that we must also see videoconferencing coming out of business television. John Sheahan, the man primarily responsible for installing global videoconferencing facilities for Johnson and Johnson, for example, also lead the production of audiovisual materials for J&J. If we understand videoconferencing as stemming at least in part from the same desires that animate business television—not least of which is the development of a strong corporate identity—we can recognize the false equivalence drawn between teleconferencing and videoconferencing and reinvestigate established explanations of videoconferencing as a failed version of teleconferencing that offered users too little for the added trouble. John Carey and Martin C. J. Elton, *When Media are New: Understanding the Dynamics of Media Adoption and Use*, Ann Arbor: University of Michigan, 2011: 184, 193-194, 201.

remarks, the host transitions back to the studio with an “All right, thank you Ken.” Furthermore, as I will address below, in a discussion of failure’s role in establishing liveness, while the phone-in segments played at being two-way—at least via the audio line—this was not always the case; headquarters, however, worked to conceal this arrangement to maintain the illusion of closer affective proximity with its varied receiving sites and everyone’s potential participation in the live event. Furthermore, in training and education programs that used BTV as one element of varied activities (group discussion, team-building exercises, the distribution of printed information) taking place at each screening location, BTV hosts often suggested they (somewhat omnisciently) knew of these processes and in some cases had real-time control of these activities at a distance—for example, signaling staff at each location to distribute materials. This “coordination of co-presence,” offered companies using satellites an additional method for constructing a sense of liveness and connection with its distributed audience, at the service of presenting itself as interested and engaged with each site.

Steelcase’s attempts to manage liveness and connectivity become most pronounced in moments of failure. Unsurprisingly, failure becomes the centerpiece of “Test,” as the host contacts each Steelcase receiving site in turn to ask them about their own experiences with failed equipment. His introduction both sets up the project—managing liveness—and catalogs the system’s difficulties:

The purpose of today’s broadcast is to eliminate any technical problems that you have been having out there, especially with the Darome [call-in] system. What we’re going to do is eliminate all of those embarrassing moments—we’ve all been through ’em—uh, you know when the whine is there and the squeal is there and the uh people sounding like they’re in caves and there’s those dreaded moments of silence that we’ve all been through. So what we want to do is eliminate all that today.

Indeed, call in programs like “Productivity” also exhibit many of these characteristics—whining, echoes, popping ‘p’s,” calls being cut off, phone handling noise—that testify to the technology’s

limited capacity to provide a sense of unmediated immediacy. Though these elements may be reduced in their severity, given the years-long lapse between this coordination program and “Productivity,” their appearance attests to the persistence of these aural markers of failure in satellite programming. Throughout “Test,” it becomes clear that the coordination of co-presence—the minimizing of the sense of mediation—requires an involved discussion of proper microphone use, coaching people “too afraid to talk,” labeling confusing switches and knobs, detailing complicated protocols for calling in, attending to the time constraints and busy schedules of certain receiving stations, and developing architectural solutions that can accommodate everyone who wants to see the broadcasts. When one caller has difficulty translating her technical difficulties to the host, she puts one of the technicians—on-site for the purpose of the broadcast—on the broadcast phone so that he and the host can coordinate the function of the Darome system from a distance; even in moments of failure, the “coordination of co-presence” testifies to the company’s flexible technical prowess and ability to manage the company’s problems at a distance.

While the uncertainty of the call-in portion of programs might lead to minor failures that *reinforced* the liveness (and thus connectivity and co-presence) of the program, e.g., someone asking a question that pertained to content planned for later in the program and being asked to hold onto it, this same uncertainty could also lead to failures that undermined these same elements. One of the most spectacular failures in “Productivity” occurs when the one-way nature of the phone systems (and the panelist’s attempts to dissemble the teleconferencing’s limitations) becomes evident. This exchange occurs between two panelists, Tina Facos-Casolo, Program Manager for IBM Real Estate Services, Bill Agnello, Vice President of Real Estate and the

Workplace for Sun Services, the host, Franklin Beker, director of the International Workplace Studies Program, and a caller from Chicago:

Chicago: Hello, this is a call from Chicago. How do you address the security issues involved with location independence?

[Silence then short exasperated laugh from Facos-Casolo.]

Facos-Casolo: [With her mic slowly being turned up.] Uk Ok, Uh, excuse me. What do you mean by security implications, what are you trying to secure?

[Becker and Agnello respond, somewhat overlapping, with physical gestures towards Facos-Casolo.]

Beker: I don't think we can do this; you can't do this.

Agnello: Yeah, they can't respond.

Facos-Casolo: Oh, I'm sorry. [Softly laughing.] Oh right, thank you.

[Agnello takes over, speaks about encryption.]

In this instance, the system's failure to enabled two-way real-time communication becomes clear. Though the Steelcase system did allow for conversational back-and-forth discussion, it appears they programmers of "Productivity" chose not to take advantage of those affordances. As such, this moment lays bare the limitations of Steelcase's coordination of co-presence.

We might also think of how certain aesthetics speak failure—if not of the technology, of the company itself. For example, "Message," is comprised almost entirely of a medium shot of Leete looking directly at the camera. The only reprieves from this for the audience are two cutaways to the same chart and the eight-minute clip of Hackett included as part of Leete's talk. In eschewing many of the established televisual practices that so brightly and boldly animate much of BTV programming, I argue that this is an aesthetics of failure—a turn to earnest, no-frills presentation—that attempts to situate Leete's message on a level of sincerity and, more

importantly, accessibility.¹⁰⁶² This “aesthetics of access” diverges from Lucas Hilderbrand’s since it is not the user’s access to the video that is embedded in the image, but the company’s attempts to use media to provide the illusion of breaking down barriers between audience and speaker. It becomes an aesthetics of failure in that this strategy is being mobilized to attest to and correct Steelcase’s own shortcomings.

Conclusion

While educational and governmental programs helped develop the meanings that would circulate around satellite television—their speed, ability to span the globe, to target specific (underserved) locations—those in the industrial sector also contributed to this project in early years through its production of sponsored films. Amid the globalization of the 1990s, satellite television became incorporated once again into the corporate media sector, this time as a communication technology that could help companies reach and manage their distributed workforces (even if “international” often meant North American).¹⁰⁶³ *JCI Report’s* employee newsletter hybrid, which borrowed its claims to liveness and global reach from the broadcast news genre—even though it was itself a taped program that only used satellites for scheduled distribution—testified to JCI’s understanding of the value of positioning satellites as a medium of vast and rapid connection. Likewise, for Steelcase, emphasizing satellites’ speed, interactivity and connective capabilities became a way to position themselves before their employees as the source of a powerful sales weapon and as a concerned leader hoping to develop community and shared understanding across corporate hierarchies. Throughout, satellites provide yet another

¹⁰⁶² Lucas Hilderbrand, *Inherent Vice: Bootleg Histories of Video and Copyright*, Durham: Duke University Press, 2009.

¹⁰⁶³ According to Dave Sobczak, JCI *did* use videoconferencing for multi-continent communication on rare occasions, but the difficulty of coordination meant that such truly “global” uses—for JCI—were uncommon.

example in which the business communications sector—ever infatuated with Marshall McLuhan—believed that the medium was, in part, the message.

Conclusion

The Precarious Archive(s)

“The ‘archive’ is over theorized; ‘archives’ (where the labor of record keeping takes place) are undertheorized and underfunded”

- Rick Prelinger¹⁰⁶⁴

Throughout this dissertation, I have argued that television operated for American business and industry as an instrument of orientation. It allowed businesses to locate themselves and their many workers within complex cultural circuits, workplace hierarchies, and the physical space of the plant, region, nation, and globe. For those invested in the business audiovisual sector, it also offered a mechanism of orientation towards—a frame for—the “problem” of electronic institutional communication. I have demonstrated this argument through a chronological series of episodic case studies (early television in the home, industrial television (CCTV), videotape, satellite broadcasts) that return to the question of television’s emergence during key moments when its affordances were being denaturalized and reconfigured. Throughout, I have argued that, for industry, television operated as an efficiency machine that enabled expanding industries—whether American post-war manufacturers or globalized conglomerates—to work on their employees’ physical and mental capacities as well as their affective relationship with the company and their labor. In arguing that television offered a ground for companies, manufacturers, and AVBC professionals to grapple with the ideal form of

¹⁰⁶⁴ Prlinger’s tweet appeared to strike a chord with archivists on twitter, garnering 151 retweets and 170 favorites. Rick Prelinger (@footage) 9:37 AM, Feb 3 (Tweet). <https://twitter.com/footage/status/562666114895728641>

corporate communication, I have shown how both logistical and cultural management were (and continue to be) longstanding industrial desires articulated to communication technologies that, although we might today associate with computer networks, discovered much of their form and function in television networks. I have also hopefully broadened how we might understand television networking to expand beyond the commercial system to include private networks animated by tape and satellite distribution along contours determined by company operations rather than, for example, the shape of the nation. Last, I have endeavored to show how commercial and industrial media sectors mutually informed and overlapped one another, whether in twin emphases of television as a sales apparatus, production and distribution practices, the gendered logics by which they were made legible and distinct, or industry's attempt to exploit the flexible capabilities of television as an agnostic technology in order to harness viewers' affective relationship with commercial television for business purposes.

In arguing the above, this project has addressed persistent and pernicious gaps in our understanding of media history. While useful, orphan, and nontheatrical film studies have been increasingly successful in addressing the voluminous and varied uses made of media outside of the narrow parameters of art and entertainment—the marginal majority of media—the sheer magnitude of producers, distributors, exhibitors, and users spread across the United States makes this a herculean task. Furthermore, even as we begin to sketch the broad contours of film's use in industrial, educational, governmental, medical, and other institutions, television remains remarkably absent from these histories. Not only has this barred us from understanding how institutional engagement with media evolved across technologies, it forces a temporal limit on institutional media analyses that stops somewhere in the late 1970s and early 1980s, when videotape overtook film as the institutional medium of choice. This project pushes against these

disciplinary boundaries in order to examine the special productivity of the conjuncture between business and television and to better understand how media shapes our everyday relations with one another; our labor, learning, and leisure activities; and the institutions in which we participate.

If, ultimately, television operated for business and industry as a tool of cultural and logistical management, as the persistence of historical gaps may make clear, the study of industrial television itself presents a host of cultural and logistical problems that this dissertation likewise attempts to confront and make legible. In the remainder of this conclusion, I outline the problem of the precarious archive(s). Distinguishing between the archive (theoretical construct) and archives (a wide range of particular institutions), my emphasis rests on the relationship between archives and the function of the archive and its utility for scholarship. In so doing, I follow Caroline Frick, who has shown how preservation discourses, e.g., nationalist cultural heritage logics, have not only shaped the global historical record as it relates to cinema, but our very understanding of what preservation practice is and should be in the first place.¹⁰⁶⁵ I argue that precarity—referring to corporate labor practices, preservation and access strategies, and even records' materiality—is a defining condition of many corporate television archives, and that this precarity negatively shapes researchers' possible relationships with and use of the (corporate television) archive. Further I argue that the same precarity that endangers corporate audiovisual records and restricts researcher access (but saves money for corporations) potentially reinforces the archive's authority function, since it more tightly governs corporate resources and how they can be used.

¹⁰⁶⁵ Caroline Frick, *Saving Cinema: The Politics of Preservation* (Cambridge: University of Oxford press), 2011.

Despite its prevalence in discussions of contemporary labor, “precarity” has not yet made its way to the ever-so-slowly revised Oxford English Dictionary. Its companion adjective, however, hints at the power dynamics latent in the term. While used commonly to mean hazardous, insecure, or unstable, precarious also refers to a right or tenancy “held or enjoyed by the favor of and at the pleasure of another person; vulnerable to the will or decisions of others.”¹⁰⁶⁶ Precarity, in its current common usage, is tied up in massively imbalanced power relations between companies and laborers. Theorists Michael Hardt and Antonio Negri describe precarity as “a strategy of capitalist control” invested in

organizing all forms of labor according to the infinite modalities of market flexibility.... Workers are increasingly forced to move among multiple jobs, both over the course of a working career and in the course of a working day. A central aspect of precarity, then, is that it imposes a new regime of time, with respect to both the working day and the working career—or, to put it another way, precarity is a mechanism of control that determines the temporality of workers, destroying the division between work time and nonwork time, requiring workers not to work all the time but to be constantly available for work.¹⁰⁶⁷

Although they note that precarity had already been central to the working experiences of women, minorities, and majority world laborers, they argue that “now precarity is becoming generalized at all levels of the labor force throughout the world, and indeed taking some new, extreme forms.”¹⁰⁶⁸ It has been difficult, however, to locate precise employment numbers to sketch what this precarity might look like for professional archivists.

Although the Society of American Archivists published the results of a major information-gathering project funded in part by the Institute of Museum and Library Services in

¹⁰⁶⁶ “Precarious,” *Oxford English Dictionary*, first meaning.
<http://www.oed.com.ezproxy.library.wisc.edu/view/Entry/149548?redirectedFrom=precarious&2/4/2014>.

¹⁰⁶⁷ Michael Hardt and Antonio Negri, *Commonwealth* (Cambridge: Harvard University Press, 2009): 146.

¹⁰⁶⁸ Ibid.

2006 to describe the field, demographic numbers do not report on whether positions are permanent or temporary—only whether they are full or part-time.¹⁰⁶⁹ The data gathered for “A*CENSUS” was collected in 2004, over ten years ago and before the financial crisis that hit so many industries and institutions, including of course, libraries and archives.¹⁰⁷⁰ More recently, Rebecca Goldman and Shannon M. Lausch undertook a survey exploring the employment conditions of recent archives graduates. They discovered that—among their respondents—over 40% of early career archivists’ first jobs (full and part time) after graduation in 2012 were temporary (another 8% were part time and permanent).¹⁰⁷¹ While these numbers hint at elements of precarity—flexible contract work, part-time employment—informal and online publishing spaces like blogs and listserves have been more ready to take up the language of precarity in describing archivist working conditions. In these spaces, authors describe what they see as significant underemployment, an overreliance on unpaid internships and temporary contract work, outsourcing, and downsizing.¹⁰⁷² While much more work needs to be undertaken to

¹⁰⁶⁹ See, for example, Victoria Irons Walch, “A*CENSUS: A Closer Look” *American Archivist* 69.2 (Fall/Winter 2006): 333-338.

¹⁰⁷⁰ With only 10% of archivists working part time (no indication given whether by choice or by necessity) and almost 80% working full time, the 2006 report describes a robust profession. Walch, 336.

¹⁰⁷¹ Shannon Lausch, “Dispatches from the Void” presented at Society of American Archivists (August 9, 2012): 8. See also Goldman, Rebecca and Lausch, Shannon M., “Job search experiences and career satisfaction among recent archives program graduates” (2012). *Conference presentations*. Paper 4.

<http://digitalcommons.lasalle.edu/libraryconf/4>

¹⁰⁷² Myron G., “On Precarity” *Bibliocracy* (January 1, 2014): <http://bibliocracy-now.tumblr.com/post/72506786815/on-precarity>; “Do We Eat Our Young” message board thread started by Tom Tiballi. (January 21, 2012), parts one and two:

<http://forums.archivists.org/read/messages?id=118375>,

<http://forums.archivists.org/read/messages?id=118501>,

<http://forums.archivists.org/read/messages?id=118594>.

Samantha Winn, “Are we a profession or aren’t we?” *Archivasaurus* (January 27, 2014): (<https://archivasaurus.wordpress.com/2014/01/27/are-we-a-profession-or-arent-we/>)

determine how this affects archival processes, including appraisal and acquisition, my own experience while completing this project testifies to the impact that precarious employment could potentially have on issues of access. While the most common refusal of access to corporate archives I received during my research concerned archival access policies that did not allow for public research, two different archivists actually cited their precarious employment status (both times temporary contract workers) as part of their rationale for denying access. (Whether they were referring to highly circumscribed duties defined by the project they were hired for or whether they were concerned about properly fulfilling a gate keeping function is unclear.) While certainly these archivists may have wanted some exterior force to credit for the lack of access, they could have cited any number of other factors, including company policy. Furthermore, although two employment-status-based refusals—out of dozens—may not represent statistically significant numbers, they do nevertheless point to a potentially troubling vector of precarious *access* to materials central to American business history.

A companion issues is access to finding aids (if they exist). In several archives I visited, (extremely helpful) archivists used their internal systems to locate records they thought might be of use to my project. While an archivist's expertise regarding their own collections is invaluable for orienting researchers towards materials, I would have liked *also* to see how each collection was arranged so I could get a better sense of the scope and size of the collection, e.g., to identify new and unexpected paths of research that an archivist would have trouble anticipating. Given what I presume are security concerns, access to materials in private corporate collections—even with the help of an accommodating archivist—is uncertain. Working with archivists to locate

Progressive Librarian's Bulletin, CFP for third annual symposium on the theme of "Precarious Labour," 2.7 (July 2013):

http://www.progressivelibrariansguild.org/content/pdf/PLG_Bulletin_July2013.pdf

records can be a difficult translating act in which the researcher must be as wide in scope as possible without being so overly broad that she overwhelms what is likely a short visit (given the commitments of corporate archives—another barrier to access) with records of dubious relevance to her project.

The precarity of corporate archives also manifests at the level of appraisal. The process of deciding what records have “permanent (archival) value,” appraisal has been characterized as a practice that determines “what is remembered and what is forgotten, who in society is visible and who remains invisible, who has a voice, and who does not.”¹⁰⁷³ While corporate archives and government agencies tend to use records retention schedules that enable them to systematically retain and dispose of records according to set criteria, in my experience audiovisual records were not infrequently excluded from these schedules. In such instances, audiovisual materials might be discarded entirely (the most common fate in the archives I contacted) or they might languish on a shelf until it becomes necessary to address them, e.g., to fulfill a reference request or for a corporate heritage project. (In fact, I was lucky that in one instance, I visited an archives in the midst of one such project, which meant many tapes had already been digitized, arranged, and catalogued, making it far more easy for me to locate relevant materials in a short time allotted.) When audiovisual records do persist, it has also been my general experience that the paper records created alongside video programs were not deemed to have “permanent” value and have been discarded. Audiovisual and paper records retained by companies have been chosen according to schema relevant to the ongoing operations of corporations rather than their potential

¹⁰⁷³ Richard Pearce-Moses, *A Glossary of Archival & Records Terminology*. (Chicago, Society of American Archivists): 22; Terry Cook, “Remembering the Future: Appraisal of Records and the Role of Archives in Constructing Social Memory,” in *Archives, Documentation and Institutions of Social Memory: Essays from the Sawyer Seminar*, ed. Francis X. Blouin Jr. and William G. Rosenberg (Ann Arbor: University of Michigan Press, 2007), 169.

cultural or social significance.¹⁰⁷⁴ We might thus consider appraisal yet another vector through which corporate television archival work can be precarious.

Of course, many records do persist in corporate archives across the country. Furthermore, appraisal—at least as a general practice—is not concentrated only within the formal structures of corporate archives. While historical societies, e.g., in Minnesota and Wisconsin, can house copious business records, this project has also benefited from the work of amateur archivists (but professional TV men). John Sheahan consulted his personal papers and used his judgment to select AT&T and Johnson and Johnson materials he believed (rightly) would be of interest to my project. While I have no way of knowing what he did not select, my understanding of the rise of television in AT&T would not have been possible without (what we might call) his appraisal and retention decisions. In a project that we might more traditionally classify as amateur archives work, Dick Van Deusen appraised, weeded, and digitally published “The Wilke Papers,” a series of reports, newsletters, photographs, and essays created in the course of business at Hubert Wilke, Inc., an audiovisual consulting firm. Designed as an archival project, the liner notes of the CD-Rom I received holding the records comments on the impetus of the project and the editor’s ability to recognize enduring value:

When Hubert Wilke first showed me some of the original documents, I recognized an archive that deserved to be preserved and made widely available. It is a textbook on AV systems technology based on principles that are arguably as relevant today as they were when first formulated. The resource is Hubert’s, and my, contribution. It is free to share. We would appreciate knowing if it has value to you as a teaching tool and/or a reference archive.

¹⁰⁷⁴ While we might make an exception here for heritage centers—archival arms of companies that are not concerned with the records of day-to-day operations—we might also consider the role these institutions play in strategically activating historical materials to curate companies’ brands.

Although appraisal may be a precarious process, the diversity and scope of the audiovisual sector alongside individuals' investment in managing and preserving their own records both foregrounds the impact of archival processes like appraisal on corporate media research and blunts the force of corporate control over corporate records. What becomes important is connecting and collaborating with others interested in similar histories.

A third area in which precarity describes corporate audiovisual archives is in their materiality and the difficulties this presents for preservation (and, of course, access). Not only is the materiality of videotape very unforgiving—a topic I address in depth below—as I have demonstrated throughout this project, corporations were often at the forefront of new format adoption. As a consequence of the mass proliferation of cassette, cartridge, and disk formats in both their analog and digital forms before temporarily stable standards, e.g., the VHS, it is not unusual for archives to hold unplayable formats. A partial list of analogue videotape formats alone includes Ampex's 2" open reel Quadraplex, which was produced in both low band and high band formats, 2" open reel helical, produced by Ampex and Sony, EIAJ-1" open reel, 1" Type B and 1" Type C videotape, 3/4" U-matic cassettes, S-VHS, VHS, Betacam-SP, Ed-Beta, Hi8, and cartravision. Furthermore, before the introduction of EIAJ-1" in 1969, interchangeability of tapes among the machines of different manufacturers was not a priority. Though not directly invoked in the period of my study, digital videotape has also been produced in a variety of formats, including digiBeta, DVCam, and mini DV. Given this heterogeneity, it is not feasible for archives to maintain playback equipment for all videotape. Even supporting three or four widely-used formats becomes prohibitively expensive as the equipment and expertise to

repair obsolete machines becomes more difficult to acquire over time.¹⁰⁷⁵ Indeed, while one very generous archivist actually purchased a VHS player expressly so I could watch tapes in their collection, EVR cartridges are unplayable—even at the Motorola archives where an EVR player sits in storage. As a result, archives may be hesitant to accession video, and even those that do house video collections likely have some formats that cannot be played on existing equipment, rendering parts of their collections inaccessible to researchers.

In addition to issues specific to the corporate audiovisual archives, materiality problems are fundamental to videotape's general precarity. For all of the control over time video promised to the institutions and individuals that used it, the medium has remarkably little control over the temporality of its own fate. As Jim Wheeler and other video preservationists have noted, videotape was never intended as a preservation medium. As I have discussed, one of the selling points of VTRs in the 1950s was that their tape could be easily erased and re-used. And like film, it would take time before networks recognized the value of taped programs.¹⁰⁷⁶ Furthermore, if the reuse affordances of tape weren't peril enough for long-term preservation, the physical properties of tape proved far more delicate than most film. One of the earliest concerns with tape was erasure or distortion caused by exposure to magnetic fields, particularly from machines using direct current. A 1965 Film Preservation report from FIAF warns that risk is everywhere; "Vacuum cleaners and dehumidifiers are both sources of danger."¹⁰⁷⁷ This problem—which was

¹⁰⁷⁵ Library of Congress, *Television and Video Preservation: A Report of the Current State of American Television and Video Preservation*. 3 vols. Washington, D.C.: Library of Congress, 1997): 42.

¹⁰⁷⁶ W. Barksdale Maynard, "Rescuers rush to preserve TV shows shot on fragile videotape," *The Washington Post*. July 15, 2013. http://www.washingtonpost.com/national/health-science/rescuers-rush-to-preserve-tv-shows-shot-on-fragile-videotape/2013/07/15/ef6e2ee4-cd3c-11e2-8845-d970ccb04497_story.html. Accessed Sept. 12, 2013.

¹⁰⁷⁷ Herbert Volkmann, *Film Preservation: A Report of the Preservation Committee of the International Federation of Film Archives*, London: National Film Archive, 1965: 15.

eventually shown to be minimal—was quickly overtaken by questions concerning the deterioration of the tape itself. Tape is generally composed of 3 layers: the backcoat (which aids in stabilization and uniform playback), the basefilm or substrate which operates as the carrier for the other two layers, and a topcoat or magnetic coating in which the magnetic particles that hold the video image are suspended in a binder that fastens them to the basefilm.¹⁰⁷⁸ Videotape's Achilles' heel is the binder, which—depending on the proprietary formula of cleaning agent, lubricant, surfactant, magnetic particles, and binder used for a given tape—can begin to degrade in a few years. In most cases, weak binder can lead to sticky shed syndrome, wherein the tape surface becomes gummy, causing the tape stick during playback. Portions of a tape's magnetic coating can even peel away from the carrier, making portions of video content irrecoverable. Tape also experiences preservation problems common to film, such as damage caused by dirt and chemical reactions or warping from heat and humidity. While storage and handling guidelines have been developed to combat these problems, less can be done about the second major problem plaguing archivists, format obsolescence.

Adding to difficulties surrounding format obsolescence and tapes' physical properties archival initiatives to preserve tape can run into significant intellectual control problems. For example, I recently spoke with the preservation officer at a mid-sized historical society who is at the proposal stages of an ambitious video preservation project targeting about 8000 items spanning at least 10 formats. Most of their video came to the archives as part of larger manuscript collections thirty to forty years ago. While it was in many respects forward-thinking for that type of institution to accept tape in the first place, the reels and cassettes often remained uncataloged, resulting in their content remaining a mystery. In some instances, information tying

¹⁰⁷⁸ Jim Wheeler, *Videotape Preservation Handbook*, 2002. Online resource: <http://www.amianet.org/sites/all/files/WheelerVideo.pdf>.

items to their original collections has been lost, intensifying this problem. Unlike film, hand inspection of video cannot reveal any information about a tape's subject—or even the length of its recording. Media Matters' Jim Linder talks about the difficulties in appraising video with the example of a tape he encountered that bore only the label Resignation/Disneyland. His decision to spend hundreds of dollars to convert it paid off when it turned out to hold a speech given by Ronald Reagan on Richard Nixon's 1974 resignation.¹⁰⁷⁹ While his anecdote has a happy ending, it also speaks to the difficulties in prioritizing preservation decisions based on content when so little information regarding a video's content persists; obviously, not everyone would take the same risk.

The precarity of corporate audiovisual records manifests thus across several core functions of archives, most notably preservation, appraisal, and, of course, access. It is no coincidence that the same commitment to flexibility, efficiency, and economy that so enamored

¹⁰⁷⁹ W. Barksdale Maynard, "Rescuers rush to preserve TV shows shot on fragile videotape," *The Washington Post*, July 15, 2013. Copyright also threatens videotape preservation and access. Due to shifts in copyright law, every tape produced after 1978 is copyright protected, no matter the intent of the producer(s). Furthermore, because much of current video preservation relies on digital reformatting, it activates a host of issues surrounding legally appropriate copying for preservation purposes, particularly under section 108(c) of the copyright act.¹⁰⁷⁹ This can adversely impact archives' willingness to spend precious resources preserving tapes, particularly if they are unsure of their content or if wide digital distribution of reformatted content through a system like Content DM is a priority. While last year's publication of *Video at Risk: Strategies for Preserving Commercial Video Collections* goes a long way in clearing up misconceptions about the law that might hamper digital preservation efforts, ongoing legal battles concerning digital and orphan works makes the protected status of certain activities confusing, adding unnecessary hurdles for archivists and scholars. See Howard Besser, Melissa A. Brown, Robert Clarida, Walter Forsberg, Mark Righter, and Michael Stoller, *Video at Risk*, (New York University Libraries, 2012): http://www.nyu.edu/tisch/preservation/research/video-risk/VideoAtRisk_SECTION108_Guidelines_2013.pdf. While Fair Use provisions continue to strengthen through the activism of scholars, artists, and non-profits like the Electronic Frontier Foundation, and the center for the study of the public domain, the balance of power continues to favor rights holders, even if they are nowhere to be found. While a pair of laws introduced in 2008 attempted to protect users of orphan works from later infringement claims, both died in their respective houses.

companies to television also shaped their approach to (re)organizing their employees' labor.¹⁰⁸⁰ Because flexibility and efficiency are instrumental, they do not easily allow for broad record-tending that could be useful beyond the mission of the company. Returning to the tension between archives and the archive, it becomes clear how the two might reinforce one another. On the one hand, the archive has been theorized most famously as a site of authority and governance. For Jacques Derrida, who returns to the historical meaning of *Arkhe* as commencement and commandment (origin and authority), the archive strategically and continuously transforms and reproduces the past—even determining what is archivable in the first place—while promising to fulfill persistent desires to return to lost origins.¹⁰⁸¹ For Foucault, the archive is the system operating well beyond singular institutions that governs the formation and intelligibility of utterances; it is what enables us to make sense of our world and our relations with one another.¹⁰⁸² For both Derrida and Foucault, the archive is a mechanism of power and policing that controls what can be said (and remembered) and how meaning is created and understood. Archives, on the other hand, are constellations of brick-and-mortar institutions driven by varied missions and funding arrangements, professional cultures, technical expertise and best practices, indigenous theory, archiving and preservation technologies and infrastructure, as well as law and policy. As I point out above, the routine functioning of the archives and its pursuit of its core activities can be impacted on any number of these fronts, e.g., availability and

¹⁰⁸⁰ I want to be clear that I am not by any means referring to all corporate archives when I point to these phenomena. I was aided in my project by several very generous company archives and their expert employees. However, as the casualization and precarity of the wider American workforce accelerates and companies continue to focus more extremely on economies and profit centers, we might anticipate that the precarity I describe above will become a routine condition of many corporate legacy archives.

¹⁰⁸¹ Jacques Derrida, *Archive Fever: A Freudian Impression*, trans. Eric Prenowitz (Chicago: The University of Chicago Press, 1995): 1-3, 17, 91.

¹⁰⁸² Michel Foucault, *The Archeology of Knowledge*, trans. A.M. Sheridan-Smith (London: Tavistock Publications, Ltd., 1979): 129.

accessibility of preservation and access technologies. In turn—and here is where I see the relationship between archives and the archive—the conditions that shape the operations of an archives act as a limiting principle with regards to the archive, as it is figured above. When companies organize their archives according to the (precarious) conditions most favorable to their profit-seeking operations they (intentionally or not) reinforce their own authority over certain discursive formations by limiting access to historical records (and access to the authority they grant the speaker).¹⁰⁸³ It becomes difficult (but not impossible) to speak in certain ways from the (corporate) archive.

While precarity is dangerous, however, it has its own limitations and checks. Although I was not granted access to most corporate archives I contacted, I was nevertheless able to consult materials spread across about a dozen archives and personal collections. Company archives, after all, are no less diverse and heterogeneous than their sponsoring institutions. Spread across the country in scores of different industries, the corporate archives I contacted maintained a range of different orientations to their historical materials and questions of public access. Although it was common for archives to refuse access (or toss their video), other institutions, like the New York Stock Exchange, were very welcoming and had clear systems in place for meeting the needs of outside researchers. While we might conclude that this uneven access means the history of the proceeding pages was dictated by the whim of archives gate keepers (and, indeed, what history could claim to not be shaped by archival practice), this dissertation is foundation work meant to sketch only the very broad contours of the development of industrial television in the second half of the twentieth century. For this, I argue that the collections I have consulted—in several of the largest, most active corporate television producers

¹⁰⁸³ On authority, archives, and the historian, see Carolyn Steedman, *Dust: The Archive and Cultural History* (New Brunswick, NJ: Rutgers University Press, 2002).

in the country—are sufficient. The task that lies before us now, however, is building better infrastructural knowledge regarding the scope of extant industrial media materials accessible to academic researchers so that we can start build on this foundation.¹⁰⁸⁴

Fortunately, although many tapes are quickly passing the 30-year mark, considered by some to be the classic age when tapes begin to seriously deteriorate, a number of organizations and individuals are working hard to preserve tape and make it accessible. Knowledge-sharing initiatives, such as Presto-Center's international membership organization and Timothy Vitale and Paul Messier's Videotape Preservation Website sit beside active communities of practice such as the Bay Area Video Collective and the Library of Congress. The Association of Moving Image Archivists, and training and educational programs like NYU's Moving Image Archiving and Preservation program and UCLA's Moving Image Archive Studies generate preservation expertise and publish a wide range of practical guides for the archives community. Granting institutions such as the National Television and Video Preservation Foundation, the National Historical Publications of Records Commission, and the Andrew W. Mellon Foundation fund projects such as *Video at Risk*, cited above. Vital work in research and practice is also being undertaken by private vendors and consultants, such as Media Matters and Scene Savers who do

¹⁰⁸⁴ And, of course, continuing to follow the example set by researchers in and archivists of useful and orphan media who have done a remarkable job over the past ten-plus years in garnering support and attention for the vast landscape of everyday media ignored in media studies' persistent focus on entertainment and commercial media. Linda Ferreira-Buckley points out that it has historically been the case that although sources pertaining to diverse histories were accessible to historians, their value was invisible prior to shifts in epistemology and historiographical practice. As she notes, "the bulk of materials from which recent progressive histories have been constituted had lain unexamined in private and public collections in American and Britain. What was required was a radical shift in attitudes toward who counts and who was worth writing about." Linda Ferreira-Buckley, "Rescuing the Archives from Foucault" *College English* 61.5 (May 1999): 587. The work of moving image archivists and orphans and nontheatrical film scholars in making non-commercial media practices legible was perhaps a precondition for the broader recognition the value of these audiovisual records across the media studies field.

much of the re-formatting for smaller and mid-sized archives who can't afford to undertake it themselves. Although scholars may have little to add to these technical conversations surrounding video preservation, there remains other work: particularly creating demand for video cataloguing and access in institutions that may have not yet approached these issues and increasing public awareness and appreciation of video's diverse uses (not only for corporations and other institutions—schools, churches, civic organizations, and so on—but also as local production, activist art, and home movies). While the former presents certain difficulties, the latter is achievable through publishing, pedagogy, and even community events.

With regards to creating the infrastructure for studying corporate audiovisual history specifically, we might look to a recent effort of the Library of Congress centering on sound. The Radio Preservation Task Force (RPTF) was established in early 2014 to tackle similarly heterogeneous and wide-ranging archival materials spread across hundreds of institutions, e.g., local stations. Through the efforts of over one hundred members (many of them media studies academics) split into three geographical regions, the task force aims to locate and help preserve all extant materials and collections pertaining to radio history.¹⁰⁸⁵ Although corporate archives might seem an unusual target for such an ambitious model, the growing interest in useful, institutional, amateur, and nontheatrical media has revealed the extent to which many of these fields overlap with one another; the potential for collaboration—including with amateur historians and former media professionals—is great. Furthermore, as I hope this project has demonstrated, the edge between commercial and non-commercial media sectors is at times itself blurred and indistinct, allowing for buy-in from a wide range of scholars working in more “traditional” spheres of media history. While following the path of the RPTF may not be the

¹⁰⁸⁵ For more on the project, see their website at: <http://www.loc.gov/programs/national-recording-preservation-plan/about-this-program/>

precise solution for building a solid infrastructure for research into industrial media texts and practices, it nevertheless provides a tool to think with as we confront the precarity of corporate archives. In other words, we cannot lose sight of our own potential role in supporting archives and archivists when we engage the archive—our histories depend on it.

Archives and Collections Consulted

Hagley Museum and Library

UNIVAC, MCI Telecommunications Corporation, Satellite Business Systems, Radio Corporation of America

John Sheahan Personal Papers

Johnson Controls Corporate Archives

Video Collections

Motorola Legacy Archives

Consumer Products, Teleplayer and Electronic Video Recording System Series

New York Stock Exchange

Jeremiah J. O'Donahue Papers, Film and Video Collections

Prelinger Collection at the Internet Archive

Steelcase Corporate Archives

Video Collections

The Wilke Papers

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McCormick-International Harvester Collection

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Filmography for Chapter Two

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Belgium: Where the Past Meets the Present (California Texas Oil Co. (Caltex), 1954)

Caribbean Carousel (KLM Airlines, 1954)

Clear Iron (Budd Company, 1953)

Helpful Henry (International Harvester Corporation, 1939)

Highway Hearing (The Dow Chemical Company, 1956)

Look Who's Driving (Aetna Casualty And Surety Company, 1954)

The Middleton Family at the New York World's Fair (Westinghouse, 1939)

Mr. Withers Stops the Clock (Air Transport Association, 1956)

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