

Robojourno: Reframing the Talking Head

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Abstract

From a case-study of a visually impaired student learning to operate in a fully digital broadcast newsroom, this paper moves to a consideration of issues of equity, access, ethics, and truth brought into play by the digital revolution. If the new journalist transforms into a multi-skilled mobile studio, half-human, half-machine, operating in a global multi-mediascape. Who misses out, what happens to the news agenda, and what are the implications for educators?

**The sight of immediate reality has become an orchid in
the land of technology.**

Walter Benjamin (1973, 235)

**Truth is not a Holy Grail to be won: it is a shuttle that
moves ceaselessly between the observer and the observed,
between science and reality.**

Edgar Morin (1962, viii)

Years of ethnographic ('participant observation') research among broadcast journalists, in the clubs and pubs where much of the endless peer-critique and self-reflection about our profession takes place, convinces me that the filmed or taped interview is the heart of the enterprise. This is the site for heroic stories of perseverance and sheer luck, of hypocrites

unmasked and spin-doctors out-flanked, of cheats caught out and liars damned out of their own mouths — in short, it is television's 'talking head' images and moments that define an era and become the stuff of journalism legend and textbook. [The first Australian Prime Minister] Fraser sheds a single tear during a lost election concession speech (deftly illustrating that although 'life wasn't meant to be easy', it can still hurt), Joh Bjelke-Petersen begins to lose control of Queensland after being ambushed by Quentin Dempster on *Four Corners*, and Margaret Thatcher battles George Negus to a draw on *60 Minutes*.

The broadcast interview or 'talking head' is also, of course, the equivalent of the print reporter's 'source', the self-authenticating newsmaker or eye-witness to news — unadulterated testimony, irreducible fact, self-evidential proof. And we know this because of the way the talking head is mediated as a simultaneous presence of 'talent', journalist and camera. There is a grammar of eye-lines which frames and authorises both the talking head and its truth claims. By convention, the television apparatus — studio anchor and field stand-up — address us directly, while the interviewee speaks to an interlocutor off-screen. Whether or not the reporter is later elided in post-production, the spectator is always notionally positioned as 'eavesdropping' on the un-tampered reality of a verbal exchange between two 'real' people. This reality effect is the source of the talking head's power, truth and authority.

But one result of the digital revolution is that this familiar visual syntax has begun to disintegrate. In the future, all talking heads may well address us directly, because tomorrow's reporter will in effect be wearing the camera. The eye-line off-screen signifying 'interview' may disappear, replaced by direct eye-to-camera contact with a multitude of stand-alone talking heads. Whether this amounts to an epistemological crisis or merely a temporary detour around traditional gate-keeping and media authority is the subject of this paper. What this paper explores, then, are some of the issues for reality and truth in tomorrow's broadcast journalism.

Newsflash from Las Vegas

Two years ago at the COMDEX/FALL trade show in Las Vegas, manufacturers unveiled the latest in wearable digital broadcasting. *The Australian's* report features a photograph of a young woman wearing a hi-tech headset with in-built camera and microphone, captioned as follows:

Web Reporter Bettina Rahn of the German company WearX demonstrates a wireless video camera system that allows live broadcasts to the internet as she goes about her business. The headset camera, monitor and microphone use a wireless LAN [local area network] and can broadcast video at up to 13 frames per second. (Gengler 2000, 47)

And earlier the same year Stephen Quinn, in a piece for *The Australian's* Media supplement headed "News Tools of the Robo-reporter", surveyed with restrained excitement the state of play in these new reporting and broadcasting technologies. His article opens:

A young journalist in a silver catsuit and space-age visor interviews the delegates at a conference, and sends her report in real time to an online publication. Science fiction? No. The future of reporting may well have had its premiere in Germany last May. (Quinn 2000, 14)

The article featured among other products a similar Web Reporter-style apparatus from a company called Xybernaut, and an experimental mobile workstation put together at Columbia University's Graduate School of Journalism, funded by the U.S. Navy.

So the future of broadcast journalism is here, today, now — and it seems entirely appropriate that it should be announced in Las Vegas, funded by the military, and produced by companies with an 'X' in their name. We live in post-modern times, and it may be churlish or naïve to question what exactly is the nature of the 'business' these 'Web Reporters' are so confidently 'going about' — technology reporting or corporate promotion, news or hype?

On the other hand, perhaps the time has come to ask what sorts of material – what images and voices, events, places, locations, stories, situations, sources, informants,

interviewees – are likely to be covered and brought to global spectatorship by these new technologies. There are a bundle of issues here, but I want to work down from the global to one core image, moment and site of journalism — the face-to-face interview between reporter and subject, the 'talking head'. I will argue that, paradoxically perhaps, only professional practice guarantees truth — in the last instance, ethic before epistemology. It is not the digital camera's lack of an indexical link to reality that is the worry, but who wears it.

The 'Frenzy of the Visible': A Small History of Photography

Discounting the hyperbole of trade magazines and the popular press, we are probably some way from reaching the unspoken Holy Grail that drives us — broadcast-quality pictures from anywhere, anytime, and preferably live. But this imperative, the need for more and better images, is very real, and has a long history; our disquiet about it is equally long-standing (on 'frenzy of the visible', see Williams 1989). At a commonsense level, this disquiet is expressed in the dismissal of television as 'radio with pictures', or the lament that in the news rundown a trivial story with pictures will always beat one without, or that 'if it bleeds it leads'. At another level, the supremacy of the visual has been theorised to explain our whole culture: technologies of seeing are characterised as the Western way of knowing. And bound up in the argument is a general unease about their potential for either utopian or dystopian — democratic or totalitarian — social futures, which goes back over two centuries. From this perspective, it is no accident that the very term 'enlightenment' is a visual metaphor.

Thus Geoffrey Batchen shows how the desire to photograph precedes the invention of photography by about a century, Heidegger characterises modernity as 'the age of the world picture', the Frankfurt School rails against a primarily visual 'culture industry' of 'mass deception', Debord celebrates its culmination as postmodernity in 'the society of the spectacle', and Baudrillard describes a symbolic world composed entirely of copies ('simulacra') without originals (Batchen 2000; Heidegger 1977; Adorno and Horkheimer 1979; Debord 1995; Baudrillard 1994). The drive for images is also seen to

permeate the history of science, which may be read as a record of new ways to represent inchoate data visually or, in other words, as a history of (visual) measurement.

To dramatise this ‘frenzy of the visible’ and ‘drive for images’, I want to detour from my main argument to the case of the blind broadcast journalist. Specifically, the example involves a research project funded by Central Queensland University to teach a student who is severely visually impaired to operate a digital radio newsroom. Susan (not her real name)’s story and our project illustrate well the trajectory of scientific representation noted above, replicating the history of medical imaging (see, for example, Cartwright 1995). By this I mean that in the context of this sort of history of technology, transforming sound data into pictures is a natural development. The digital revolution — surprisingly at first glance perhaps but also inevitably — shifts sound editing from reliance on the sense of hearing to the sense of sight. And the Web Reporter, presumably, is another step in this same process or evolution, a tilt at the last digital barrier — picture quality — to turning the world into images.

But clearly, Susan (not her real name)’s story also dramatises other issues that the digital revolution raises for broadcast journalism — questions of access and equity. Because of her disability, Susan (not her real name) can comfortably operate in an analogue sound environment, but is excluded from the digital world. At the other, newsgathering end of the news production process, there are similar problems, which tend to get glossed over in much of the celebratory writing about it.

For example, Quinn’s article cites Professor John Pavlik, Director of the Centre for New Media at the Columbia University’s Graduate School of Journalism, who notes blandly that: “One of the most important principles of journalism is to locate a story in a physical space. We accomplish this by situating the news consumer literally at the story’s location” (Quinn 2000, 15). What I want to explore is the nature of this physical space or location, because in most cases the images being produced here are not just unspeaking scenery, but ‘talking heads’. That is to say, it is not mere ‘space’ or ‘location’ that is at issue here, but a record or representation of a specific moment in time and place, an interaction between two people — reporter and subject. These are questions of ethics and epistemology, not production and consumption.

Susan (not her real name)'s Story: an unusual paradigm of the human-digital interface

On the face of it broadcast journalism, like the music industry, represents a natural career for the visually impaired and, in fact, the National Foundation for the Blind (NFB) in the U.S. hosts a web discussion site catering specifically to blind journalists (*nfb-bpj@lothlorien.nfbcal.org*). Like the recording studio, the radio newsroom ought to be an environment where this specific disability actually transmutes into advantage — those with a heightened sense of hearing would seem to be 'naturals' for the task of creating complex soundscapes. But paradoxically, the digital revolution in newsradio has in fact acted to exclude rather than expand the skills of this particular group, the visually impaired.

Apart from taking the process out of time by permitting immediate and random access to any element of the sound text, the fundamental shift that digital editing performs is to move the selection process from the human ear to the eye. Sound is represented in wave form on a monitor and, with various degrees of accuracy and sophistication depending on the software package, editing may be performed through copy, cut and paste functions familiar to us from word processing and graphic design. One such program is Newsboss — a broadcast standard digital news production package — used by several commercial networks in Australia. As well as copywriting and text editing, Newsboss also provides sound capture and editing, rundown construction, in-built wire service links, cart library systems, and an on-air prompter function.

Before tackling the special problems of Newsboss, it is worth outlining how Susan (not her real name) already uses digital technology to interact with the sighted world. There are two ways she can access print: through an expensive Braille transcription and printing system, or through her laptop computer. The key to this second option is software programs that scan print into digital text, and then turn digital text into speech. There are several programs for OCR (optical character recognition) and digital speech on the market, and it was here that the NFB journalism discussion list proved valuable. After some Listmember canvassing, experimentation, technical research, and informal networking of other visually-impaired radio journalists, we settled on Omnipage

Pro for our OCR scanning software, and a speech program called Jaws. A happy foray into the digital world, you might say, but at real financial cost: Omnipage Pro and Jaws for Susan (not her real name)'s laptop — running Windows 95 — cost around \$2500; for our studio — running MAC OS and Windows NT — the cost was over \$3300. Both these programs are owned and licensed by American corporations.

The 'digital revolution' acts in two contradictory ways, then, simultaneously opening up sources and flows of information, but also closing down access through financial barriers and the privatisation of intellectual property. What I am flagging here is that, after learning the physical or, so-to-speak, analogue layout of the broadcast studio, the next step in our project — this exploration of software options through the internet and elsewhere, the turn to the digital — began to take us into a world not so much of technology as law and finance, the corporate world. For example, what at first presented as a technical problem — running Jaws and Newsboss together; that is, in effect running two digital sound programs simultaneously — turned into a question of corporate licensing and marketing.

Jaws will 'speak' any text within a Windows environment, and the operator moves around the screen using keyboard instead of mouse. We decided that Susan (not her real name) should begin learning Newsboss through its simple sound recording function, before moving into more complex sound editing and story construction capabilities. Susan (not her real name) set out to conduct phone interviews for her current affairs project, but we quickly discovered that although Jaws and Newsboss will run together, the computer has only one soundcard, and once Newsboss is in 'play' or 'record' mode, it takes over the sound card and Jaws cuts out. In simple terms, what this means is that once Susan (not her real name) has started recording the telephone interview, she cannot, for example, adjust recording levels, nor can she stop the recording.

This apparent roadblock was easily resolved — Susan (not her real name) simply memorised the arrow key strokes (for example, four across, three down) to reach the stop button — but it had an unexpected side-benefit. It prompted us to contact Newsboss corporate headquarters, which granted a free temporary license to load Newsboss on to Susan (not her real name)'s laptop so she could work on her radio program at home, in particular the time-consuming editing process. The point remains, however, that relying

on corporate charity is not a happy solution to questions of digital access and equity. Moreover, the *quid pro quo* is our agreement to provide stills of her using Newsboss for corporate promotional purposes.

After some experimentation with the naming and archiving of sound files, the next step in our project was the actual editing process. As in all digital systems, sound is edited within Newsboss by adjusting the left and right hand borders of a selected screen area, represented by vertical lines and a change of colour. Susan (not her real name) is able to move these borders using the arrow keys, but of course must repeatedly play the selection using a loop function to refine her edit points. One of the major problems here is that the screen space is not a fixed scale in terms of representing duration — the wave form expands to fit the screenspace available, that is, both a five and fifty second sound grab will fill the screen. Hence each movement of the arrow key has a different time value; there is a zooming function which allows sections to be stretched, so to speak, but the cursor or key movement is not scaled. Susan (not her real name) can only edit through trial and error, repetitive small arrow key movements — playback, key stroke, playback, and so on. The trick is to break long interviews down into small sound grabs, so that the space of the arrow key movement is in inverse proportion to sound duration (that is, stretch the sound as much as possible within the screen window), and leave the zoom function at a standard setting. To cut a long story short, sound editing is not easy for Susan (not her real name), but not too difficult either.

Newsgathering: a short history of the earlier revolutions

Now I want to turn from this small but, in some ways, happy parable of disability overcome in the face of digital technology — except for the caveats about corporate charity and control — to the core focus of my discussion on tomorrow's broadcast journalist and, in particular, to the other end of the news production process, newsgathering. As we've seen, here the digital revolution now holds out the dream of the 'ejournalist' — half-human, half-machine — a mobile studio simultaneously and globally mediacasting live sound, image and text.

Sharon Tickle and Nisar Keshvani recently christened this "electronic journalist-editor-producer" the 'Jeder', an "intrepid new breed of broadcast warrior" (Tickle and Keshvani 2000, 69). They note that this new cyborg will be able, inter alia, to "work solo in the field and run the studio remotely", or conversely, "operate equipment in the field by remote control to bring live audio-visuals, edit it [sic] quickly into broadcast packages and streamed [sic] on the Web site", and even do without the field altogether: "with virtual vision journalists are no longer restricted by the available vision — if they want to recreate a jailbreak for the news bulletin they can now do it". With merely a nod to professional and ethical issues, they conclude, "There is no room for technophobia in the future for electronic newsgathering" (Tickle and Keshvani 2000, 77-78).

But as my own term for this new ejournalist suggests, I am not so sure, or rather I think technophobia is not the issue. Robocop, you may remember, is a fascist corporate cyborg created to bring 'order' to the chaos of a near-future, inner-city Detroit: a lawless, fenced-off ghetto for capitalism's outcasts — the poor, the homeless, the unemployed, minorities — those whom American sociology and *Time* magazine so delicately label the 'underclass' (Bukatman 1993, 254). The danger is that 'robojourno', by sheer virtue of the technology and its corporate apparatus, may similarly fence off and ghettoise local, minority, and marginal voices. It is only natural, perhaps, to celebrate first the potential benefits of an ever-expanding horizon of cameras and audiences. However, from the quotes above alone there are surely grounds for unease in terms of fundamental journalism verities and virtues. In fact I want to argue that the rush to digital newsgathering needs to be tempered, if not with caution, at least with self-awareness, or let's be bold, what I will call theory.

There is an earlier moment of innovation in image-making that provides, I think, a parallel — the 16mm sync-sound revolution. Launched worldwide in documentary filmmaking around 1960 — with *Chronique d'un Eté* in France (Jean Rouch and Edgar Morin 1960), *Lonely Boy* in Canada (National Film Board of Canada: Wolf Koenig 1961), and *Primary* in the U.S. (Drew Associates: D.A Pennebaker and Richard Leacock, 1960) — the 16mm camera opened new vistas for television, broadcast journalism, and film storytelling. Its potential for handheld mobility, for low-profile presence in the midst of 'real life', and for seemingly 'unmediated' representation of social reality, changed not only the

stories and subjects available to documentary, but also its very nature — from the voice-of-God Griersonian formula to *cinéma vérité*, direct cinema, observational cinema, and so on. And it shifted broadcast journalism out of the staged press conference and political rally into the streets and factories. Finally, it is worth noting that the three films mentioned above were produced by, respectively, an anthropologist, a social activist, and a journalist. The latter was *ex-Life* magazine staffer Robert Drew, who was attempting to transfer photojournalism from the page to the screen through 16mm technology. It was the desire to photograph, in other words, that preceded the technology.

A personal anecdote: my professional career began as a production assistant and sound editor at Film Australia, then known as the Commonwealth Film Unit, just when 16mm sync-sound technology was being introduced there. A recalcitrant and fearful Producer-in-Chief — Grierson acolyte and disciple Stanley Hawes — imposed peculiar rules about its use: we were not allowed to take the cameras off their tripods, and we were not to use the zoom lens. At the time I saw this as a classic case of technophobia, but now my reading is more generous. Stanley Hawes' objections to 16mm had to do, I think, with both aesthetics and ethics: he thought handheld images lacked the dignity of film 'art', and he thought the camera permitted a too easy and unreflective crossing of private/public barriers in society.

The point of this anecdote is that, looking back over the last three decades, there have been at least five major revolutions in the production of images and sound: from 35mm to 16mm then Super 8 cameras, from film to ENG, initially in the form of bulky three quarter inch Umatic formats, then from these to more sophisticated half inch Betacam, and on occasion Hi-8. In postproduction we moved through various offline/online configurations, both analogue (Betacam/Betacam) and digital (AVID, MEDIA 100), and so on. In sound we moved from quarter inch Nagra recorders through cassettes and mini-cassettes to DAT and minidisc; and the camera-sound link evolved from umbilical cord to crystal sync and back again.

Once the 35mm film and two-inch tape dams were broken, the 1960s revolution became a three-decade-long rolling flood of new, portable story-gathering and broadcasting technologies. It changed broadcast accent, style and content, opening up a space for new Australian voices such as ethnic minorities and women. At one level it

made possible *Chequerboard* and *Four Corners*, at another it challenged the amateur-professional divide with film and video co-ops, and community television and radio stations. It spawned film, radio, television and journalism schools. And it also demanded and produced an enormous flowering of theory worldwide: in documentary film, in television and media studies, and in popular culture.

The results are paradoxical: the opening up of new areas to scrutiny by the camera within our society and other cultures, within private lives and daily realities, also coincided with the collapse of certainty and the loss of photography's authority as a way of knowing. The growth of critical self-awareness on the part of practitioners led to a foregrounding of ethical questions — of exploitation, of victim-led social change, of compassion fatigue. And as equipment became smaller so too did the front-line newsgathering apparatus, the location crew. Not only jobs but whole professions and crafts disappeared. 'Robojourno' stands at the end of all these processes.

The Interview: core paradigm of the human-digital face-off

In location crewing, we lost first the production assistant/location manager, then the sound recordist, then the editor — camera and editing skills are today routinely included in the single job description. And the camera operator cannot be long with us, at least in regional television newsrooms. Already some remote stories are assigned to what is termed a 'video reporter'. Indeed, the Director of News at WIN TV Rockhampton, Alastair Frew, recently filed story packages from Singapore produced single-handedly, including stand-ups — Alastair mounted a small, consumer digital camera on a tripod in his hotel room, lined up the frame, turned the camera on, then walked into the frame to do his stand-up on the balcony with the Singapore skyline as backdrop. In Alastair's case you might argue, then, that not only has the foreign correspondent or staff reporter been dispensed with, but the stringer as well.

These developments in broadcast journalism over the last three decades can be read in two contradictory ways: on the one hand, as a happy progression towards cheaper,

smaller, and more democratic technologies of sound and image gathering and reproduction — a kind of natural maturing of romantic 1960s 'appropriate technology' and 'small is beautiful' ethics and economics. On the other hand, as the Alastair Frew anecdote suggests, another outcome is simply an accelerating concentration of the technologies of representation in fewer and fewer hands, and the increasing coverage of issues and events that reflect corporate interests and agendas. It is no accident that the Web Reporter technology was trialed not only at trade shows earlier this year, but also in coverage of the American Republican and Democratic presidential conventions. There is a nice resonance here, by the way, with an earlier communication technology: broadcast via the telephone ("wireless telegraphy") was also first trialed commercially at the American presidential conventions, in 1896 (Breen, 1998).

The point is, digital convergence and the new ease of reporting live from the field to audiences worldwide may simply accelerate wider processes of narrow-focusing and exclusion in the global news media. These include the growth of infotainment, spin-doctored and pr-sourced copy, homogenised international cultural reporting, and globalised business and financial coverage. The general problem is the disappearance of local and minority faces and voices, but what interests me is whether the new robojourno is complicit or an agent of resistance to these processes of late-capitalism.

The image of the silver cat-suited robojourno may not seem out of place in conventions, press conferences, or perhaps even one-on-one interviews with official spokespersons and corporate figureheads. But I cannot imagine her sitting down with a Chinese dissident, or filing a story on street-kids in Bangkok, or reporting on prostitution on the Gold Coast. And if the interview is the heart of journalism — that person to person inter-subjective moment which gathers information, guarantees accuracy, and produces credibility — then the question is how and whether the new technologies change the nature of this well-spring of the whole journalism ethos.

But there is no need here to debate the digital revolution at this level of meta-theory. The question of 'robojourno-meets-interviewee' can be posed much more concretely. When journalists and film-makers get together in pubs, clubs, festivals and conferences, what they invariably talk about in my experience is the interview: techniques and tricks of handling and performance, verbal sleight-of-hand and solid

groundwork, the heartbreak of denied access and the joy of the on-camera lie, timing the run to the useable grab. These stories often form the centrepiece of memoirs, and the great interviews become the stuff of industry legend: Quentin Dempster versus Joh Bjelke-Petersen, George Negus versus Margaret Thatcher. The latter example in fact is included in Barbara Alysen's new textbook for students, *The Electronic Journalist* (Alysen 2000). Academics, of course, tend to ignore such material as mere 'war stories', in Jay Ruby's dismissive phrase (Ruby 2000), or revealing of a callow, unthinking sensibility, in Trinh T. Minh-ha's polemic against professionals (Minh-ha 1992).

But in fact we read every interview from our understanding of its context. And the only guarantee of truth lies in the integrity of the interviewer. We cannot divorce our judgements about authenticity and the quality of the information, without appeal to an ethic of professionalism. In the context of the computer section and trade reporting of *The Australian* newspaper, I understand full well that the photograph of Web Reporter Bettina Rahn is no doubt a staged product or publicity shot for WearX equipment. Yet I am intrigued by Bettina's sideways glance out of frame, I wonder about what the two photographers made of each other when they looked into each other's cameras, and what it means to set about endlessly reproducing the shared photographic moment through their separate replicator systems — webcasting on the one hand, and on the other the still photographer's darkroom enlarger or digital capture, news wire, fax, email, satellite and print.

In another interview context — of, say, refugees, crime victims, or injustice — these musings are not fanciful, they are critical to the profession of journalism. We must question the integrity of the moment of interview, the roles of both players, the process of reproduction, the position of the stakeholders. What I am arguing is that the rush to digital newsgathering emphasises the need for more, not less, theory of culture, capitalism and society — *pace* Keith Windschuttle — and puts more responsibility, not less, on journalism educators.

And as a postscript, it is worth remembering that the nasty corporation's plans for Robocop come undone when his human consciousness and memories begin to surface and take over the conscienceless machine. Within the film's aesthetic, these human characteristics are represented as video — amateur-style home movies are directly

intercut within the high-gloss professionalised Hollywood product. Stanley Hawes could not hold back the 16mm revolution in Australia, and part of his disquiet had to do with the breaking down of the professional/amateur divide. Perhaps that is part of my concern as well, but that is no reason to discount his disquiet about ethical issues. The infinite chaos of global images can only be made sense of through recourse to an ethic, the guarantee that journalism as a profession provides.

REFERENCES

Adorno, Theodor and Horkheimer, Max, "The Culture Industry: Enlightenment as Mass Deception", in *The dialectic of the Enlightenment*, trans. John Cumming (London: Verso, 1979). Originally published in *Dialektik der Aufklärung* (New York: Social Studies Associates Inc., 1944).

Alysen, Barbara, *The Electronic Reporter: Broadcast Journalism in Australia* (Geelong: Deakin University Press, 2000)

Batchen, Geoffrey, *Burning with Desire: The Conception of Photography* (Cambridge, Mass.: The MIT Press, 1997)

Baudrillard, Jean, *Simulacra and Simulation*, trans. Sheila Faria Glaser (Ann Arbor: University of Michigan Press, 1994). Originally published in French by Editions Gallimard in 1981.

Benjamin, Walter, "The Work of Art in the Age of Mechanical Reproduction", in *Illuminations*, ed. Hannah Arendt, trans. Harry Zohn, Glasgow: Collins, 1973 (originally published 1936), p. 235.

Breen, Myles, *Journalism: Theory and Practice* (Paddington, NSW: Macleay Press, 1998)

Bukatman, Scot, *Terminal Identity: The Virtual Subject in Post-modern Science Fiction* (Durham and London: Duke University Press, 1993) 254.

Cartwright, Lisa, *Screening the Body: Tracing Medicine's Visual Culture* (Minneapolis: University of Minnesota, 1995)

Debord, Guy, *The Society of the Spectacle*, trans. Donald Nicholson-Smith (New York: Zone Books, 1995)

Gengler, Barbara, "Looking Ahead to the Wireless Era", in *The Australian* 22/11/2000 (p.47).

Heidegger, Martin, "The Age of the World Picture", in *The Questions Concerning Technology and Other Essays*, Trans. William Lovitt (New York, Harper & Row, 1977).

Morin, Edgar, "Preface" to Luc de Heusch (ed.), *The Cinema and Social Science: Survey of Ethnographic and Sociological Films*, in *Reports and Papers in the Social Sciences*, Number 16 (Paris: UNESCO, 1962)

National Foundation for the Blind Listserv: nfb-bpj@lothlorien.nfbcal.org

Quinn, Stephen, "News Tools of the Robo-reporter", Media Section, *The Australian* April 27- May 3, 2000 (pp.14-15)

Ruby, Jay, *Picturing Culture: Explorations of Film and Anthropology* (Chicago: University of Chicago press, 2000)

Tickle, Sharon and Nisar Keshvani, "Electronic News Futures", in *Australian Journalism Review* 22:1, August 2000, p. 69.

Trinh. T. Minh-ha, *Framer Framed* (London: Routledge, 1992)

Williams, Linda, *Hard Core: Power, Pleasure and the 'Frenzy of the Visible'* (Berkeley: University of California Press, 1989)

FILMOGRAPHY

Chronique d'un Été (France: Jean Rouch and Edgar Morin, 1960)

Lonely Boy (National Film Board of Canada: Wolf Koenig, 1961)

Primary (U.S.: Drew Associates, Richard Leacock and D. A. Pennebaker, 1960)