

the rise of digital **multimedia systems**

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With this essay, I want to understand why interactive and relational media forms have become so ubiquitous so quickly. But to do this, we'll need to spend a few pages looping back through the past before getting to our analysis of digital systems.

In 1957 Ian Watt published *The Rise of the Novel*. Promptly recognised as a classic of cultural history, the book analysed 'the enduring connexions between the distinctive literary qualities of the novel and those of the society in which it began and flourished'.¹ This society—eighteenth-century western Europe—had become complicated. With the waning of the Church and the discrediting of the notion of the divine rights of kings, most European states were experiencing the rise of mercantilism motivated by an ascendant new class, the bourgeoisie. 'Common people' began to imagine that they might take charge of their own destiny. All this seemed strange. Unprecedented. Unguided.

So a story-form was perfected which allowed readers to consider options and anticipate the effects of actions. While imbibing a novel, readers could establish a scene—really felt but not entirely real—where they could pose some orienting questions. For instance: If I acted like this, what might flow from the assertion of my new freedoms? Or, how is the old, customary world being renovated by all the new experiences that are so suddenly available? Or, within these settings, what gaggle of testy characters, impulses and belief systems might I encounter as I grant my malleable personality imaginative latitude?

Seeking to understand why the novel emerged so quickly and with so much influence during the early eighteenth century, Watt started from the premise that artistic forms often mimic the psychological, social and political conditions prevalent in the particular era that gives rise to them. He contended that early novelists such as Daniel Defoe and Henry Fielding

developed literary techniques for dramatising the emergence of the bourgeois individual, with its private sensibility, its responsibility to create opportunities for itself and its need for self-reflective interior monologues with which to assess the relationship between the self and the world. Watt showed how writers quickly innovated some textual conventions to sketch settings and evoke the innermost thought flows and mood swings of focal characters in imagined narrative worlds, which readers could compare to their own, lived worlds. And he showed how these characters might stand in and speak for the readers themselves as they tried to grasp the intricacies of an ever-altering life of proliferating new detail and increased secular opportunity. In the way they worked on and in the reader, the novelistic characters were experimental and speculative rather than didactic.

Different from the allegory and the religious parable, which are part of the oral tradition and which reinforce established moral codes, the novel arose to facilitate ethical innovation, to help readers scrutinise the intellectual and emotional complications of an altering political universe. To this end, the novel was invented as a kind of new technology whereby readers could examine a psychic model of a possible personality. Referring to this model and matching it against their received knowledge of lived experience, readers could measure options for themselves. Here was a cultural form that empowered people to reflect on all the novelty that defined their changeful times. No wonder it was suddenly popular. It was needed. And it was shaped by and for the contemporary culture.

Watt shows that by examining the structural characteristics of new cultural forms, you can gain insight into periods of psychic, political and philosophical flux. By studying how aesthetic and semantic systems engage with the intellect and the sensorium of the user, you can understand the temper of the times. When a new form of art or a popular mode of communication arises and takes hold, it reflects changes that have recently occurred or are presently occurring in psychology and society. Or to say it bluntly, cultural forms tend to get invented and become popular at exactly the time they are needed. They cause change and, a little paradoxically, they also reflect how change has already commenced under the impulse of forces that are not principally aesthetic.

Contemporary cultural forms show us some of the occulted workings of our confusing moment. In this process, there is usually an interplay between intuition and intellection, between speculative proposition about what might be possible and reflective evaluation of what is already operative. This interplay creates discourse, which leads to analytical knowledge, enabling increased efficiency and evocative power in the cultural form as it continues to evolve in consort with the workings of the world.

Through this process, the novel would eventually be superseded (which is not to say eliminated) by a new predominant form of narrative modelling—cinema—which emerged at a time when individual psychologies were changing yet again, this time to absorb the modern

world's kinetics (hence the name: cinema). Thus yet another cultural form arose, this time to represent and analyse the tumult of sensory 'attack' that assailed every individual psyche once the speedy, mechanical modes of transport, communication and commodity production became widespread during the industrial revolution. With the machine age and the urban explosion it caused, the modern world was being newly defined by the way energy was expressed urgently within a newly compressed world of speedy, mechanical rhythm. And cinema mimicked this shift in impetus. It was consumed avidly worldwide, right from the outset, because it excited individual psyches with its percussive assemblages of nervous stimuli. Keenly attuned to each viewer's sensory experience within the urban-industrial tumult, it was the aesthetic form arising from the modern metropolis.

Political forces were thus at play in the rise of cinema. The start of the twentieth century, when cinema loomed all around the world, was a time when new nations and social masses were forming, when throngs were wondering how to fuse several scattered constituencies into new states. In conjunction with other distance-devouring technologies, especially the railroad and the telegraph, cinema helped individuals and communities imagine unified new worlds gathered in a spatio-temporal frame where previously there had been only estranged and disconnected populations clustered in locations that had been unable to synchronise across great administrative time lags. With the advent of cinema, audiences could envisage associations with far-flung people and places all meshing in 'organic' rhythms as fast as heartbeats and almost as quick as thought. The movies projected lively protagonists in a welter of social scenarios. Thus with the aid of cinema a new nation—a new social, spatio-temporal amalgam—could be envisaged where once it had been unimaginable.

Film editors deployed the principle of montage to federate new states of possibility. For the crowds assembled in the smoky theatres, seeing these new states could lead to believing. This happened in Japan, France, Britain, the USA and Australia, to name just the obvious cases. (It was the official reason for the establishment of John Grierson's legendary documentary unit in Britain during the 1920s: the unit was instructed to 'show the nation to the nation'.) Consider Australia circa 1901, at the inauguration of the federal government: cinema enabled people in Gympie, Sydney and Adelaide, let's say, to share a perceptual and a conceptual frame where they had previously been dissociated. An associative imagination was fostered. Civic reality and cinematic possibility: each impelled the other. A nation could be construed as a new federation, and this new order could be imagined in place of the squabbling states that had previously been misaligned in geographical and ideological alienation.

But cinema has its limits. Understanding this, we can start contemplating the rise of digital multimedia systems in our own era. A definitive characteristic of the movies is the way they 'lock off' their several dynamic parts into a final version, the 'release print'. This ultimate inflexibility of cinema is similar to the way most national-scale communities responded

LAST SEEN SMILING AT A CARNIVAL ROUSTABOUT.
 BACK FROM THE MOUNTAINS -- THINNER AIR IN HIS LUNGS.
 ROSES IN A VASE -- PETALS WAITING TO FLUTTER TO GROUND.
 HARD SMACKING RAIN. A MALEVOLENT ROAD.
 IN A HOLLOWED OUT WALL -- A BODY DEAD FOR SIX DAY



Screen-grab from *Life after Wartime* to the turbulence of modernity by insisting that their societies first synchronise energetically to the machine world and then stabilise permanently once the new political state was realised. As its production regimens drive toward 'lock off', cinema is a conservative form, like nationalism. Cinema and nationalism: each serves a popular, paradoxical desire for the acknowledgement and the cessation of change. Indeed, this is one of the traits we love about cinema: it shows us the thrill of energetic convergence and world-creation at the same time as it proposes an eventual end to flux and uncertainty. With a film, the final edit is a stable state, a kingdom of kinetic excitement with a reassuring climate of completion.

Comparing the nexus of cinema and nationalism with the contemporary dyad of digital media and transnationalism (or globalisation), we can ask whether digital multimedia systems have arisen to reflect and impel our contemporary psychic and social conditions. Like cinema, digital multimedia can federate disparate elements (sounds, texts, graphics, perspectives, vistas and audio-visual rhythms) into astonishing new configurations. These similarities prompted Lev Manovich, in his influential *The Language of New Media*, to create a myth about multimedia being first generated literally out of cinematic material, out of old film stock stippled with data-entry punctures in Konrad Zuse's 'digital computer' constructed in 1936.² But unlike cinema (and unlike nationalism), digital multimedia produces syntheses that are always explicitly provisional. (Yes, in this respect it is like transnationalism.) Because of the dynamics of its file structures and the integrating, evolving codes that get applied to those files, any digital multimedia configuration is a contentious event in a continuous process rather than a completed, content-full object; it is always ready to be dismantled and

re-assembled into new alignments as soon as the constituent files have been federated in response to momentarily prevailing ‘world conditions’.

In other words, because multimedia rarely gets ‘locked-off’, its component elements can always be pulled apart, sent back to their databases and then instantaneously rearranged into newly iterated federations. (Yes, in this respect it is like our unstable contemporary lives, so buffeted with ever-altering values, opportunities, anxieties and obligations all upwelling because of globalisation, migration and multiculturalism.) By dramatising divergence and dispersion as well as convergence, a digital multimedia system can react to variant stimuli from the environment or from its investigative participants (who are part of the environment, actually). Taking some of their dynamics from the channel-switching montage-effects that radio and television have always afforded, digital multimedia systems can re-conform themselves restlessly in ways that a cinema print is not designed to do. Such systems can reflect and impel how we live now in relational engagement within a myriad influences that are dynamically networked in constantly evolving systems of communication and stored, searchable information. Already these systems have become so much a part of everyday life that it is difficult to construe how radically they have altered our attitudes to the local, the remote, the immediate, the reverberant.

One challenge when writing about these protean new forms is that, on the page, it is difficult to bring in the concrete evidence. When writing about writing, one can quote an exemplary section of text and analyse it in text. By contrast, with a digital multimedia system, the commentator must evoke the exemplar verbally, in the alien medium of fixed text, before using those stolid words to analyse the system’s non-verbal potency and ‘shiftiness’. Similar issues confront the cinema critic, of course. But at least cinema now has a lexicon of tropes and a canon of ‘classics’, which can be nominated so readers and writers all know somewhat the thing they have gathered around. Because digital multimedia is such a new cultural form, there are few canonical references yet; it is still difficult to have confidence that everyone knows the cited examples.

Accordingly, I need to describe an example now so that I can focus my assertions. It’s a digital multimedia system called ‘Life after Wartime’ (LAW) that I’ve been developing with a team of collaborators.³ Responding to an extraordinary collection of crime scene photographs belonging to the New South Wales Police, LAW is a ‘story-engine’ or speculative ‘conjunction-machine’ that restlessly combines still images plus haiku-like texts plus musical sound files plus stimulus from the interactive user. The original archive is a jumble of evidence associated with actual people who have been caught in painfully real outbreaks of fate, desire or rage. Most significantly, the documents that you would expect to be attached to the pictures—the conclusive texts such as the prosecution case, the defence case, the judge’s summation, the jury verdict—all these documents are missing. Each crime scene is

represented by a dozen or so different photographic negatives swaddled in a tatty old buff envelope. Scribbled on each envelope, there's the name of a photographer, plus an often incomplete address plus a date and the photographer's guess at the crime being documented. And that's it, that's the extent of the interpretive cues offered by the archive.

Therefore we have to work with a collection of files that are meaningfully but contentiously associated with each other. Because of the 'aftermath quality' of the pictures, we cannot help but proffer stories to account for them; but because of the dearth of accompanying information, we must accept that our accounts will always be speculative, restless and inconclusive, no matter how well informed we might be, historically, about the town and the times that produced the scenes.

After several years analysing how to use the images in a provocative and evocative street history of Sydney, the LAW collaborators have composed a volatile sound+image device that mimics and further stimulates the dramatic disturbance that plays in one's consciousness when one encounters the photographs. This 'speculation engine' combines three reservoirs of files—images, caption-texts and musical sound components—all governed by relational attractions and repulsions that have been designed into the operating system: attractions and repulsions of image to image, image to text, text to sound, sound to image, and so on. Depending on what particular images the investigator chooses while the 'speculation engine' is throwing batches of pictures forward in turbulent patterns, the system gains cohesion according to the history of each investigator's interaction with the database. Over time, a set of micro-narratives and mood modulations accrue until eventually a kind of debatable meta-narrative builds up to account for the entire image-world of the archive. Crucially, each investigator will gather up a different set of micro-narratives and moods and each investigator will tend toward a larger story in idiosyncratic and personally stamped ways. Each investigator will encounter qualities of themselves as well as qualities of the archive. In part, it's yourself you find when you delve into this interactive archive. But it's yourself in relation to real patterned evidence shaped by a real patterned world.⁴

Engaging with 'Life after Wartime', you quickly deduce that you are not a reader or a receiver of this artwork. You are implicated as an investigator. You are figuring 'what if' propositions, making postulative relations between elements and observing how those relationships play out, how productive they might be. Sceptically and imaginatively, you are making and interrogating a possible world even as you are attuning to a world of pre-existent meaning while also considering the authorial, compositional tendencies that work through and against your own interventions in the artwork's system.

'Life after Wartime' offers you germs of stories which you both doubt and appreciate. With this sceptical yet postulative attitude, you wonder about the world that is witnessed in the pictures. You speculate about what might have happened. And you test those speculations

against the contextually established knowledge that you have already assembled. In other words, you wonder and worry away at what you presently feel to be true for those scenes. You align your interpretations with commonsense beliefs, with what is already agreed to have happened in the represented world and with what the LAW system keeps proffering as possible interpretations. Again and again, without rest, you must speculate and test. You are never receiving a single line of interpretation. Although you sense interpretive patterns and narrative lines emerging and evolving, conclusiveness does not beckon. Rather, you are amidst an ever-blooming dramatic hypothesis that is always offering many different foci and perspectives even as you determine your own particular line of inquiry.

In this respect 'Life after Wartime' is a kind of instrument with which you continuously strum ramifying chords in your mind—back and forth between memory and imaginative projection—so that an ever-developing concatenation of minor-key epiphanies can chime for you as you investigate and consider the ways to make sense of the seemingly endless power in the photographs. Colliding the images with haiku-short texts plus changeful music and city noises, you cause all these elements to commingle so you can essay multiple liaisons and then disengage them before seeking again another sparking chain of connections that might light up more portions of the occulted world represented by these crime scenes.

Speculate and test ... essay and assay. 'Life after Wartime' is meant to encourage this forensic rhythm in the imagination, the intellect, the spirit. It prompts a kind of divination. It is just one example of 'digital systems' art. I think of it as a 'dramatic database'. And I think of it as a kind of ecology defined by action contending with reaction, individual assertion contending with systematic resistance and adjustment.

Such art-forms are beginning to abound now. Consider the popularity of the 'Sims' dynasty of fictive, faux-ecological environments. Consider too, the swarm of activity and debates currently energising the practice of architecture now that digital systems have become interlaced in all stages of designing and building. Once the convergence, divergence and emergence that characterise digital culture are made the central concerns for architecture (as they are for the rest of contemporary life), our buildings begin to look, sound and feel radically different. They *behave* differently?

Responding to the dynamics of digital culture, such architecture can flex and alter according to the rhythms and aspirations of our times, according to the needs of its participants. Built environments are now being designed as patterned, combinative packages (both material and informatic); they take the form of operable databases of elements that can be searched, combined and activated to create combinative complexes that unfold and re-align through time. And crucially this operability is beginning to be understood as the right and responsibility not only of the architect but also of the inhabitants (who are better imagined as *participants*).

Attuned to the logic of digital culture prevailing elsewhere in contemporary society, how might we best define such habitable, participant databases, such digital environments? They are dynamic systems comprised of light, sound, imagery and texts driven by mobile machines and reactive agents all relating and deployed in space and time. They are most easily seen in amusement parks, theatre stages, convention centres, and flight-simulation and crisis-management training centres. But they will soon be more widespread. They are buildings designed like multimedia programs, reflexively algorithmic contraptions or organisms that are always being reconfigured by variable energies, options, emotions and interrogations. More than mere settings or accommodations, they are continuous, designed *events* where pre-conditions, tendencies and reactions are encouraged to play out. They are always in process. And rightly so. Let's not forget that the word 'building' signifies a noun-thing that is also an endless action energised by the verb inside it.

Once we have more digital buildings, we should see more clearly that our built environments are actively composed from *conjunctions* ... conjunctions involving people, of course: engineers, architects, government officers, artists, merchants, journalists, general public. But there should also be conjunctions restlessly brokered amongst stone, metal, other fabrics, reflected and refracted light, expansive and compacted spatial volumes, lines and colour fields forming patterns, volumes of sound, perspectives and obstructions offering stippling vistas for the eye, so long as time moves along and operating systems gather stimulus and make commands while inhabitants endlessly pursue their vectors. We might understand that our built environment is a digital multimedia system.

But why do the cultural forms facilitated by digital technologies really matter? Do they warrant serious attention from aestheticians and systems theory specialists? And why analyse them in the cultural history context that I established earlier by privileging the approach pioneered in *The Rise of the Novel*?

Here's one answer: the operative dynamics and the recombinative readiness of the file systems in digital systems closely mimic the dynamics and recombinative readiness of contemporary post-industrial societies. This notion first chimed for me when I read Michael Joyce's cultural history of hypertext, *Of Two Minds*. Early in the book, Joyce observes that hypertext is special because it is a means by which we can prioritise structural thought over serial thought.⁵ He explains how the cross-referencing and branching allowed by hypertext have arisen to serve a readership that is really a forensic audience, an audience looking to take charge of their own conviction, looking to *construct and test* rather than to *receive* their worldview. This is an investigative audience that knows there are many variabilities and volatilities defining life now, so many that it is implausible to rely on the reception of one line of argument or explanation (that is, serial thought), because the premises on which any one serial discourse is founded are always debatable and subject to rapid redundancy. Instead,

many people now are always looking to assess a multi-dimensional array of repercussions and possibilities associated with their every action in the world. No longer are people merely 'consumers' who are ready to accept the singular delineation of effect following cause following effect following cause. Rather, an investigative audience scans the field of lived and represented experience, assaying the strengths, weaknesses, opportunities and threats prevailing in the dynamic complex of tendencies, mutations and options that constitute the life of the somewhat free-willed subject today.

Or as David Mowaljarlai has described one aspect of the Indigenous Ngarinyin philosophy arising from his Kimberley country in north-west Australia, people can develop a kind of 'pattern thinking' that helps them know and heed and tend the force that 'swings' in a place through time.⁶ This pattern thinking is a determination to know the world dynamically, to know the ramifying, running pulses of connections amongst every component thing in the energised world. It's a determination to know *complexity*. The etymology of this word is instructive. 'Complex' derives from the Latin *plectare*, to braid or plait. Thus when something is complex, it has many components and, crucially, these components come from *outside* the immediate configuration. When something is complex, it is receiving changeful, new elements and influences all the time. This makes complexity different from complication, which derives from the Latin *plicare*, to fold. When something is complicated, it takes on intricate patterns formed out of a complete, established fabric. With complication, old folds can be smoothed out and new ones tried out, but nothing elementally new comes into the system that's being manipulated. (Of course, intricacy can occur in either instance, complexity or complication. Intricacy: from the Latin *tricare* meaning to puzzle or trick.) Hence, 'complexity' is the right word for grasping how ecological or open-system circumstances evolve. At any moment, complications are occurring in these complex circumstances—these changescapes—but over time, new elements are always braiding into their systems and old elements are always leaching away, thus engendering the changeful complexity that is so characteristic when energetic circumstances are bounded only porously.

Digital multimedia systems have arisen partly to address the contemporary need for cultural forms that enable us to think and feel in synch with the volatility of contemporary existence. This volatility is complex rather than just intricate or complicated. Borrowing some phrasing from Michael Joyce, I contend that digital multimedia databases have arisen and become popular because they prioritise complex (or poststructural) thought over complicated (or structural) thought and over intricate (or serial) thought. Responding to the quickness and mutability of digital and transnational cultures, we need cultural forms that allow us to become sceptical and curious investigators of changeful systems. We need operable, speculative databases that surge with ideational and affective elements that can be searched, combined and activated to create complexes that unfold and re-align, that evolve and devolve,

that converge and diverge through time. And crucially this operability must be accepted as the right and responsibility not only of the author or designer but also of the participants.

As the multimedia artist David Rokeby has observed, with digital aesthetics one aspires to create *relationships* rather than finished artworks and one yearns to participate in systems which 'reflect the consequences of our actions or decisions back to us'.⁷ To the extent that an interactive system is relational, cross-referential and meretriciously re-configurable, it is an aesthetic model of our dynamic everyday experience, our experience in the turbulent re-configurative world of globalisation, but also our experience in the delicate, complex world of ecological obligation, a world in which our responsibilities for our own environmental conviviality must be distributed relationally across space, time, class, nation, race, bio-habitats, gender and all the other seeming 'fixities' that once locked the West into a hierarchical armature.

More than just an informatic or technical tool, every multimedia database—even the most expedient or functional—is infused with aesthetics and semantics. Every multimedia database involves human–computer interaction and is therefore 'dramatic' and evolutionary somehow, because the interaction introduces novelty or change which challenges the established configurations of the system. Considered as an exemplary cultural form, the interactive multimedia database has a cultural history at the same time as it represents an innovative break with other representational forms such as the novel, the oil painting or the cinema feature. This cultural form has arisen to address the psychic and social dynamics of our times. It can be used for dramatic and aesthetic purposes, used like music, painting or cinema to tingle the intuition, to intertwine emotions and ideas, to conjure experiences of complexity and richness which help us reflect upon our everyday experiences as desiring and conspiring citizens.

Having blundered into this poignantly utopian position, can I get encouraged momentarily by the fact that database thinking is open-ended, investigative and restless rather than conclusive? Can I point out how we need theories that are informed by more than just linear-narrative explications and cinema history when we analyse the cultural worth of digital multimedia systems? Can I suggest that 'fugitive' enthusiasms such as gardening theory, ecological philosophy and even aquarium design probably provide more useful kits of wisdom to help us comprehend complexity and contemporary social dynamics? As any gardener knows, it's a complex enterprise, maintaining an unruly plot of barely bounded vitality. And as Voltaire knew, when one cultivates one's garden, one retracts into a zone where one can reflect upon the cosmos.

It seems appropriate to pose questions and provocations such as these to finish this essay's momentary inquest into changeful cultural forms. And it seems right to finish by promising to start again, by resolving to look into natural–cultural systems such as gardens and ecological regimes. For they indeed they do 'reflect the consequences of our actions and deci-

sions back to us' (but in a complex rather than mechanistic way) and they do have a chance to grow endlessly, responsively and relationally, like processes rather than finished products, like stimulants rather than analgesics.

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1. Ian Watt, *The Rise of the Novel: Studies in Defoe, Richardson, and Fielding*, Penguin, Harmondsworth, 1963 (first published by Chatto & Windus, 1957), p. 7.
 2. Lev Manovich, *The Language of New Media*, MIT Press, Cambridge (Mass), 2001.
 3. Kate Richards, producer; Greg White, programmer and sound design; Aaron Rogers, graphic design; Chris Abrahams, music and sound design.
 4. See the website <www.lifeafterwar.time.com>.
 5. See Michael Joyce, *Of Two Minds: Hypertext Pedagogy and Poetics*, University of Michigan Press, Ann Arbor, 1995.
 6. David Mowaljarlai, ABC Radio feature, quoted in Stephen Muecke, *Ancient & Modern: Time, Culture and Indigenous Philosophy*, UNSW Press, Sydney, 2004, p. 172.
 7. David Rokeby, 'Transforming Mirrors: Subjectivity and Control in Interactive Media', in Simon Penny (ed.), *Critical Issues in Electronic Media*, State University of New York Press, Albany, 1995, p. 152.