

THE NEW MEDIA BOOK

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New technologies come into the world not in a pristine state, but deeply embedded in social context.¹ For broadcasting, and for film to a certain extent, one of the most significant and powerful forces is that of *nation*. From its inception, radio and then television broadcasting developed in a deeply nationalistic context, guided by the twentieth-century imperatives of national definition, unification and defence. Broadcasting, though ideally suited as a technology to transgressing borders, defying social and political boundaries, and addressing audiences as private individuals in their homes rather than as public citizens of a nation, was from the beginning drawn under tight national control. Carefully kept from crossing national lines, crafted to address only its own citizens and no others, shaped and regulated by national governments, broadcasting history reflects this nationalistic bias.

While the impact of cable, satellite and digital technologies on the media universe encompasses many aspects, within the context of nation their most salient and disruptive characteristic centres on their function as modes of *transmission*. Cable, though in many ways a far more localised medium than broadcasting, was able to break through the limitations enforced by regulated broadcasting systems and eventually open up the national media universe, not least by more tightly integrating film into televisual content. When linked with satellite transmission in the late 1970s, cable television's channel capacity soared, along with its ability to escape restrictive national regulations. During this process cable and satellites exceeded their initial function as primarily transmitters of existing media and became an arena for innovative production of new modes of creative expression and expansion of access to a greater diversity of cultural products and meanings. Digital technology has accomplished much, and promises much more, along these lines. This chapter will examine each technology in turn, assessing its ability to extend and disrupt the national restrictions and functions of film and broadcast media, and looking at their convergence in the early years of this new century.²

CABLE TELEVISION

Cable transmission did not begin with television. Various countries experimented with wired transmission of radio, most significantly perhaps in the UK, where so-called 'relay

exchanges' allowed subscribers to save the cost of buying individual radio sets (and paying the licence fee) by simply installing a loudspeaker hooked up to the central exchange, for a few pence a month. Later, the wired services brought in commercial stations broadcasting from Luxembourg and Normandy, much to the BBC's displeasure.³ A few US cities experimented with subscription radio sent over wires into customers' homes. Yet the expense of laying wires where few limitations on reception then existed, due to US radio's abundant and relatively wide-ranging signals, made such experiments short-lived.

It was not until the late 1940s, as television's reach spread much more slowly than the immense hype surrounding it, that a few remote localities in the US began to set up high-ground antennae (community antennae, hence the acronym CATV) and run wires down into homes and businesses below. Picking up signals available from nearby cities' TV stations, the earliest cable operators (often the local appliance store owner, whose interest was in selling television sets) charged subscribers a dollar or two a month. Thus cable began as a re-transmission medium, encouraged at this point by broadcasters as it widened their audience base and raised their advertising rates. This was particularly true during the licence 'freeze' of 1948 to 1952. However, once the freeze was lifted and new stations began to spring up in previously underserved areas, it did not take long for broadcasters to perceive cable as a threat as it could pull in distant rival stations or even offer special programming on available channels, such as films, syndicated programmes and local productions.

In other countries where television began as a state-sponsored public service monopoly (the far more common model, especially in Europe), great effort was expended to ensure that broadcast reception was available nationwide from the beginning. Competition with state broadcasters was not allowed. After the early 1950s, in areas where reception difficulties abounded, for example, within large apartment buildings in major cities or in mountainous areas, cable was used much as it was in the US, as a re-transmission device. However, until satellite transmission promised an outside source of programming, cable was limited in most public-service based systems to the two or three state services available. Few incentives for expansion existed. In some countries, however, particularly Belgium, Luxembourg, Switzerland and the Netherlands, cable was used more extensively to relay multiple public service stations into areas outside their reach.⁴ In Canada, with its mix of public and commercial broadcasting, cable expanded much more rapidly, mostly as a vehicle for bringing American programming into Canadian homes, by microwave.⁵

During this early period in the US, another possibility, later to become highly significant for cable, reared its head, much to the dismay of certain sectors of the industry. In the late 1940s and early 1950s, several methods for bypassing broadcast networks by bringing upcut and interrupted feature films to television audiences made their debut. Subscription television, transmitted either via unused UHF frequencies or via cable, would allow customers to receive additional channels of film entertainment either for a monthly fee or on a pay-per-view basis. A few ambitious entrepreneurs, allied with Hollywood studio interests, attempted to test the technology in both the US and Canada. Although reviled by struggling cinema owners, and ultimately shut down by regulators who saw their duty as

protecting broadcasters from competition, cable seemed to promise a means for breaking the bottleneck of the solidifying three-network oligopoly in the US and allowing the film industry a foothold in television that had been denied it by regulatory decisions. However, the Federal Communications Commission (FCC) ruled against pay-TV experimentation as it began to crack down on the importation of distant signals in the early 1960s.⁶

Opposed by broadcasters and regulators, limited to twelve or fewer channels, faced by high system construction costs, cable might have remained forever a secondary medium were it not for two technological developments of the late 1970s: satellite broadcasting and fibre optics. Yet even before these technologies expanded cable's abilities, the early 1970s in the US, Canada, Europe and other leading television nations began to witness a rise in perceptions of cable's social potential. Pressure was building to break free of broadcast television's limitations, whether commercial or public, and expand the number and types of service available. In the US, commercial network television was increasingly perceived as a 'vast wasteland' dominated by greedy sponsors and a 'lowest common denominator' programming mentality. Cable promised the 'narrowcasting' of more specialised minority programming, local access channels that could pick up the community television function that local commercial stations had long since dropped, and commercial-free film channels: a television of abundance rather than scarcity. The fact that the UHF band remained largely empty, and might have provided many of these same services, went unexamined in the rush to embrace the 'new' technology.

In Europe, where some countries had begun to privatise broadcasting and expand the number of public channels, the promise of cable's interactivity proved compelling, evoking visions of public participation in civic decision-making. Cable was seen as the potential backbone of the burgeoning deployment of information technology. It also allowed the growing pressure towards expansion of media systems to bypass the difficult battles over terrestrial broadcasting and move into a new, promising arena uncolonised by established interests. A 'blue skies' scenario developed, whereby cable would solve the myriad problems that seemed so deeply embedded in current broadcasting systems.⁷ This was avidly encouraged by the burgeoning cable industry in the US and by some public broadcasters and state agencies elsewhere. The FCC began to make cable's way a little smoother, marked by cable regulations passed in 1972. In Canada, regulators' attempts to limit cable to communities that already had two or more Canadian stations available, and to allow only one commercial and one public US channel on those that met that standard, sparked general outrage and the proposal was dropped. In the UK, cable began to be studied for its potential, and in 1963 a few companies would begin to offer regional services. Yet cable was expensive to install and still depended largely on broadcast programmes for its material. In 1975 cable subscription rates stood at only 12 per cent of homes in the US. Struggling local franchisees began to sell out to larger companies, creating the first multiple systems operators (MSOs).

However, in 1975 Time Inc.'s subsidiary Home Box Office (HBO) launched the first service to take advantage of satellite distribution of unique, film-based programming to local

cable franchises nationwide. Leasing a commercial satellite transponder and using it to beam its signal across the satellite footprint, HBO was only the first of cable's rapidly expanding specialised services that began to find a niche. Simultaneously, fibre-optic technology, which sends data through bundled glass fibres in place of the old copper wire, allowed cable systems to expand their channel capacity exponentially in the 1980s. From 12 channels, cable grew to the 'Bruce Springsteen phase' (52 channels and nothing on) and beyond. Now cable came into its own. Atlanta station owner Ted Turner beamed his WTBS, with its exclusive franchise over the Atlanta Braves (also owned by Turner), up onto a satellite transponder, founding the first cable 'superstation'.

Other channels appeared quickly, from Turner's second effort, the Cable News Network (CNN), often derided during its early years as the Chicken Noodle Network, due to its low production values), to music video-dominated MTV, all sports all the time on ESPN, and other more varied offerings such as CSPAN (televising Congress and other governmental activities), USA (a varied-format channel owned mostly by movie studios), the Christian Broadcasting Network (CBN), Black Entertainment Television (BET), various home shopping channels, and pay-TV services such as Showtime and The Movie Channel. Rules imposed by the FCC meant that cable operators were obliged to carry all 'significantly viewed' local stations in each franchise area, giving a boost to independent stations that would eventually lead to the inception of new, movie-studio networks Fox, United Paramount Network (UPN) and Warner Bros. (WB).⁸ The demand for programming created by this surge in venues sparked the growth of independent production in Hollywood and elsewhere, and created new television outlets for such marginalised forms as independent films, documentaries, children's programmes and ethnic/foreign language film and television. Eventually, the film and television industries would become so tightly intertwined through cross-investment and production that they could hardly be separated any longer. Original production for cable would, in the 1990s, begin to rival both network television and film for audience and critical acclaim, as with HBO's series *The Sopranos*. By 2001, the number of television channels available in the average US home had reached 55, an increase from 39 only eight years before.⁹

Cable expanded across the globe. Canada's subscription rates had exceeded 80 per cent by the early 1990s.¹⁰ In Europe, as a wave of privatisation and commercialisation transformed the public service environment, cable was envisioned as playing a key role in the new telecommunications infrastructure. It could be used to open up limited national systems to the new, combined public and commercial multi-channel service now prevalent in most countries. By 1992, cable reached as many as 92 per cent of homes with televisions in Belgium and 87 per cent in the Netherlands, with most nations above the 30 per cent mark. Only France and the UK resisted the trend. Both had attempted to launch cable services, both had run into unforeseen difficulties resulting from a late start, cumbersome regulatory restrictions and the unexpected rise of direct satellite competition.¹¹ In order to continue the story of cable's development, and to address some of the cultural and political issues it raises, we must first turn to a history of the development of satellite technology.

SATELLITES

By the mid-1960s satellite broadcasting and cable had become deeply intertwined. Cable as we know it could not exist without the national and international distribution that satellites make possible. On the other hand, as direct broadcast satellite (DBS) becomes a medium in its own right, it promises the first real competition to cable television services. Both media depend on the vital technology of the geostationary satellite. The first satellites used for communication purposes were launched in the early 1960s by US telecommunications companies such as AT&T, Hughes and RCA. The Communications Satellite Corporation (COMSAT) was formed in the US in 1962 with the encouragement and participation of the US government, much as RCA had been formed earlier, to co-ordinate American satellite development, investment and use. In 1964 the International Telecommunications Satellite Organization (INTELSAT) brought together a consortium of countries to serve a similar purpose for international satellite operation. At first managed by COMSAT, it became an independent corporation in 1973, with shares owned by over 100 member nations (the US, through COMSAT, owns 25 per cent).

Television networks and telecommunications companies began using satellites to distribute their signals in the 1970s. With the success of HBO and other cable channels, the demand for commercial transponder space, usually leased from the satellite operator, soon rose to such an extent that the aerospace industry could hardly keep up. Not only cable, but also network and syndicated programming are distributed via satellite, as are radio, data and voice communications, all vying for transponder space. Live coverage of events across the globe depends on it. Add to this most nations' use of satellite communications for defence and information-gathering operations, not to mention the burgeoning cellular phone industry and, increasingly, wireless Internet transmission, and the demand for satellite capacity seems infinite. The geostationary band is becoming full. (Digital technology may save the day here, as discussed below.)

The half-hemisphere-sized footprint of the typical satellite signal began to change the rules of the national media game radically. In the early stages of satellite television transmission, dishes were so large and expensive to install that most satellite reception was done through cable channels: cable systems provided the middleman between service providers and the home audience. This fact alone helped to slow the development of cable in some European countries, such as France and the UK, as so much of the early television material available via satellite consisted of US-based entertainment and news programming. State broadcasters and agencies (particularly those who already produced the bulk of programmes viewed in their home countries) saw no need to invest public dollars to bring American programming to their national audiences, and would-be commercial providers needed government permission to operate, usually meeting with opposition from state broadcasting interests. However, in more heavily cabled countries, the importation of distant signals via satellite, both from the US and from other European broadcasting systems, became a widespread practice.

In the US, DBS became a small but thriving industry in the 1980s, sending satellite

signals directly to receivers in people's homes. It was subscribed to mostly by residents of rural areas with no access to cable (creating the 'double-wide and dish' set-up so prevalent across the nation's heartland) and by some city dwellers through SMATV (satellite master antenna television) systems that wired apartment buildings, dormitories and hotels with a dish on the roof and wires running to the units within. It did not yet present much of a challenge to the expanding cable industry. However, by the mid-1990s, with the deregulation of cable television and with most local franchises remaining monopolies in their areas, dissatisfaction with rising subscription rates, limitations on channels carried and the less-than-perfect service that monopolies tend to provide began to encourage DBS ownership. Here digital technology becomes key to DBS's current stage, and we will pick up this story in the next section. Yet in the US, satellite broadcasting's role up until now has been primarily linked to the cable television revolution. In an already commercial and fairly diverse environment, DBS presented simply one more option for delivery of the same kinds of entertainment, news and specialty channels that American audiences have regarded as normal since the 1980s. The US's large landmass, nearly the size of a satellite footprint, meant that the importation of other countries' signals was not an immediate challenge, although Canadian and Mexican channels should certainly be receiving more widespread distribution in the US than they currently are.

In Europe and across the globe, however, the impact of satellite broadcasting has been profound. Coming at a time in the late 1980s when deregulation and commercialisation of broadcasting systems were taking place in most countries, as one author puts it, 'the rapid expansion of satellite channels had a tremendous impact. It removed, effectively, all practical constraints on the prompt development of private commercial channels.'¹² For many countries, one of the primary cultural effects of satellite broadcasting was an influx of American films and series, as well as entire channels of American programming, offered by satellite services that crossed many borders. It is also significant that the late 1980s saw the collapse of the Soviet Union and renewed movements towards political reorganisation and liberalisation across the globe. Satellite broadcasting played a significant role in the liberalising and globalising of media systems that went along with this process.

The first commercial satellite to debut in Europe was the Astra satellite operated out of Luxembourg, launched in 1988 with 16 channels. In the UK, the Independent Broadcasting Authority in 1986 had authorised British Sky Broadcasting, a consortium composed mostly of UK commercial television providers, to introduce satellite television to Britain in a regulated, public service context. However, due both to technical and administrative problems, its launch was delayed until 1990, in 1989 Rupert Murdoch's Sky Channel beat it to the punch, broadcasting into Britain from the Astra satellite, outside British regulatory control. By 1991, Murdoch had bought out the struggling BSB operation and renamed it BSkyB.¹³

Offering a mix of music videos, news, popular films and television series (many of them American), and sports, BSkyB's success in Great Britain and across Europe demonstrates not only the influx of American programming that satellite broadcasting brought, but also its inability to be controlled by the regulations of individual nations. The European Community

Directive on Television attempted to impose some order on satellite channels, including a vague ruling that 'a majority proportion of their transmission time, excluding the time appointed to news, sports events, games, advertising and teletext services' be reserved for European-produced programmes. Yet it simultaneously confirmed the fact, now raised to a principle, that if a satellite service launched from one member country passed its own local regulations, it could not be screened out by any other member nation.¹⁴ By 1991, a host of pan-European satellite services were on offer: 21 English language services, ten German, 11 French and 29 others. Some of the most popular channels were SkyOne, Eurosport, MTV, CNN, Euronews, Canal Plus and the TNT Cartoon Network. In Quebec, satellite channels became an important source of French-language programming.

Of course the impact of satellite television was not confined to North America and Europe. Satellites drove the movement towards globalisation in the 1990s as the primary vehicle of international communication. The whole world was soon watching US-based channels such as CNN, MTV and HBO, along with competitors from other nations such as the BBC World News, the European ARTE, India's Zee-TV and Mexico's Telemundo, among a host of others. In countries such as India, the first major competitors to state broadcasters emerged, often based around regional cultures and languages.¹⁵ In Taiwan, pirate cable systems began to spring up, bringing in foreign television channels via satellite, but also providing one of the few spaces for oppositional political programmes.¹⁶ In mainland China, illegal home dishes picked up Murdoch's STAR TV signals from Hong Kong, breaking the communications isolation that had for so long prevailed in that country. However, it remained for the digital revolution to shatter national boundaries conclusively.

DIGITAL CONVERGENCE

In the US, by 2001 DBS (satellite broadcasting directly to the home, sometimes called DTH in Europe) was growing at a rate faster than cable television. The US's two major satellite distributors, EchoStar and DirecTV, ranked in the top ten of subscriber television services, right up there with cable MSOs such as AT&T, Time Warner, and Comcast. DirecTV was number three.¹⁷ This development had everything to do with the stunning proliferation of digital technology in the 1990s. Digital transmission technologies primarily led to the unprecedented rate of convergence between cable, satellites and broadcast television and film, along with newer technologies such as the Internet and its myriad applications.

Digital media begins with the advent of the computer: data broken down into a series of 1s and 0s so that it can be handled, stored and transmitted by the microchips at the heart of modern technology. By the mid-1980s, computers had been developed that were able to convert more complex data – pictures, graphics, music and sounds – into digital formats. But for the most part this was happening in discrete, specialised environments: the video editing suite, the design departments of architectural firms, the sound studios of recording companies and the production facilities of print media companies. The technology that brought sophisticated digital applications together in a way that exponentially multiplied their uses was the Internet, beginning in the early 1990s. The Internet's rapid colonisation

of other media and spread into all areas of modern life helped to accelerate the transition from analogue to digital media, as it began to seem clear that digital modes of creation and transmission would dominate the coming decade and probably the century. Cable television regained something of its former cachet as media and information industries looked around for high-speed routes into consumer homes. It seemed as though the television set would no longer function as just a visual entertainment device any longer hooked up to the home computer, television would deliver telephone and Internet service and possibly invade household privacy by collecting data on its users as well. However, a struggle was taking place in the world of broadcasting that would transform the medium, even though its parameters were not at all clear when the process began.

In the mid-1980s, high-definition television (HDTV) technology, developed in Japan, threw American broadcasters into disarray. HDTV promised to deliver much higher quality pictures and sound, along with an improved screen aspect ratio (a CinemaScope-like 16:9 versus television's boxy 4:3), by increasing the definition, or number of scanning lines, used to compose a television image. The US had always had a poorer quality television image than most European and Asian countries, the result of the 525 scanning line NTSC standard as opposed to the 650 scanning line PAL system used elsewhere. As cable, satellites and the new broadcast channels brought film and television closer together than ever, improvement of picture quality seemed an important goal.

However, HDTV, with up to 1080 scanning lines, required a much greater bandwidth to broadcast than standard American television. To make this technology feasible, broadcasters would need additional, broader spectrum space, operating in tandem with their current assignments as they made the change to HDTV. Just as the broadcasting industry was coming to terms with this fact, the FCC began to look into repackaging and auctioning off some of the mostly empty UHF band frequencies formerly reserved for broadcasting. US broadcasters determined to ward this off, along with the prospect of becoming dependent on a Japanese technology, by promising Congress that, if it would leave the UHF bands in place for future HDTV use, American electronics manufacturers, broadcasters, and filmmakers would embark on a campaign to develop their own brand of HDTV.

At this point, however, the digital revolution intervened. With digital technology, a much higher definition television picture could be produced, as good or better than the Japanese MUSE technology (an analogue/digital hybrid) that had started the drive. By 1993, US manufacturers had come up with a strategic 'Grand Alliance' standard for digital transmission of television signals, representing a technical compromise between the competing needs of different industry segments, that could handle a variety of digital high-definition formats with varying degrees of resolution, pixel density, frame rates and scanning methods. Digital technology also possessed another advantage: not only could it be used to broadcast a high quality picture, but it could also be used to compress signals in such a way that four or five standard quality channels could be transmitted on bandwidth previously adequate for only one; a single cable channel could carry 12 or more. This is called *multiplexing*.

In a very clever manoeuvre, US broadcasters managed to win an astonishing victory in the Telecommunications Act of 1996, not only keeping their current analogue frequencies, but also receiving, gratis, billions of dollars worth of higher frequencies on the UHF spectrum. They achieved this by keeping Congress confused about the two competing capacities of digital transmission: high definition and multiplexing. Multiplexing would allow each broadcaster to turn one channel into several, multiplying not only the number of potential channels available, but also the advertising revenue obtainable from them. Or such additional channels could be used for Internet services or leased to corporate customers for other types of data transmission. US broadcasters saw dollar signs. Meanwhile Congress continued to think of digital television as a way of ensuring that American television picture quality emerged as second to none, certainly not to the Japanese. Broadcasters managed to convince Congress that they still needed the additional bandwidth in order to provide this high-quality image, while making plans for more profitable multiplexing. Congress's generous decision to award an additional frequency to each licensed US station provided an enormous windfall for the broadcasting industry.

However, the rules did stipulate that all VHF frequencies would have to be returned to the Federal government by 2006 or by the time that digital television ownership had reached 85 per cent penetration of the US market. Most major networks began digital broadcasting during 2000. Yet by 2001, even among those willing to invest more than \$2000 for a digital television set, few were able to experience this new technology, as 80 per cent of Americans receive their television via cable. Cable systems were under no such regulatory pressure to convert to digital broadcasting, although many had already begun the process for reasons of their own – largely to compete with DBS. Digital cable allowed not only more channel capacity, but also enhanced ability for two-way communication, providing interactive guides to the increasingly complex programmes on the 100 or more channels now made available, as well as more pay-per-view services. It also increased prices for cable service to consumers already disenchanted with cable franchises' forays into Internet connection and unimpressed with cable's service record. DBS began to benefit from the digital revolution as well.

The main factor holding DBS back from greater market penetration in the mid-1990s was its inability to deliver local television stations to its customers. Instead, the two dominant US companies, DirectTV and EchoStar, had begun to import distant station signals into markets across the country, forming contracts with one affiliate from each network (usually in a major urban location) and purveying its signal to DBS subscribers: a network affiliate superstation. Local station owners resented the competition within their own markets, and DBS subscribers missed the local news and sports, which were only available to them if they switched over to their broadcast antennae (or, in rural areas, not available at all). To remedy this situation, in 1999, the FCC passed the Satellite Home Viewer Improvement Act, effectively extending cable's regulations to DBS. By January 2002, satellite providers were required to begin carrying local station signals in each local market served. DBS companies objected on the same first amendment grounds long argued by cable operators, but the

rule remains in place today. This, too, is made possible by digital technology's ability to split the satellite signal, permitting local signals to crowd onto an existing satellite channel, usually via microwave. However, one sector of television that DBS's spread threatens is cable's role in local communities. Most cable franchises pay a fee of 5 per cent of gross revenues to their local municipalities, besides providing channels space and some funding for local access channels. Satellite broadcasters are under no such obligation. And once again the Internet promises to play a key role in DBS use, since a new type of two-way high-speed wireless Internet access called VSAT technology debuted in November 2000 through a coalition of EchoStar and Microsoft.¹⁸

In Europe, the convergence of digital telecommunications and cable, and digital technology and satellites, has produced a boom in those industries, particularly in the UK, now Europe's largest pay-TV market. According to *The Economist*, 'Digital technology has transformed the economics of multi-channel television, enabling independent operators to cater to market niches, and the big pay-TV companies to offer hundreds of channels.'¹⁹ Movie channels account for a substantial proportion of satellite-distributed digital fare, especially in their 'nearby-on-demand' manifestations, where staggered 15-minute showtimes allow almost continuous availability of individual films. By 2001, digital pay television channels, delivered either by DBS or cable, had reached 44 per cent of UK households and accounted for 20 per cent of all television viewing.²⁰ The BBC announced plans to roll out digital television, but had run into delays by Summer 2001. Australia's five terrestrial public channels debuted in digital multiplex in January 2001, with regulations that prevented commercial networks from following suit until 2008. Japan rolled out fully digital television on NHK in 2000, with plans for expansion. China announced elaborate plans for a national digital service in the Summer of 2001.

However, in light of the developed world's embrace of these new wonder technologies, it seems necessary to emphasise that the vast bulk of the world's population has yet to experience regular and reliable telephone service, much less encounter even a distant echo of the digital revolution. Yet clearly the tide of new media cannot be rolled back, especially as wireless Internet applications join news and entertainment in the cable/satellite/digital interface. New applications arise faster than our ability to understand or control them.

OUTLOOK

The convergence of cable, satellite and digital technologies has transformed the basic arena of film and television distribution from the national to the global. Escaping from the geographical, cultural and regulatory boundaries that formerly played such a crucial role in the production, circulation and reception of media, global convergence means that, even while opportunities for new kinds of creativity and cultural hybridity exist and expand, threats emerge over which existing systems of control have little sway. I end this chapter with mention of only a few of the major areas of revolution and renegotiation.

One prominent factor is the dominance of US media. According to Greg Dyke, Director General of the BBC, 'We are told the world is globalising — that's not true: it is

Americanising. It is essential that TV, radio and online should reflect the cultures of particular countries.'²¹ The fact that so many of the integrated media companies distributing channels worldwide are American-owned, and that their content is heavily US-oriented, threatens the cultural integrity of nations adopting new media. While theories of cultural hybridity point to the many examples of local adaptation, experimentation and cultural growth spurred by the opening up of sometimes repressive and restrictive national media regimes, the pre-eminence of channels such as CNN in world news coverage and American domination of the Internet point in the other direction. However, it is precisely the disenfranchising of popular culture (and cultures) in many state public service systems that left the field open for American products to enter: new media promise a corrective to their exclusivity that is not necessarily American. And some would argue that the film, television, video and music produced in sites such as Hollywood, Hong Kong and Bombay represent less the culture of those nations than a new world popular culture, emanating from world production centres.²² It is certain that the boundaries of the national — imagined, after all — will continue to erode and blur, culturally as well as technologically.

As national regulations lose their grip over multinational conglomerates, little remains to halt the monopolising tendencies of some of the biggest corporations in their march across the globe. A new form of 'global lawlessness' could be the result. If Rupert Murdoch's 2001 proposed merger with DirectTV goes through, his Sky Global satellite service would have reached 300 million homes across North and South America, Asia, Europe and Australia. Teamed up with Hughes/GM, DirectTV's owners, Sky Global under Murdoch's management would have made him 'the only global TV gatekeeper with control of both the programming and the platform that funnels that programming into homes around the world.'²³ Although the US continues to exercise some limited anti-trust supervision of major media mergers in that country, and the European Union monitors those that affect its member markets, for example denying the proposed Internet merger of MCI/Worldcom and Sprint in 2000, little authority exists to block the spread or to direct the operations of mega-corporations such as Murdoch's or others such as AOL Time Warner and Bertelsmann.

One area of particularly contentious 'lawlessness', or the attempt to assert too-aggressive legal rights, is that of intellectual property and copyright. The Napster saga of 1999–2000 brought the world's attention to the threat posed by new digital technologies to the legal concepts currently used to contain culture, define ownership and channel profits in the Internet age, pitting adamant copyright holders against resistant users. For the past few decades, Hollywood has fought to maintain its control over illegal copying and distribution of videocassettes and faces further challenges with the more perfect reproducibility of DVDs. Satellite channels beaming programmes into areas where competitors have already purchased exclusive rights to their exhibition have caused problems in Canada. Recently a consortium of film studios has announced plans for digital distribution of films over the Internet, in a pre-emptive move to ward off both Napster-like file-sharing technologies and the threat posed by smart recorders such as TiVo and Recall-TV. As one studio representative put it, 'We want to give honest people an honest alternative.'²⁴

'Honesty', as defined by an industry rarely associated with that quality itself, is only one of the defences of the legal status quo that may be put seriously to the test as digital invasion of national, cultural and industrial territories continues.

Finally, new media convergence seems certain to result in a redefinition, not only of the national, but also of the local. The concept of 'nation' has been, as I have argued, one primary way of drawing boundaries around a certain community of interest and structuring media products and systems within its terms. In the context of twentieth-century nationalism, this seems so obvious as to be 'natural' and inevitable. Yet other organising ideas have also operated. In countries such as Germany, sub-national regional identities shaped the Lander structure of broadcasting, influencing film production as well. In the Netherlands, the 'pillarised' broadcasting system that divided control between dominant social groups – Protestants, Catholics, conservatives, liberals – produced a different way of 'locating' culture and distributing power. In the US, the concept of 'local broadcasting' has mostly been defined by urban areas, not by states or regions; one innovation of the public broadcasting system was to allow the emergence of statewide networks.

The digital era, offering instant communication across all these largely geographical types of communities, promises a redefinition of 'the local' based on affinities, interests, language, politics or other cultural identities that supercede or at least complements other definitions, particularly the national. Thus hip-hop music fans in Japan, England, Poland and the US may represent one kind of 'local' identity, while Web sites and satellite television channels aimed at Indian diasporic communities in South America, Canada, Africa and Greece create another type of locality. Non-governmental organisations (NGOs) concerned with environmental or women's issues can now connect worldwide, creating political entities and pressures that are both global and local. Theorists have barely begun to explore these nation-defying collectivities, and indeed many of our leading media theories, such as those grounded in the public sphere or political economy, will have a very hard time incorporating their challenges in that context. Yet it is vital that we do so, approaching new media convergence neither with blue sky Utopianism nor its equally technologically deterministic converse, dystopian gloom, that has marked so much twentieth-century theory.

Culture, rather than nation, promises to define the media of the twenty-first century and to present the battleground on which most of its struggles will be waged. Yet the means of culture still fall under the sway of nationalised organisations at present or of commercial concerns that threaten to replace the flawed power distribution of national governments with the often even less scrutable mechanisms of marketplace and profits. While technology, inseparably allied with culture, the market and the state, does occasionally hand us ways to redistribute communicative power in a more equitable manner, the forces of containment and control just as rapidly move in. This chapter is an attempt to point at both the promises and the betrayals of recent developments in cable, satellite and digital transmission and to indicate new ways of thinking that may prove helpful in re-imagining their potential and actual use.

Notes

1. For theorisation of this principle, see Raymond Williams, *Television: Technology as Cultural Form* (London: Oxford University Press, 1978) and Brian Winston, 'How Are Media Born?', in John Downing, Ali Mohammadi and Annabelle Sieberry-Mohammadi (eds), *Questioning the Media: A Critical Introduction* (London: Sage, 1990).
2. It is difficult to escape the national bias in which so much scholarship, including my own, has been based. Thus my primary focus here is on the US, UK and other English-speaking nations, though these developments have occurred throughout the globe and certainly deserve a wider focus.
3. Asa Briggs, *The History of Broadcasting in the United Kingdom, Vol. II: The Golden Age of Wireless* (London: Oxford University Press, 1965), pp. 356–60.
4. Peter J. Humphreys, *Mass Media and Media Policy in Western Europe* (Manchester: Manchester University Press, 1996), pp. 164–5.
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