THE NETWORKED SCREEN: MOVING IMAGES, MATERIALITY, AND THE AESTHETICS OF SIZE

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However conceived—as institution, experience, or aesthetic—the past and the present of moving images are unthinkable without screens. Large or small, comprised of cloth or liquid crystals, screens provide a primary interface between the forms that constitute visual culture and its inhabitants. Animated by celluloid, electronic, and digital sources, these interfaces broker the increasing presence of moving images in private and public life: museums and galleries, stock exchanges, airplane seats, subways, banks, food courts, record stores, gas stations, office desks, and even the palm of one's hand. Some screens emit light and some reflect it; some are stationary and others mobile. Variations abound. But, one thing is certain. Contemporary culture is host to more screens in more places.[1]

In film studies, the proliferation of images and screens has largely been addressed by tending to the ways in which cinema is more malleable than

previously understood, appearing everywhere, transforming across varied media and sites of consumption. The dominant metaphors used to discuss the multiplication of screens and the images that fill them have been metaphors of variability, ephemerality, dematerialization, or cross-platform compatibility, wherein screens are reconceptualized as readily collapsible, shrinking and expanding windows. Scholars use terms like "content," "morphing," and "themed entertainment" to identify the many modes by which moving images are produced and also distributed and seen.[2] Even within the industry, films are commonly thought of not as objects or discrete texts but as software, as flows of images and sounds that can be reconfigured and merchandised across a range of cultural forms.[3] Richard Maltby has persuasively argued that the concept of cinema as software has become crucial.[4] Not only does it accurately reflect industry idioms, it reminds us that the critical terms we employ to understand Hollywood's mode of production must adjust to the multimedia entertainment conglomerates that dominate the field of moving image production, distribution, and exhibition. SKG, Vivendi-Universal, and Viacom know very well that a movie is never just a film. It is also a soundtrack, a lunchbox, a baseball hat, a videogame, a cable program, an action figure, and a DVD. The so-called film industry is thoroughly integrated around this basic fact, as are the millions of people who watch, play, rewind, pause, download, listen to, collect, and otherwise interact with cinema.

Against claims to the contrary, cinema scholars must do even more to integrate the multimediated environment that is forcing a new definition of cinema into their critical frameworks.[5] We can no longer retain film's monopoly on our understanding of cinema, in particular, or moving image culture, more generally. Neither celluloid, movie theatres, nor modernist ideas about art adequately account for the dynamic shifts ushered in by media culture of the last two decades. To name only two obvious examples: (1) the prominence of digital production processes in the form of special effects and (2) television's primacy as exhibition mode for movies. Both indicate the undeniable interpenetration of film with other technologies and media forms.[6] In other words, as the material, corporate, and technological conditions of cinema's production and exhibition transform, those tasked with understanding these changes must reorient their conceptual tools. This basic assertion applies to analyzing both the past and the present of moving image dynamics.

In the context of film studies, metaphors foregrounding malleability such as Maltby's "software," and companion metaphors emphasizing mobility, such as Anne Friedberg's "mobilized gaze," have functioned productively to loosen a constraining dependency on medium specificity and to weaken attempts to preserve an ever-elusive idea about cinematic purity and essence.[7] Unravelling the discrete film object into debates about its relations to urban life, modern leisure, and ascendant consumerism has expanded and enriched the field, sending film

scholars towards cultural, media, television and visual studies, sociology, and political economy.[8] New ideas about history have further shaped an expanded idea about cinema.[9] Collectively such work has necessarily shifted our understanding of cinema away from a sacred and finite text towards an expanded system of overlapping relations, one that bears close relation both to emergent and global media conglomerates, as well as to everyday life and other media forms. Yet, metaphors foregrounding the flows and mobilities of contemporary visual culture can also obscure new formations of material and contextual specificity. Alongside the "everywhere and everywhen" of current cinema, moving images also touch down at identifiable moments and in particular places. These points become plainly visible at the interface marked by screens. It is these screens, clearly implicated in the architecture of powerful institutions—corporate, urban, and domestic—that shape, delimit, and also enable our encounter with moving images. Exploring the currents of contemporary visual culture requires us to consider the attendant specificities of these screens and of the networks that link them. By setting aside questions of medium specificity, this chapter explores the concept of the networked screen, suggesting its formative role in transforming celluloid, electronic and digital images into differentiated social and material sites of cultural engagement.

Screens are nodes in complex networks. They indicate a moment of performance when otherwise indistinguishable inscriptions—whether comprised

of chemical and light or code and cable—become an encounter between a viewer and an intelligible image. These encounters can, of course, occur in the context of screens that are both permanent and impermanent. Artists and corporations alike employ a range of screens that can last no longer than the moment of the performance: bodies, trees, paintings, shop windows, sidewalks, buildings. Any object flat or not can in practice be turned into a screen. Yet, the vast majority of the screens we encounter do not disappear with the images that flutter across them. They endure through time. Sitting on desks, mounted on walls, encased by metal, glass and plastic, they have a comparative stability. Moreover, screens persistently and actively shape the images they yield and the experience of those who watch and listen to them. Screens are not autonomous forces but intimate consorts of specific material and institutional networks. Their shape, size, control buttons, and positioning reflect the logics of the systems and structures that produce and sustain them.

My argument borrows from the recent work in film studies that foregrounds the material, discursive, and institutional life of cinema.[10] It also draws upon models asserting the crucial role of site-specificity when investigating a pervasive medium like television, forwarded elegantly by Anna McCarthy in her recent book *Ambient Television*.[11] In what follows, I address the networked screen by exploring two of the many circuits through which images presently travel, the environments in which they appear, and the screens that frame them: IMAX and

QuickTime. To borrow a phrase from Vivian Sobchack, I am concerned here with "describing, thematizing, and interpreting the structures of lived spatiality, temporality, and meaning" at the site of particular and qualitatively different kinds of screens.[12] I'd like to suggest, as a counterbalance to a focus on meta-structures and new languages—the loop, the malleable, and infinitely expandable—that it is still useful to think about the frequently specific, directed, constrained, and deliberate modes by which emergent configurations of moving images circulate and become visible on particular kinds of screens.

To be sure, movies—as moving images and as objects—have long been implicated in temporally and spatially specific material networks. This includes shipping methods such as film canisters and interstate mail, or modes of transport like boats, trains, planes, or even airwaves. Each of these methods and modes is an integral part of cinema's history. Each in some way made individual films into the amorphous and powerful institution we call cinema. Distribution and exhibition networks shape the cultural life of any given film or group of films, sending cameras but also spreading their products—images—over vast expanses of geographic space and time, linking centre to periphery, then to now. In other words, technologies of distribution and exhibition constitute key elements of the ideological circuits in which moving images have long travelled, through which they have been thought about, and how they have come to look. This fact implicates films necessarily in highly rationalized and also makeshift networks,

ranging from federal mail systems, trade borders, and global transportation grids to newspaper swap pages and clandestine exchange among private collectors. Moreover, such transit routes have shaped not just the cultural life and ideological significance of particular films but also have left behind their own kinds of physical inscriptions, indicating the clear interrelations among cinema-as-object (film cans, video cassettes, and DVDs), cinema-as-screened aesthetic (expansive vistas, close-ups, endless outtakes, and production trivia) and cinema-as-system of distribution and exhibition (movie theatres, televisions, computers).

Consider pre-video, non-35mm film gauges. Taking one example: the standardization of the 16mm film gauge in 1923 and its exclusive use of acetate film stock was part of a deliberate attempt to increase the portability and marketability of films outside of movie theatres.[13] With non-flammable, small-gauge celluloid, films could be sent in lighter canisters. They were smaller and weighed less. Print costs and shipping costs diminished. Libraries, film clubs, collectors, and middle class homes began to buy and also store films in their libraries, on book shelves, and in their parlours. The spread of home cinemas was spurred even further with the introduction of 8mm films and equipment in 1932. In other words, making films smaller, less expensive, and easier to ship was a key factor, albeit one of many, increasing the viability of non-theatrical film exhibition and the transformation of cinema into a collection of material objects suited to widespread consumption outside of movie theatres. Films-as-objects

literally changed shape as did the routes they travelled; the spaces in which films could be seen also increased. As these small films found new life in, among other places, middle class homes their aesthetic specificity became apparent. Qualitatively different from their theatrical counterparts, the non-theatrical and domestic moving image was smaller, and over time and repeated use, scratched, discoloured, and faded. Because 16mm and later 8mm films were also viewed on a range of consumer-oriented, small-space screens, their projection enacted notably different dynamics of light and size than cinema’s dominant mode of exhibition in movie theatres. In short, the experience of cinema expanded by the virtues and consumer imperatives of small films and screens. Thus from the 1920s forward, small screens implicated cinema in the politics and dynamics of domestic institutions, as well as those of public entertainment.[14]

Similarly, the technology of television transformed moving images previously secured on celluloid into broadcast signals sent through the air, dematerializing and rematerializing them on small pieces of household furniture. Films made using the academy frame ratio (1.33:1) fit the television screen but were irretrievably altered by their travels, appearing variably grainy, wavy, and blurry compared to their theatrical debut. As television’s small screen spread throughout the 1950s, movie screens grew larger. The original dimensions of the classical Hollywood frame changed to suit the emergent widescreen formats of 1950s movie theatres (ranging from 1.66:1 to 2.55:1). As these films were

eventually translated back to the television screen they were altered even more dramatically, reshaped as well as recoloured, reedited, submitted to pan and scan and other cropping techniques, interspersed with commercials, and seen on much smaller screens of a notably different shape in living rooms.[15] To be sure, television transformed the conditions in which we watch moving pictures, irrevocably influencing film aesthetics along the way. As television occupied an increasingly important role for industry and audience as an exhibition outlet for films, producers and directors began to make films that were more friendly to television screens, using what are termed “safe zones,” effectively employing less of the film frame’s width, concentrating action in the centre of the image. In more recent years, consumers have also developed their own cinema hierarchies which acknowledge television’s centrality in moving image culture. Certain films become “renters” and others draw us into the theatre. Some we buy so that they can be watched over and over again. From production to exhibition, film culture is currently unintelligible without television.

More recent changes in technologies of image distribution such as VHS and DVD, while largely dependent on television screens for image display, have introduced their own changes. Both have made it commonsense that buying movies, rather than renting a seat in a movie theatre, can be part of a day’s shopping. They may be purchased inexpensively and carried in shopping bags with other commodities. Videotapes and DVDs can be obtained but also

frequently viewed at movie rental stores, supermarkets, discount department stores, fast food chains, computer stores, and gas stations. This phenomenon implicates movies-as-objects and movies-as-screened content concretely in a wide variety of other kinds of cultural practices: travel, eating, errands, shopping. As these trends have fundamentally dispersed cinema across a wide cultural field, they have also reconsolidated a sense of cinematic propriety. VHS and especially DVD have contributed to a resurgence of sensibilities about cinematic artistry through institutionalizing and commodifying a range of concepts aimed at identifying creative agency and originality (e.g., the director's cut, classics, restorations). These technologies have also served to facilitate the rise of letterboxing, an attempt to reinstate original screen ratios—despite extreme shrinkage from the theatrical screen—even while being translated through technologies other than the properly cinematic.[16] Such changes in technology demonstrate that moving images have long been part of abstract systems of transport (airwaves, magnetic tape, digital discs) which have always supported the various contractions, expansions, and modifications of images themselves. Whether carried by celluloid and semi-trucks, by video discs or fibre optic cables, the packaging (or compression), the distribution, and the exhibition of moving images is intimately tied to the material specificities of the networks through which they travel, their particular technological form, and the specific screens on

which they appear. This fact is crucial for analyzing longstanding, irrevocable, and persistent changes to the form and function of cinema.

Integrating the material networks of cinema into our critical frameworks is, I contend, a crucial critical step toward sharpening our scholarly methods in film and media studies. Not only does the networked screen help us to understand changes germane to the history of film; the concept also helps us to understand the rapid diversification of moving image cultures and practices in the present. For instance, in 1991 Apple Computer introduced yet another possible mode by which moving images might be distributed to and exhibited on screens. QuickTime is one of several streaming technologies that allows individual computer screens to play moving image files located on innumerable Web pages. Not initially designed for downloading files, QuickTime turns the computer screen into a private, on-demand playback system, providing a platform that links the click of a mouse to thousands of short little movies that remain on their host sites. There are many genres of Web-streamed films, including experimental and artist-designed pieces, media-savvy parodies, narrative and non-narrative shorts, and a sizable number of commercial film trailers. These movies can be found on Web sites dedicated solely to making such films available,[17] or may be found on sub-sites of larger institutions.[18] Yet, despite the range of qualitatively different organizations and films, there are several features these movies tend to share, largely because of their like-modes of distribution and exhibition. These films

appear grainy, jerky, flat. Colour is washed. Focus is shallow. Background detail is lost and blurred to abstraction; foreground details also frequently appear fuzzy. Fast movements are likewise indistinct. These movies are almost always rectangular (and occasionally square), mimicking cinema’s widescreen ratio. They rely heavily on sound and music, yet often forego the tight coordination required for synchronized sound, particularly in the form of dialogue. Moreover, one must also note that each of these characteristics—clarity, rhythm, and synchronization—also depend on which media reader you have, what processing speed your computer maintains, what the nature of your connection to the Web is. Also important to emphasize is that these images appear differently, depending on what time of day they are viewed, the other traffic on the Web, and on your server and available bandwidth. And, of course, they are really, really small, frequently no bigger than two to three inches wide, dwarfed even by the diminutive desktop and laptop computer screens on which they appear.

With their own aesthetic specificities—stuttering, stammering, and fuzzy—streamed movies imply and, indeed, rely upon images that are connected as much to their original pro-filmic event as to the modes by which they are disseminated and seen. In short, little Web movies announce their interpenetration and dependence upon their mode of transport. These movies are a clear shift away from a material set of images and sounds secured on celluloid as an object in a film can (an object with relative endurance) and more a move toward a sequence

of images and sounds that are bound irretrievably to the systems and the logics of a particular kind of technological traffic. Manifesting visibly as little Web movies on individual computer screens, this traffic is not one wherein—such as with celluloid or DVD—images are shipped from one location to another, their original material status relatively intact. Indeed, it is traffic whose particularities share far more with those of broadcasting than with the distribution models conventionally attached to the cinema proper. Both are greatly affected by the environments in which they circulate. QuickTime, nevertheless, provides a distinct kind of network, comprised of code, digital and analogue networks, servers, Web browsers, media players, and microprocessors that each play a role in how precisely the information that will eventually yield a moving image will look and what the price of admission will be (i.e., up-to-date computer equipment, broadband connections and so on).[19] And, it is on fifteen- or nineteen-inch screens, usually placed on desks or tables, addressed to individualized spectators or users that these images and sounds appear.

One way to understand some of the changes being introduced by digital technologies to moving image culture is to think about the ways in which streamed Web films articulate a distinct kind of networked cinema. Streamed Web films relay an identifiable emergent aesthetic, dependent on a system of overlapping and constantly interacting systems of motion and variability. Streaming cinema offers moving images that are themselves constantly changing

because of the constantly changing networks of which they are a part, and on which they wholly depend. QuickTime movies announce variation and unpredictability.[20] They resolutely reject or perhaps make a mockery of realist conventions of cinematic perfection and of the idea of pristine, invariable film texts. They achieve this alongside the constancy of a persistently cinematic yet miniature frame and a preponderance of user controls: pause, fast-forward, and play buttons, time and control bars, browser icons, indicators of connection speed and memory remainders.

The small, jerky, and grainy qualities of moving image texts are not new to visual culture. Early photography and motion pictures underwent similar phases in which such qualities—characterized frequently as incomplete grasps towards the future—dominated these respective media. Yet, the formal similarities of Web films to early movies have frequently led commentators on QuickTime to recall the germinal phases of these other photorealistic visual forms. Making a mockery of our recent frenzy for "the new," little Web movies resonate so much with early cinema and Edison's peepshow Kinetoscope for some that they have been characterized as "quaint" and "nostalgic."[21] Yet, the specificities of Web movies do not require that they be understood as a good, bad, failed, long-gone, or a substandard form of conventional realist cinema. One might think of them as a fully realized yet ephemeral form, borrowing much more from visual technologies other than the explicitly cinematic: handheld optical

toys, live teleplays, radio concerts, as well as graphic design. It is also important to note that their smallness and their intimacy are obviously not the only articulations of the technology. QuickTime is simply a program that can, of course, be used in many ways. For instance, I frequently stream films into my classrooms. In doing so, there are qualitative changes in the network through which they become meaningful. No longer miniscule and addressed to a single, controlling spectator, QuickTime becomes part of an educational institutional apparatus but also a more public, audience-based one. The technology itself (screen and software) is only one part of a larger dynamic. In this latter example it becomes co-articulated with syllabi, textbooks, tests, instructor authority, and so on.[22] Against the idea that QuickTime is quaint and nostalgic, I’d like to suggest that the networked screen implied by streamed movies presents us with two important points of entry into contemporary media culture: (1) an emergent configuration of cinematic institutions which includes Web sites but also browsers and servers that offer distinct re-articulations of cinema. And, (2) in as much as we can isolate these little films from the texts, the controls, the marks of their corporate environment, they also invite a particular way of looking, one that has a complex and reciprocal relationship with ways of engaging with images not generally associated with cinema. To be sure, this way of looking is considerably different from that circumscribed by dominant Hollywood aesthetics, or theatrical modes of exhibition. QuickTime links moving images—commercial and not—to

visual forms previously confined to the experimental and artistic realms: small screens, stuttering and variable images and sounds, and a hyper-sensitivity to temporal networks that super-exist the images themselves.[23] Further, it brands these images, with an already branded computer screen, browser interface, and operating system, with its own QuickTime logo and proprietary design. You always know you are watching QuickTime. Counter intuitively, these characteristics are most commonly combined with utterly conventional cinematic styles, thus distorting familiar aesthetic techniques and images, while also forwarding their own specificity. Moreover, Web films are contained by a very small box, requiring attention to the effects not only of scale distortion but also of frame size. I will return to explore this further shortly.

In sharp contrast to the stammering brevity of QuickTime there is the bold monumentalism of IMAX. Like QuickTime, IMAX is a relatively distinct network for moving images, similarly bearing the marks of its own technological specificity and institutions. It is replete with its own camera, celluloid, release schedules, projection system, and screens. Rather than browsers, servers, operating systems, and computer manufacturers, IMAX has long been intimately interconnected with museums, scientific organizations, tourism, and more recently with grand entertainment complexes. Like QuickTime, IMAX is an imaging system that operates at one remove from Hollywood cinema. Both are relatively recent additions to visual culture, serving as a highly visible element of

emergent screenscapes. Yet, notably different from little Web movies and their quaint intimacy and variation is the pronounced precision, crystal clarity, and the sheer size of IMAX. Whereas QuickTime engages an individualized user, IMAX declares itself to a global audience.

IMAX grew out of Canadian experiments that debuted in their earliest incarnation as *Labyrinthe*, a large multi-screen experiment at Expo '67, Montreal. IMAX Systems Corporation was founded in 1970. Its first permanent screen was constructed in 1971 (Ontario Place's Cinesphere, Toronto). As of January 2005, IMAX screens have spread to number roughly 240, stationed in thirty-five countries worldwide.[24] IMAX began as a special-venue format, and was attached initially to museums and other educational and tourist sites throughout the 1970s and 1980s. The 1990s and early 2000s have yielded closer links with mainstream exhibition venues such as mall-based theatres and stand-alone megaplexes. Yet, its film library remains dominated by titles that bespeak its roots in documentary and edutainment films, the most successful of which are *The Dream is Alive* (Graeme Ferguson, 1985), *Everest* (David Breashears, 1998) and *SpaceStation 3D* (Toni Myers, 2002). Two of these are about space exploration. The third, *Everest*, documents a climbing team seeking to ascend the tallest mountain in the world. IMAX brokers in the spectacle of gigantism. It is the most successful and biggest large-screen format in the world, its preeminence assured by its recent diversification into current-release Hollywood action-adventure films.[25]

IMAX's corporate slogan is "Think Big." Among all of IMAX's distinguishing features—oversized camera, large film stock, expansive subject matter—none of these would translate as fully without its colossal screen. Most of these screens are eight storeys high (24.5 metres/ 80 feet) and 30 metres wide (100 feet).[26] As such, they can accommodate an image almost ten times larger than a standard theatrical screen, 3,100 times bigger than a twenty-seven-inch television set, and 192,000 times bigger than a typical QuickTime movie. The screen itself weighs almost eight hundred pounds. IMAX is notably huge and utterly immobile. It is a monument to a longstanding Western preoccupation with technology, vision, and size.[27] Predictably, its subjects enact these predilections. IMAX films frequently feature large subjects—mountains, sea, space—weaving thin narratives with the tropes of spectacular travel. Exotic locations are accented by slow, sweeping pans, orchestral scores, and suspended non-diegetic moments of waves crashing, the earth spinning, and mountains jutting up and away from the infinitesimal marks of civilization. At times, even its unthinkably large screen strains to house the enormity of its images.

IMAX films are filled with bright-to-bursting colours, deep focus, vertical tilts, and travelling shots into spaces too big for the eye to fully assess in a single glance. Aerial glides and panoramic surveys punctuate its adventures. Steady point-of-view shots accentuate the confident invitation to fly, dive, ski, slide, fall, or simply observe and master space. The image is unremitting and sure.

Movement through mountain crevices is slow and smooth. Images of flowers, trees, and clouds are rich and full. Background landscapes and foreground characters are rendered in sharp detail. There are frequent attempts to emulate motion inward and outward, from foreground to background, background to foreground. With IMAX you find yourself moving into and out of great heights and depths, travelling downward toward the bottom of the sea or upward toward the stars. Framing and editing tend to reassert the centrality of the camera/protagonist, and thus reenact one of classical cinema's standard techniques: spatial and temporal omnipresence. With IMAX, the camera is everywhere you need it to be at exactly the right moment. But, it is crucial to observe that the meticulous and confident control of IMAX imagery is in part a compensation for the destabilizing effects of that sublime invitation to be engulfed by its gigantic images. IMAX offers certainty through its aesthetic techniques and its standardized screening spaces, yet it also threatens simultaneously to take this away by the implications of its determined enormity.

The cinematic conventions employed in IMAX films foreground techniques that seek to accommodate yet stabilize the gigantism at its core. This yields a spectacular or exaggerated realism, one that recapitulates Bazin's myth of total cinema—of images that become rather than represent the real—yet also promises to explode that myth through its larger-than-life subjects, its supra-natural clarity, and its daunting invitation to a technological sublime.[28] IMAX

engulfs its spectators, stretching the limits of human vision through its expansive screen and immersive aesthetic. Edmund Burke’s classic formulation of the sublime becomes useful here, as it describes a mode of representation characterized by the grandeur and expanse of nature. In this expanse, according to Burke, there is great beauty but also a powerful, destructive force. The sublime offers simultaneously astonishment and admiration, wonder and pain. It is both illuminating and terrifying, underscored by the contradictory appeal of the infinite. Its seductive force invites surrender to its wonders as well as to its disordered horror.[29] IMAX reenacts the moment of our encounter with Burke’s sublime, the threat and promise of overtaking us compels us to look and also to be fearful less of what we will see but how we will feel when we see it. In other words, IMAX enacts dramas of scale characterized by a gigantism that brokers seduction and repulsion, search and loss, aggrandizement and belittlement. It does this with a certainty—a series of declarative gestures—constituted by a collection of identifiable formal techniques and institutional controls.

IMAX employs extreme realism to emulate a full-body immersion rife with the anxiety integral to its enormity. It is an experience of bodily thrill brokered by the eye. In other words, IMAX draws its model as much on narrative, realist conventions as it does from the logics and exaggerations of the thrill ride. Its aesthetic is one of movement, immersion, and enormity where the spectacle of nature, the sea, the stars, the mountain is paramount. Further, as Charles Acland

has argued, this construction of cinema as travel is as much about the spectacle of the technology itself as it is about what is being depicted. It is a highly specific form of cinema, whose images are tailor-made for it. When you are watching IMAX you always know it. Just as QuickTime is clearly always in part about QuickTime; IMAX is always in part about IMAX. The IMAX system is designed for invariability. This is one reason IMAX leases rather than sells its equipment and use of its name, thus allowing tighter control of its network, ensuring that its big images will always satisfy corporate standards. This is true not only because of its distinct size and conventionalized aesthetic, but also because the discursive framing of IMAX films and theatres inevitably call your attention to the IMAX brand. Introductions to the technology, displays of the projector, and corporate logos are standard elements of the experience.[30] Regardless of where you have travelled, you know that it is always courtesy of IMAX's network of technologies and institutions. Like QuickTime, IMAX presents us with a kind of branded cinema, one that explicitly and implicitly bears the marks of its network. The IMAX screen does not simply occupy the theatre, it constitutes the specificity of the viewing experience.

These branded screens differentiate themselves in several ways from the conventionalized branding of dominant cinema. All screens now operate in a comparative field that is always, in part, differentiated by the factor of size. The proliferating screens that constitute contemporary culture are both expanding and

contracting. Ranging from the diminutive size of an iris to the enormity of the NASDAQ building’s eight-storey video monitor (New York City),[31] previous dynamics of scale and experience have been dislodged. Compared to two-by-three-inch Web movies, the prosaic status of home televisions seems monumental. Considered next to the gigantism of IMAX, the once spectacular nature of theatrical film screens seems notably humdrum.

Importantly, the endurance of screens paired with the flows of images that fill them enact a dynamic of stasis and motion, effectively combining still and standardized screens with moving and various images. The moment of the screened image is the product of this dynamic pairing which should be understood as heterogeneous yet specific. We are invited by these screens to look in particular ways, and thus implicated in distinct modes of looking, acting, and feeling. Big screens engage us differently than small ones. Further, because images are practically speaking more malleable than most of the screens on which they appear, contemporary screens are frequently host to a particular kind of distortion. We become witness to the abstractions attendant upon that meeting between screens of an unchanging size and the fluid images which grow or shrink to fill them. In other words, the pictures that travel among these screens participate further in a drama of distortion and size. Whether it be digital video stretched to pixelated distortion on theatrical movie screens or widescreen features ridiculed by small television sets, these transformations provide test cases to explore the

limits of image fluidity, as well as the specificities and the experience of the screened image.

There is perhaps no more telling evidence indicating the importance of screen size than a cruel exercise of endurance I like to enact on my students. I show them an IMAX film—preferably *Everest*—in a large auditorium on a small twenty-seven-inch television screen.[32] If IMAX-as-IMAX can be thought of as a meditation on the gigantic, then IMAX-as-TV becomes a tortured forty-five minutes of trite narration, staid framing, and orientalist thematics. On a television, IMAX films hold no promise of engulfment, enrapture, or seduction. In having shrunk by a factor of over three thousand, the slow and breathtaking surveys of Everest's towering peaks and deep crevices become stretched, tiresome, and parodic. The characters are flat (and perhaps clinically pathological). The images are dull. The drama borders on senseless. The film's monumentalism seems self-indulgent and unappealing. As an aesthetic and an experience, IMAX is made qualitatively different by a small screen; it needs its giant screen to fully enact its own logics. Shrinking its images indicates not only a diminishing sense of awe but also a distorted picture that consequently clarifies its preoccupations.

Susan Stewart's work provides a rich set of insights which can help us to further understand both the specificity of IMAX's enormity and the relatively tiny example of QuickTime. Stewart explores the phenomenology of things through examining collectible objects and their display. With special attention to questions

of size, she argues that the gigantic and the miniature involve a distinct kind of experience. Stewart writes that playing with scale functions as a "meditation on meaning, materiality and size," wherein changes in size determine a particular and increasingly distorted relation between the conventions of the mark and its meaning.[33] In other words, plays on size augment and subvert otherwise recognizable images and objects in a manner that summons the relationality, that is the similarities as well as the differences made evident by changes in scale. Stewart argues that in the context of display, size is always about distortion. Both the miniature and the gigantic thus present themselves as abstractions of knowable relations between things. In their smallness or their largeness, they distort or abstract our understanding of things and carry with them connotations which further shape their meaning.

According to Stewart, size is relational but also specific; the differences between the miniature and the gigantic are numerous. The latter incites awe rather than charm. It produces a sensation of discomfort and danger. She writes: "The gigantic continually threatens to elude us, to grow too large for possession by the eye. There is something lush, profuse, unstoppable in the very idea of the gigantic."[34] For Stewart (as for Burke), the gigantic is most fully articulated by the experience of something like landscape, which brings us within an immediate and lived relation to nature as it surrounds us. The parallels to IMAX are instructive. When watching IMAX, which frequently features images of

expansive nature, the images take on their fullest meaning in their enormity and enveloping size. Watching such images necessarily involves viewers in a subordinate relation, wherein we are reminded of our relatively miniscule status. As such, we are in a sense submitting to the disorder and disproportion presented by any given encephalitic image. The gigantic image invites us into its exteriority, its gesture outward toward the expanse of the world. It is akin to the grand gestures of statehood, monumentalism, and the awe of exploring the unknown.[35] The gigantic is not about the individual, it is always beyond this. The gigantic is similarly not easily contained by a single glance; it can only be seen in parts. To explore it, one must select a portion of it, move into it, and thus be further enveloped by it. The gigantic functions as a container, offering its grand gaze only to capture us in its labyrinthine tracks. Because of its overwhelming invitation to surrender, we instinctively watch IMAX with an eye to caution, wary that at any moment it may overtake us. IMAX may be about the power of the camera to survey everything, but it is simultaneously also about our own lack of power to see as it sees. IMAX augments but also confronts the limits of human vision.

In noteworthy contrast to something like IMAX, which brokers the awe of the gigantic and surely the enveloping yet seductive threat of the sublime, streamed Web films are more akin to what Stewart identifies as the miniature. Stewart suggests that miniature objects and collectibles invite a sense of mastery. We tower above the miniature. We envelope it, hold it in our hand, survey it all in

a quick glance. As opposed to the gigantic, which promises to contain us, the miniature is easily contained. We look at little films from a distance rather than from a sense of being inside of them. They present a small and enclosed articulation of moving images. Stewart suggests: “To be above, to look down, to take into the yearning eye more at a single glance: here we are at the very threshold of the lure of the miniature.”[36] Moreover, little Web films enact the logic of the private, of the domestic, and of possession. They create a scenario in which moving images are articulated to individuals who are largely immobile, frequently squinting, and physically hunched forward. Whereas with IMAX, spectators can commonly be seen leaning back, QuickTime invites us to lean in.

In their smallness, streamed Web films convey the constraints of the highly rationalized and limited systems that yield them. The result is frequently a degree of distortion and abstraction that leaves us puzzled by the commonly indecipherable nature of what is on the screen. The tight sense of order and systematicity implied by the geometrical frame, the buttons, the time bars, the corporate logos, contradicts the blurred and unpredictable nature of the images inside. The small size and consequent abstraction of more familiar realist representational practices provides a further example of Stewart’s basic assertion about the relations between meaning, materiality, and size. Playing with scale invokes an image that recalls now-distorted cinematic conventions, sending us searching for clues as to what this new form means. The smallness, the thinness,

the flatness of Web films exercises a kind of cat-and-mouse game with the new user-spectator. Rather than a cinema of attractions, little Web films suggest what I would like to call a notably fragmented cinema—*a cinema of suggestion*—that calls attention to its materiality and its status as bound to a tightly integrated network.

Perhaps most important, this cinema of suggestion is punctuated by a small stuttering staccato, which draws the eye of the viewer in, closer and closer, in a somewhat immobilizing gesture, exaggerating a sense of interiority already endemic to the mode by which such images have travelled and the domestic context in which they are often seen. Quickly forgotten are the opportunities to choose one’s relationship to the scale of the screen, by choosing a seat in a movie theatre, for instance. Web cinema presents a small, jerky film, which you quickly find yourself straining and squinting and hunching over to explore. Conversely, if one should choose to control the image by, for instance, enlarging the window in which it appears on screen, one is faced with increasing abstraction. As the information strains unsuccessfully to fill the screen in a way remotely resembling cinematic or televisual realism, the aesthetic becomes increasingly sparse as the same amount of information (representing the finite nature of the file being sent) is spread across a widening area of screen. The little image is stretched and becomes meaningful less by what image appears than the innumerable spaces between the pixels, paradigmatically transfiguring what appears. The distended

code yields images incompatible with the dominant conventions of the intelligible screen. As Stewart suggests of the miniature book, the very fact of the miniature object as marker of meaning is an "affront to reason and its principal sense: the eye."[37] The miniature images push our understanding of cinematic convention and our habits of watching. Paradoxically, enlarging that image alerts us to the material specificities of the little movie and extends the distortion of the little further. Engaging with streamed Web films is a kind of leap of faith into the limits of the cinematic signifier, frequently seeking to mimic Hollywood realism but spiralling toward the abstract despite itself. It is a small cinema that suggests ownership and depends on fantasies of the private and the domestic and yet—at least for now—stutters itself into invisibility as part of its evasive logic.

In discussing QuickTime and IMAX, I have initiated a dialogue on the similarities and dissimilarities among two distinct forms of networked cinema. One is gigantic, the other miniature. One is based on crystal clarity and steady, declarative images. The other is grainy, jerky, and demur. Taken as dislocated images, their formal properties seem strikingly different. Yet, through the concept of the networked screen, their similarities rise to the fore. Both exist as apposite to Hollywood cinema. Both bear the marks of their distinct networks. Each is entangled in a dialogue of control over the image and of looking that implicitly and explicitly engages but also extends our dominant ideas about watching movies. Both present clear and emergent examples of distinct institutional

configurations of the cinematic. Both suggest the importance of size as one feature of our expanded viewing conditions, and call attention to the resulting phenomenologies that evolve from the little and the big.

I have suggested here that screens enact dramas of scale, which play on our sense of proportion, distance, and control (or its loss) in relation to the images we see. Web movies propose, in ways worthy of further exploration, the importance of the material conditions of distribution, and invite us to think further about the basic fact of networked films. Computer screens are part of emergent modes of cinematic practice. They announce themselves as such. They are thus a reconfiguration of cinematic institutions and aesthetics: the images they are currently yielding are small, stuttering, and suggest that the metaphor of *the network*—as well as the size of the screen—will continue to be increasingly important for understanding both the little and the big of film culture.

Widescreen formats, drive-ins, television, IMAX, and the perforated film screens required for sound projection require us to move away from our ideas about screens as blank spaces and to think of them more as part of elaborate technological apparatuses that shape the aesthetics and experience of cinema. Through dynamics of size, colour, shape, crystal clarity, and blurred abstraction, screens are not blank frames or spaces but active forces. Moreover, screens take on fuller meaning when understood alongside the material and institutional conditions that surround and embolden them. Screens are implicated in

identifiable institutional formations and also inextricably linked to multiple systems. Screens, in other words, are not autonomous sites but windows connected to complex and abstract systems: corporate, aesthetic, and political. As screens proliferate, it is equally important then to acknowledge the parallel increase in screen networks. These networks are not new but their relevance for critically engaging our expanded viewing condition will only increase as images themselves are more and more a form of currency in our everyday exchanges. The concept of the networked screen helps us to better acknowledge the inter-connected relations among specific institutions, images, and screens. Moreover, the specificity of particular networked screens allows us to avoid the vague assertion that images are everywhere and thus everywhere the same.

As screens become bigger and smaller, and images become more fluid, it is crucial not to lose sight of the persistent forms of materiality that undergird the meaning and experience of these moving images. Moving images may be increasingly fluid but their fluidity is not limitless nor can it be fully understood without recourse to the expanded viewing contexts and the enduring screens which broker their visibility. Moving images still largely come to us on screens that are themselves highly standardized and rationalized products of modern alignments between industry, science, and consumerism. These alignments continue to be refigured in countless ways across a range of local and global formations. Some of these involve a reconsolidation of familiar forces, some do

not. But in order to understand these expanded viewing contexts we need analytic tools to help slice through the perpetual motions and endless flow. The networked screen is one such concept, linking screens to the larger and frequently amorphous ideas and practices that constitute them, and to the material contexts in which such screens link viewer to image, user to screen, and spectator to spectacle.

Notes

1. I am indebted to Will Straw’s brief but suggestive essay on these themes, “Proliferating Screens,” *Screen* 41, no. 1 (2000): 115–19. Straw draws attention not just to the proliferation of screens but to the importance of addressing the material products of film culture that have accompanied cinema’s dispersion through digital networks and satellite systems.

2. See, for examples, Vivian Sobchack, ed., *Meta-Morphing: Visual Transformation and the Culture of Quick-Change* (Minneapolis: University of Minnesota, 2000); Lev Manovich*, The Language of New Media* (Cambridge, MA: MIT Press, 2001); Constance Balides, “Jurassic Post-Fordism: Tall Tales of Economics in the Theme Park,” *Screen* 41, no. 2 (2000): 139–60.

3. Perhaps, in its most extreme form, at the Society for Cinema Studies meeting in Denver 2002, Lev Manovich asserted at the conference plenary that in the face of such changes what we need is an entire reorganization of the discipline away from something called “film studies,” “media studies,” or “visual studies.” What we need, Manovich asserted, was “software studies.”

4. Richard Maltby, “‘Nobody Knows Everything’: Post-Classical Historiographies and Consolidated Entertainment,” in *Contemporary Hollywood Cinema*, ed. Steve Neale and Murray Smith (London: Routledge, 1998), 21–44.

5. Among those voicing such claims, David Bordwell is perhaps the most prominent and well known. See David Bordwell and Kristin Thompson, *Film Art: An Introduction*, 6th ed. (New York: McGraw Hill, 2002); and David Bordwell, *On the History of Film Style* (Cambridge, MA: Harvard University Press, 1997).

6. The *New York Times* recently reported that 58 percent of Hollywood’s income in 2002 came from home video sales, more than twice as much as box-office revenue. Within home sales, DVD ranks as the most profitable and fastest-growing revenue generator. At some studios, executives in charge of home sales have formal roles in approving films for production because of the primary role home and soon DVD sales have in the market. David D. Kirkpatrick, “Action-Hungry DVD Fans Sway Hollywood,” *New York Times*, August 17, 2003, 1.

7. Anne Friedberg, *Window Shopping: Cinema and the Postmodern* (Berkeley: University of California Press, 1993).

8. Lauren Rabinovitz, *For the Love of Pleasure: Women, Movies, and Culture in Turn-of-the-Century Chicago* (New Brunswick, NJ: Rutgers, 1998); Vanessa Schwartz and Leo Charney, eds., *Cinema and the Invention of Modern Life* (Berkeley: University of California Press, 1996); Tom Gunning, “Phantom Images and Modern Manifestations: Spirit Photography, Magic Theater, Trick Films, and Photography’s Uncanny,” in *Fugitive Images*, ed. Patrice Petro (Bloomington: University of Indiana Press, 1995).

9. For exemplary work that also synthesizes trends in film historiography see Barbara Klinger, “Film History Terminable and Interminable: Recovering the Past in Reception Studies,” *Screen* 38, no. 2 (Summer 1997): 107–28.

10. John Belton, *Widescreen Cinema* (Cambridge, MA: Harvard University Press, 1992); Barbara Klinger, “The New Media Aristocrats: Home Theater and Domestic Film Experience,” *Velvet Light Trap* 42 (Fall 1998): 4–19; William Paul, “Screening Space: Architecture, Technology, and the Motion Picture Screen,” in *The Movies: Texts, Receptions, Exposures*, ed. Laurence Goldstein and Ira Konigsberg (Ann Arbor: University of Michigan, 1996), 244–74.

11. Anna McCarthy, *Ambient Television* (Durham, NC: Duke University Press, 2001).

12. Vivian Sobchack, “The Scene of the Screen: Envisioning Cinematic and Electronic ‘Presence,’” in *Materialities of Communication*, ed. Hans Ulrich Gumbrecht and K. Ludwig Pfeiffer (Stanford, CA: Stanford University Press, 1994), 87. While I take inspiration from Sobchack’s work, my scope is by no means as ambitious. Whereas Sobchack is concerned to explore a phenomenology of “the cinema” and other visual media (photography, video), I am committed to investigating the more specific and materially grounded site of specific screens rather than media per se.

13. Non-flammable film was in use in other home film systems by as early as 1912. For more on the history of film technology and the home and amateur fields see Patricia Zimmerman, *Reel Families: A Social History of Amateur Film* (Bloomington: Indiana University Press, 1995), especially Chapter 2.

14. Any casual glance at a Kodak catalogue from the period will demonstrate a surprising range of screens designed to accommodate such images, including screens that doubled as card tables as well as rear projection units the size of small television. It’s also clear that 16mm and changing markets for film effected changes in content. Kodak edited its features and shorts to either fit efficiently into a minimal number of film cans, and to eliminate possibly offensive scenes or images. See Ben Singer, “Early Home Cinema and the Edison Home Projecting Kinetoscope,” *Film History* 2 (1988): 37–69.

15. For examples of debates spurred by such transformations see Charles Acland, “Tampering with the Inventory: Colorization and Popular Histories,” *Wide Angle* 12, no. 2 (April 1990): 12–20; for an overview of changing film formats, production techniques, and aesthetic strategies adopted by the film industry in the context of changing screen formats and the importance of televisions as an exhibition outlet, see John Belton, *Widescreen Cinema*, especially Chapter 10, “The Shape of Money.” For a speculative consideration of the effects of theatre size and also screen size on Hollywood’s changing style see William Paul, “Screening Space.”

16. For a cogent analysis of recent changes in the discursive shaping of new technologies of cinema in the home see Barbara Klinger, “The Contemporary Cinephile: Film Collecting in the Post-Video Era,” in *Hollywood Spectatorship: Changing Perceptions of Cinema Audiences*, ed. Melvyn Stokes and Richard Maltby (London: British Film Institute, 2001), 132–51.

17. E.g., IFILM, http://www.ifilm.com/; ATOM Films, http://atomfilms.shockwave.com/af/home/.

18. A few prominent examples of high-traffic Web sites include BMW Films and the Whitney giftcard site.

19. Manovich makes a similar point. See *The Language of New Media* (especially Chapter 6).

20. As with all discussions of recent or emergent technologies, the phenomena change rapidly. As of the final stages of preparing this essay, previously streamed Web movies are now migrating to DVD. See for instance *George Lucas in Love* (Joe Nussbaum, 1999), packaged along with other Web shorts, available through Amazon.com.

21. See Vivian Sobchack, “Nostalgia for a Digital Object: Regrets on the Quickening of QuickTime,” *Millennium Film Journal* 34 (Winter 2000): 4–23. See also Lev Manovich, “Little Movies: Prolegomena for Digital Cinema,” http://www.manovich.net/little-movies/. (I would suggest that these are thoughtful though extremely partial renderings of the form. As it has aged, QuickTime has ushered in as many innovative, self-consciously hi-tech, and aggressively corporate forms as it has expressed a kind of quaint and nostalgic yearning for cinema’s past.)

22. QuickTime also functions as a computer-based media player, allowing moving images to be downloaded fully as complete files and then played at the discretion of the computer user. I will not explicitly address this particular use of QuickTime. But, I would like to suggest that it would require a somewhat modified analytic terminology. As distinct from the streaming capacities of QuickTime, downloading and storing such movies implicates them in a climate in which there is an increase of individual control.

While computer speed and video cards maintain relevance, Internet traffic does not. This diminishes but does not eliminate variations in play speed.

23. Vivian Sobchack has articulated the rich links between QuickTime and the work of Joseph Cornell. See Sobchack, “Nostalgia for a Digital Object: Regrets on the Quickening of QuickTime.” I would also suggest that productive links exist between Web films and fluxus, in particular the films produced through this movement and the sub-genre of mail art. Both flux films and mail art were particularly attuned to the question of time, to loops, networks, institutions, and to the materiality of aesthetic forms. See Craig J. Saper, *Networked Art* (Minneapolis: University of Minnesota Press, 2001); Michael Crane and Mary Stofflet, eds., *Correspondence Art: Source Book for the Network of International Postal Art Activity* (San Francisco: Contemporary Arts Press, 1984); Bruce Jenkins, “Flux Films in Three False Starts,” in *In The Spirit of Fluxus,* ed. Elizabeth Armstrong, Joan Rothfuss, and Simon Anderson (Minneapolis: Walker Art Center, 1993), 124–37.

24. IMAX Inc. reports that 60 percent of these screens are in North America, and approximately 50 percent are in “museums, planetariums and maritime centers.” The other 50 percent are in commercial theatre complexes. See http://www.imax.com/ for more corporate information.

25. This includes films such as *Polar Express* (2004), *Spiderman 2* (2004), *The Matrix Reloaded* (2003) and *Star Wars: Episode One—The Phantom Menace* (1999). IMAX has aggressively sought relationships with Hollywood distributors in order to expand beyond

its educational and exploration titles and to insert IMAX into the commonsense of everyday film culture.

26. There is some indication the IMAX screens will actually get bigger. A recent addition to Sydney, Australia boasts of a 96.9-foot (29.5-metre/ten-storey) height.

27. For a persuasive analysis of IMAX that furthers this line of thinking to include the relations between IMAX, knowledge, and vision, emphasizing its imperialist tropes, see Charles Acland, “IMAX Technology and the Tourist Gaze,” *Cultural Studies* 12, no. 3 (1998): 429–45.

28. André Bazin, *What is Cinema?* trans. Hugh Gray (Berkeley: University of California Press, 1967).

29. Edmund Burke, in an essay called “A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and the Beautiful” (1757).

30. For more on IMAX see Charles Acland, “IMAX in Canadian Cinema: Geographic Transformation and Discourses of Nationhood,” *Studies in Cultures, Organizations, and Society* 3 (1997): 289–305.

31. Plugged in on December 29, 1999, NASDAQ’s video screen at Times Square was heralded as “the largest and most expensive video screen in the world.” At a cost of $37 million, the 8,400 LED panels were designed to endow the electronic stock exchange with a physical presence that it otherwise lacked. The sign is used to display market information and advertisements.

32. *Everest* is the most profitable IMAX movie extant. It is also in many ways prototypical, documenting not just a journey to the peak of the highest mountain, but also

the journey of the biggest camera up the biggest mountain. This journey is, of course, underwritten by numerous American museums and scientific foundations. The camera, that is, the backbreaking labour of making the movie, is carried by local Sherpas. The imperialism of IMAX as gaze but also as mode of production is transparent.

33. Susan Stewart, *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection* (Durham, NC: Duke University Press, 1993), 38.

34. Ibid., 129.

35. Ibid., xii.

36. Ibid., 131.

37. Ibid., 40.

The landscape and settings possess a screen presence equivalent to that of Tarkovskyâ€™s actors. In the novel the Zone is a place visited by advanced extraterrestrial life and littered with fantastic objects including a magical box, supposedly discarded by the aliens, which can fulfill human wishes and desires.Â His films are overtly concerned with spirituality and the struggles many of us experience when reconciling the sacred and profane, the transcendent and the immanent. Request PDF | On Dec 31, 2007, Haidee Wasson published The networked screen: Moving images, materiality, and the aesthetics of size | Find, read and cite all the research you need on ResearchGate.Â Apart from allowing people to view and edit images on the move (Larsen 2008;Larsen and Sandbye 2014), screens facilitate experimentation with relations between still and moving images by opening a space where both can interact (Ash 2009;Campany 2008;RÃ¸ssaak 2011). Screens are one of the arenas where such intensive encounters between bodies and expressive materials are played out, often inviting unexpected responses in those who they bring together for the making and viewing of images. 7. Materiality and Meaning. 8. The Third Dimension. 9. Colourful Thoughts (A Postscript). References. Index. This second edition of the landmark textbook Reading Images builds on its reputation as the rst systematic and comprehensive account of the grammar of visual design. Drawing on an enormous range of examples from childrenâ€™s drawings to textbook illustrations, photo-journalism to ne art, as well as three-dimensional forms such as sculpture and toys, the authors examine the ways in which images communicate meaning.Â Features of this fully updated second edition include: â€¢ new material on moving images and on colour â€¢ a discussion of how images and their uses have changed. through time â€¢ websites and web-based images â€¢ ideas on the future of visual communication.