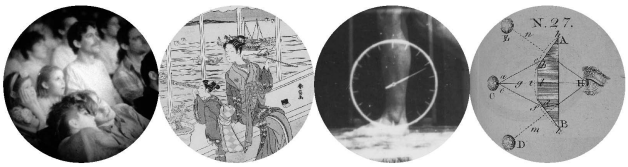
journal of visual culture



Visual and audiovisual: from image to moving image

Sean Cubitt

Abstract
The apparently arcane question of whether an image can move reveals key difficulties concerning the tasks facing visual culture. Among them are the lack of attention to graphic and animated images, to cartography, spreadsheets and databases and other workplace media, and to the relations between image and sound, and image and text. The step from still image to moving image concerns especially the temporal dimension of human communication, a focus too often missing from poststructural analyses. This article argues for the uses of visual cultural analysis in the emergence of new visual practices.

Key words
communication • moving image • still image • time • workplace media

At a conference in Siegen, Germany, a few years ago, a group of media theorists, many from the UK, France and the USA, met with a group of German scholars from the tradition known as *Kunstwissenschaft* (see the papers collected in Spielmann and Winter, 1999). This discipline is concerned with aesthetic concepts rather than art history as such, and represents one part of the legacy of the great founding figures of art history: Arnheim, Wölfflin, Panofsky, Gombrich. The problem posed by the *Kunstwissenschaftler* seemed at the time unnecessarily disciplinary, absurd as only the pursuit of doctrine to the exclusion of reality can be, yet it remains with me today. I believe now that they ask a fundamental question for the project of the *journal of visual culture*: if an image is a discrete, autonomous object, how can it 'move'? Movement implies two qualities that are not proper to the image: that it enters a necessary relation with other images, and a necessary relation with the *hors-champ*, the off-screen space, with what is not imaged. The first problem, the relation with other images, concerns the contingency of that relation. Where is the necessity for frame B's relation to frames A and C? And to frame *n*? The second problem deals with the contingent nature of the composition.

journal of visual culture

Vol 1(3): 359-368 [1470-4129(200212)1:3;359-368;028503]

If this image's necessity is belied by the succeeding frame's different composition, because the camera has moved, what tells us that the camera movement is either implicit in the first frame's supercession by the second, or that there is in any sense a human control over the composition. I think here of Michael Chapman, cinematographer of *Raging Bull*, among others:

> I remember Godard saying that ... He said he no longer understood angles anymore ... Angles tell us emotional things in ways that are very mysterious ... I think a particular angle is going to do one thing and it does something quite different often. I no longer have any sure sense that I have a grasp of it ... Occasionally you will hit an angle that is absolutely inevitable; it's just the right angle. But that only happens sometimes. A lot of times, what angles give you emotionally is puzzling and mysterious. I don't have any sense that I understand them. (Schaefer and Salvato, 1984: 124–5)

The puzzling and mysterious angle is only more puzzling and mysterious if the composition involves reframing. There is here the question of machine perception, which I will leave aside, but also the absolute contingency of the angle that means differently to even a craftsman's practiced expectation of it.

Before we turn to the issue of whether images can move, we need to make another observation about the moving image: it is not visual but audiovisual. The image, if it is still, to the extent that it is still, is without time. The image remains the same if I look away and then look again. For this reason, it cannot be attached to music (the absurdity of Mussorgsky's *Pictures at an Exhibition*), which is a temporal art, or to sound which depends even more than music, because it is random, on the microchronology of vibrations. The image cannot vibrate, and so cannot occupy the temporality required for sound. It therefore is without noise, without music, and without words; and yet the 'moving' image is embedded in the sonorous. There is no necessity intrinsic in the image that demands another image; but there is something in sound that seeks visualization, and since it cannot associate with a still image, sound then requires the relation of image to image. The 19th-century's attempts at making an invisible art of music were not carried over into 20th-century music after Schoenberg and Webern, the last musician of the Brahms tradition. Cage, Boulez, Stockhausen, Xenakis are resolutely visual musicians, as Henri Chopin, Yoko Ono, Scanner and Granular Synthesis are resolutely visual sound artists. Sound implies time which demands movement which in turn seems to demand the visual. And yet the image is not sonic, by definition. And so we have the impasse again: the concepts of movement and image are not easily reconcilable. Something less simple than a presumption must accompany the transition to moving image.

Most film historians are alert now to the provenance of cinema from Edison's R&D laboratories at Menlo Park, and how its conception belonged to an extension of the phonograph (Wachhorst, 1981). John Ellis's (1982) observation that television is radio with pictures has likewise sunk into the common consciousness of media historians (pp. 127–44). We think of the 20th century as the triumph of the visual, but it is really the triumph of sound that extends itself into the visual. Moving pictures are sounds that have colonized light. Thus, once again, they are not images,

but something else. Films, and the same goes for television, are not composed of a succession of still moments, but movement *pris sur le vif*, as early commentators noted of the Lumières' first screening, life seized in the living (*La Poste*, 30 December 1895, reprinted in Ministère des Affaires Etrangères, 1996: 16). But film and TV, unlike photography, arise from sound media. Audiovisual movement and the silent still image are not the same, and any attempt to draw them into a single discourse must do so either by ignoring the distinctions between them or by creating a discourse which embraces the two in their difference. Ideological and discursive analysis does the latter, but only at the risk of the former. We need some formal way of supporting the materiality of different media practices as well as their commonality in communication.

I am not alone in arguing that movement precedes stillness, and that stillness is only a special instance of movement. No image is still because no audience is ever static: we see from here or there, lean forward to inspect the brushstrokes at the lip of the jug where the thinnest strands of blue and gold indicate that the cow that gave the milk was suffering from mastitis in Vermeer's *Maid with the Jug*, or stand back from Krantz's photomurals to decipher, absorb and incorporate her textual onslaught. The first movie, we teach in Film 101, was the flickering torchlight in the caves at Lascaux, as our ancestors moved past the images like tourists in Disneyworld motoring through the 3D attractions, or the shadowgraphy of handpuppets in the firelight. Arresting the image into stillness came later, perhaps as late as the Buddhist sculptors, inviting devotees to empty themselves of self in motionless contemplation of the motionless. This theological understanding of the world as motion, and nirvana as a stillness beyond the sufferings of ephemeral empiria, is devout, holy and profound. It is an understanding of movement expressed in the abstraction of the object or goal of devotion from the mire of change. At the same time, it respects the changing, ephemeral and empirical quality of the world. This is not the same as the attempt to preserve among the Egyptians that Bazin found at the heart of the image's ontological destiny. Nor is it the discursive construction of power from the portraits of the Renaissance masters to the photographic catalogues of Atget and Sanders, the modernist construction of the photographic image as database element.

Stillness, to cut to the chase, comes in many forms, only some of which acknowledge that they are abstractions from the flow. Some images – Sigmar Polke's toxic canvases, Helen Chadwick's *Of Mutabilitie* – acknowledge the unstill nature of light and image; Duchamp enshrines it in one of the titles he gave to the *Large Glass*, *Delay in Glass*. Others refuse it, as Shakespeare's sonnets claim immortality. The difference between Shakespeare and, for example, the 'immortality' of a portrait by Memling is that one is assured as much by proliferation as by quality, while the other has only its quality and the sheer expense of azure and emerald green pigments to protect it from the ravages of time (and the time it has survived so far is so negligible on the cosmic scale of 'immortality'). The *Kunstwissenschäftler* require that we acknowledge that in the evolution of images, there has come a high and powerful instance in which the individual and discrete image can stand alone, outside history, even if it fades or, like Courbet's *Stonebreakers*, burns in the Dresden firestorms, victim of our endless readiness to sacrifice even the reasons for sacrifice. There is no reason to deny or decry this

staggering achievement. What we do need is understanding of its unusual quality, the problem of stillness.

Before we can begin to grapple with this we need one more quizzing of the materials. What shall we say of an image that incorporates words? What is there in the relation of image and text? Mitchell (1986, 1994) and Drucker (1994, 1995) have done a great deal to promote understanding of the bizarre and fruitful history of the text–image relation, though film and media historians have done little to investigate the relations of moving images to subtitles, credit sequences and titling. The visual text requires a vocabulary, and the visual text that also moves requires another. Shakespeare's sonnets have the greater chance of abiding, we believe, because there are so many copies of them, and because pretty much every copy is indistinguishable from the original. Benjamin's loss of aura clearly occurred rather earlier in literate than in visual culture. What is material for literate culture is the structure of words, a structure that abides no matter the physical vehicle that carries it. What is material for visual culture is the font, type size, paper, ink. In this sense Benjamin is quite wrong: in visual culture there are only originals, and the proliferation of copies does not alter the fact that every print of a film or photo, every copy of a book, becomes an artifact with its own history (a fact Benjamin recalls in the essay on collecting). It matters whether a text is produced in hot-metal press, pasteboard, page-making software, and it matters that it exists in layers at some point in its production. There is always the point in the printing process at which the relations between words and letters is in flux, another at which they are sealed into place and into relations with other elements – the edges of the paper, images and designs assisting or assisted by them. Stillness is only a moment in the circulation of words, but it is a familiar, perhaps the most familiar form, even for writers. The image–text relation is itself an unresolved issue – the promise of convergence is belied in every front cover of every popular magazine on the stands. The title-sequence, the subtitle, the intertitle ('Meanwhile, back at the ranch', 'San Francisco, 1937') remain unexplored, with the notable exception of Peter Greenaway's plastic analysis in *Prospero's Books* and *The Pillow Book*. The saving grace of Hitchcock's otherwise depraved films of the 1950s is Saul Bass's title sequences, yet even they remain as mysterious as Chapman's angles.

A final thought in this roster of questionings around the relations between stillness and movement. The emphasis of much visual culture analysis has been on depiction. As a discipline, the many other modes of imaging remain marginal: the map, the diagram, various notational forms like choreographic scripts or genetic transcripts. In the field of the moving image, animation remains woefully undertheorized. TV news graphics, with their election-night swingometers, pie-charts and bar-charts, geometric expressions of algebraic formulae in motion, like Apple's Graphing Calculator tool, .swf web files, weather charts and game-play analyses in sports programming all lie, it seems, outside the field of visual culture. Yet here we find some of the most significant images for this discussion. Take, for example, historical encyclopaedias. Here a single image must carry not only the burden of space but the weight of time. These still images attempt, like maps of ocean currents and ephemerides, to render movement in spatial form, not by imitation, like a futurist painting, or by empathy, but as information. To some extent, any map is also a picture of time as much as it is of space, and thus of

movement caught in a static graphical form. The familiar form of the map is, however, losing its discretion in the marriage with databases in geographic information systems. Here we witness the triumph of stillness as ideology at the moment at which geography is most able to pinion the mutability of its object. Geographical information systems tie physical geography to zip and postal codes, using them to access demographic and other data. But such data, though they represent streams of interaction – spending, traffic flows, hospital usage, aging – present them in static samples, synchronic slices taken out of the flow on rapid but nonetheless individually discrete data-images of a single moment. The old map contained movement. The new GIS system controls it. The imperial reach of the cartographic imagination has been achieved, but at the cost of its ability to speak of continuous motion. We need only add that GIS offer modelling capabilities that mere maps could not, claiming to extrapolate from current and past datasets the shape of the future – an image, specifically, of what does not exist. These formal fictions depend upon sampling, rather like digital recording, but at far lower frequencies. Each fragment of time is separated from the previous and succeeding ones, and linked to them by causal necessities. Here, at last, an image that moves, but only in order to attempt control over the non-existent, a non-existent whose necessity arises from the need for succession, the demand from companies who must plan for stability, against the forces of change.

Here then is the beginning of a thought concerning the fields of still and moving images. Some images seem still but move, like a poster on board a train, and images of sufficient richness will live with us for years, still revealing new aspects of themselves as we grow older together. Some images seem to move but are still. This distinction applies especially to those histories of the moving image that see it as an heir to the discrete instants of chronophotography at the hands of Marey, Muybridge, and others. Chronophotography was part of the history of photography, and led towards scientific modes of imaging, as well as into the instrumental rationality of time-and-motion studies which served a conception of both motion and time as composed of discrete units. The moving image, I have argued, is not concerned with the discrete but with continuous movement, and its unit is not the frame but the succession of frames. However, as with the map, digital filmmaking comes upon another synthesis. Among Marey's experiments, we find a black bodysuit with white lines inscribed on it. Shot in multiple exposures against a black background, Marey's device was a forerunner of motion-capture technologies used in films like *Toy Story* to emulate the complexities of the human face and its thousands of muscles. The bullet-time technology used for some of the spectacular stunts in *The Matrix* relies on a device pioneered by Muybridge, an array of still cameras that analyse, in this new instance, the three-dimensionality of the gesture. These shifts, part of a larger cultural turn from temporal to spatial interest (of which the database is the central emblem), indicate a novel approximation of stillness and movement, or rather a stilling of movement in the motion picture.

Media studies will never be part of visual culture, because it embraces (admittedly after a long time) the audiovisual as its domain. Yet equally there are vast areas in which the two can work together. The question of movement is one of these areas. If movement is ordinary, and stillness a special case, then time arises from movement, and questions concerning the temporality of the visual need to be explored by

comparing and contrasting aspects of each. Both visual and audiovisual culture are at the beginning of understanding the centrality of graphic codes – animation and type are the two most obvious, but cartography and graphic communication, including interface design, are immensely important. Recent work on medical imaging opens the door for a post-Sokal interest in workplace media more generally. When cultural studies defined its object by embracing the feminist slogan 'the personal is the political' and turning its back on labour, media studies in particular and the elitist traditions of art history mislaid the increasingly important and legitimate interest in such core technologies of the 21st century as accountancy spreadsheets. One of the reasons why Lotus 1–2–3 became the killer app that placed a million PCs on a million desks is that it allows for modelling, altering input data to see what alternative results might appear. In other words, the dataset represented by a spreadsheet application at any moment in time is open to change, like any digital data. Unlike the ledger, the spreadsheet is never fixed. Accountants will prepare a different set of figures from the data for various purposes – one for shareholders, one for tax, one for published accounts – all legal, but all expressions that differ in their ordering and selection. The data image presented on a screen is only one way of reading the input, and the input itself is malleable. In this sense, a spreadsheet, like most digital interfaces, is a moving image.

Nonetheless, like a database, a spreadsheet is a spatial device, organizing the flow of money in and out of an institution as a spatial matrix. A specific command will prepare the data in a quite different format, a chart being a typical example. How like this is to the world-wide-web hyperlink. On the web, an image which appears still may conceal a rollover activated when the mouse passes or clicks on it, and which will often take the user directly to another page. Is this image still? Or moving? In what sense does it occupy time, sitting as a link between its presence and its difference? Is this only a potential image, one whose fullness is always deferred until after we have rolled over or clicked and somehow deleted it? Is it, in this sense, a future image, or an image of the future? In Ernst Bloch's terminology, is this a 'not-yet' image? The last question is not disingenuous, for it brings us to the point of dealing with time in the image: the utopian potential it possesses or fails to possess. The principle of the not-yet concerns the immanence of the future, and at the same time the refusal to know it, in the sense of giving the future a content, for if it is given a content in advance, as in demographic modelling, then it cannot be other than the present, and the present, in Bloch's eyes and in, I imagine, those of many readers of this journal, is unjust, oppressive, destructive and potentially catastrophic. If then the rollover is in some sense an image lacking presence, an image that defers its existence to the moment of its vanishing and replacement, it is in that sense cinematic, and devoted to the becoming of something other than itself, and so utopian. But to the extent that it offers to know the future into which it transports us, its deferred presence is actually a novel mode of temporality in which disappearance rather than appearance is constitutive of the image's time.

This is not a wildly unfamiliar proposition: we can find 50 like it in the writings of Jean Baudrillard. In Baudrillard's writing, however, the evaporation and vanishing, the fainting of the image is symptomatic of the end of history in the triumph of the hyperreal. His task, he argues in *The Perfect Crime* (Baudrillard, 1996), is to confront the vacuum beneath the image. Ours is, I believe, rather different. It is to

confront the new fact, that vacuity, emptiness, self-destruction and philosophical nihilism are the hallmarks of the dominant contemporary ideology. The task of cultural critique is no longer then to reveal the hidden negations of a positive ideology, and to counter them with a negative dialectics of vanguard art forms. It is to confront the nihilism of the present, the self-mocking implosion that is dominant culture, and to unlock the positive power of the image.

The argument over stillness then concerns several major threads of cultural analysis. First, it asks whether it is possible to confront the universal negation offered by contemporary (global, late) capitalism at all, and if so whether it is possible to build alternatives (on the principle that mere resistance is a tacit acknowledgement of the dominant's right to dominate). Second, it asks which modes of stillness are in fact spatializations of movement, change, history and time, on the principle that space can be navigated but not changed. As the dialectical language of movements and moments has given way to the poststructural language of fields and zones, critical terminology seems to be abandoning the struggle, and celebrating the triumph of space, regardless of the work of transformation that remains to be done, and that will occur under any and all circumstances, though not at all for the best unless we take up the task of creating conditions for the emergence of futurity. Third, it queries the wisdom of the sublime. In still and moving images, sublimity stands for an exit from the communicable: the sublime is by definition unthinkable, unspeakable. It stands beyond history because it stands outside the social sphere. Beauty, by contrast, is speakable, communicable, social, thinkable. It hums with the life of those who make and appreciate it, and from them it learns its ethical role: to indicate, in its ephemerality, the change that is always coming.

My fear concerning the rollover image is that in certain forms and certain contexts it represents the future as a commodity: the next purchase. But it does so knowingly, admitting upfront that the next commodity is endlessly replaceable, that it is itself as vacuous as its potential image. The hyperlinked image is an icon of a commodity culture that no longer needs to pretend that satisfaction can be got from goods. There is instead a cycle of emptiness which depends upon the value of a new mode of labour, or what Jonathan Beller (1994) calls 'the attention theory of value'. As TV stations trade in the attention of their viewers, selling it on to advertisers in 30-second segments, we learn that our job is to consume images. We know that it is a meaningless profession, but it passes the time. At its highest and purest moments, this culture produces works of sublime (or vile) exemption from the toil of distracted looking, in films like *The Matrix* or on TV like *Millennium* that ask us to ascend to the empyrean or descend to Gehenna, there to recognize the truth of a culture which is abandoning history: that at the heart of it all lies nothingness. What Adorno believed to be the task of the avant-garde is already the daily bread of the mainstream. The task of visual culture at the beginning of the 21st century is to redeem popular culture from the avant-garde, from the professional elites of curators, programme-makers and commissioning editors.

In those images from *The Matrix* that give us the magical privilege of witnessing the instantaneous from God's timeless point-of-view, when movement freezes in space, and we have a mobile view of stasis, the film becomes a still image. It is

perhaps a logical outcome of the steadicam, the device that allows complex handheld movements without the use of cranes and without the wobbles of real hands. There is less contradiction in the shot in which the crowd freezes while Neo and Morpheus saunter through it than in these scenes, with Neo and the Agent captured in mid-air accompanied by a soundtrack. The film can still be viewed without ill effects because the sound and image are, at such times, at odds. If the score also froze to silence, there would be real cause for complaint, for it would indicate a far more total experience than the one on offer – a still image instead of an image of stillness. Silence, we are still free to say, is a special instance of sound, in a relation mirroring that between movement and stillness.

There are modes of movement which are pernicious then, and not only those that disguise stillness in their frenzy. There are inward-spiralling movements – a significant one is in Peckinpah's *Pat Garrett and Billy the Kid*, more recently one in *Magnolia* (the remake will have Aimee Mann singing 'It's not going to stop till you rise up'). North American cinema and much of the world arthouse cinema that makes its way into the metropolitan marketplace sees death as the *fons et origo* of meaning, as it is from Heidegger's being-towards-death to Baudrillard's (1993) *Symbolic Exchange and Death*. Films and television about destiny, from *Star Trek Deep Space Nine* to *Good Will Hunting*, are in love with that most powerful signifier of sublimity, the ultimate unexpressible and individualistic moment. Such a radical misunderstanding of death, when placed in the shrine at the heart of the culture, becomes a fetish. It surrounds the culture with an aura of finality. It renders death sublime, and the sublime deadly.

Beauty is more difficult. Comprised of the endlessness of change and connectivity, there are no ultimate things in the beautiful. The shallow nihilism of contemporary culture, high and low, resides in the illusion of profundity created by pretending that history comes to an end because I will die. The contrary opinion holds of the beautiful: of all the people who have ever or will ever live upon the planet, we are the only ones alive today. We are the only ones who can make history, under whatever conditions, because to be alive is a precondition for making history, and history-making is what our species does when it communicates. For this capacity for history-making to be maintained as a potential, we can no longer afford to devote the energies of the humanities to the praise of the past. In Santayana's phrase, who does not understand history is bound to repeat it, but this does not rule out the complementary rule: who regards only history is condemned to travel backwards into the future, the condition, it will be remembered, of Benjamin's apocalyptic angel. The problem is that too much humanities attention is focused on the textuality of the past, which renders it as object (presenting the onerous job of 'making it relevant'). What is vital about Santayana's conception is that we learn from the past the lesson of historical process: things change. Of itself this is neither good news nor bad. Bad results come from pretending that anything other than change is the case. What is significant about the communicative act is neither what it is nor what it is not but, in the poet MacDiarmid's (1967) words in the *Second Hymn to Lenin*:

> ... the principal question
>
> Aboot a work o' art is frae hoo deep

A life it springs – and syne hoo faur

Up frae't it has the poo'er to leap.

(p. 298)

History is the depth of life, the richness of interconnectivity, and the power to leap is a matter among other things of the seriousness of conception and the wealth of craft involved. Where high culture has abandoned craft, it has likewise abandoned its power to leap. Insofar as high and low have turned to mining the past they have lost the sense of historical process as a springboard, creating instead the past as a nightmare from which we struggle to awake, an unfinishing task.

The small issue with which this article began draws many of these issues into fine focus. The clash of cultural and disciplinary codes is a vital moment of innovation. The discrete and bordered discipline, we should learn from history, is bound to the construction of an object, and both its methodologies and its knowledges are subordinated to that principle occupation. But the category 'object' is objectionable to a temporal understanding, not least because it transforms thinking and knowing into attention and commodity. But contrary to common wisdom, time is not a commodity. Labour is a commodity. Today the labour undertaken by consciousness, whether sold by television stations to advertisers or paid for in academic salaries budgets, is a commodity, and the thinking it produces no more than Bourdieu's cultural capital. Bourdieu's concept, like that of the labour and the attention theory of value, is based on the individualized producer. Work, which is time-based, is not labour, though labour is its typical transformation under capital. Work is not the self-enjoyment proffered by TV or web-surfing MSN or music videos in chain-store gyms. Work is time-based because it is necessarily and primarily social. This social work is entirely typical of the moving image, under the strict descriptions which have been raised here. When Ezra Pound set out upon the epic *Cantos*, he described the epic as 'a poem that contains history'. History had its revenge, and contained poet and poem alike. History is the society of humans and their communications, a process in which our production of media is indistinguishable from our species, and constitutes it, now, as communication. To argue the distinction between stillness and movement, change and stasis, is to insist that there are modes of imaging that are in themselves pernicious, and that they contain among their numbers imaging that appears mobile only in order to defuse and diffuse the effort to make history, which is to make futurity.

The emergent disciplines, including visual culture and visual communication, have then the task of despatializing the culture, bringing time, change, movement and beauty to the forefront. That, after all, is the privilege of emergence. The question 'how present is the rollover?' is a life and death question, or rather a life or death question. In the being-towards-death, the rollover acquires meaning from its vanishing. In the perspective of emergence, it generates possibility through its becoming at the point of its supercession, that dialectical moment in which becoming other is the key. The upshot is anti-nihilist in its trajectory: visual culture has to be a positive force. This makes for a radical reorientation of the trade of criticism, away from critical distance and post-hoc analysis, towards reflective proximity and ad-hoc synthesis. The division between humanist critique and the

project of making can no longer be tolerated. The study of visual culture, in these early years, has before it the opportunity to move beyond the banalities of ideology critique to become a tool in the making of new media and new principles for the making and interacting with them. The task of criticism at the beginning of our century is to make possible.

References

Baudrillard, Jean (1993) *Symbolic Exchange and Death*, trans. Ian Hamilton Grant. London: Sage.

Baudrillard, Jean (1996) *The Perfect Crime*, trans. Chris Turner. London: Verso.

Beller, Jonathan L. (1994) 'Cinema, Capital of the Twentieth Century', *Postmodern Culture* 4(3), May [http://muse.jhu.edu/journals/postmodern_culture/toc/pmcv004.html#v004.3].

Drucker, Johanna (1994) *The Visible Word: Experimental Typography and Modern Art, 1909–1923*. Chicago: University of Chicago Press.

Drucker, Johanna (1995) *The Century of Artists' Books*. New York: Granary Books.

Ellis, John (1982) *Visible Fictions: Cinema, Television, Video*. London: Methuen.

MacDiarmid, Hugh (1967) 'Second Hymn to Lenin', *Collected Poems of Hugh MacDiarmid*, rev. edn. London: Macmillan.

Ministère des Affaires Etrangères (1996) *Cinéma: cent ans de cinéma français; brève histoire du cinéma français 1960–1990*. Paris: ADPF.

Mitchell, W.J.T. (1986) *Iconology: Image, Text, Ideology*. Chicago: University of Chicago Press.

Mitchell, W.J.T (1994) *Picture Theory: Essays on Verbal and Visual Representation*. Chicago: University of Chicago Press.

Schaefer, Dennis and Salvato, Larry (1984) *Masters of Light: Interviews with Contemporary Cinematographers*. Berkeley: University of California Press.

Spielmann, Yvonne and Winter, Gundolf (eds) (1999) *Bild – Medium – Kunst*. Munich: Wilhelm Fink Verlag.

Wachhorst, Wyn (1981) *Thomas Alva Edison: An American Myth*. Cambridge, MA: MIT Press.

Sean Cubitt is Chair of Screen and Media Studies at the University of Waikato, New Zealand. Publications include *Digital Aesthetics* (Sage, 1998) and *Simulation and Social Theory* (Sage, 2001), and a forthcoming book on special effects for MIT Press.

Address: Screen and Media Studies, University of Waikato, Private Bag 3105, Hamilton, New Zealand. [email: seanc@waikato.ac.nz]