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A F F E C T S

Intermedial Images

between

Art

Philosophy

and

Science

J U L A I N N E S . S U M I C H

2 0 0 6

But art is never an end in itself; it is a tool for blazing life lines

... 

Deleuze & Guattari 1987

A Thousand Plateaus: Capitalism & Schizophrenia 187
**Preface**

The intermedium between art and science is a healthy antagonism that gives leverage to thinking. It finds a resonance with self-organizing processes in the human nervous system where opposing forces work autonomously in unison with each other as progenitors of action.

The scientist Alfred I. Tauber draws attention to the tension between art and science as a longstanding preoccupation in Western thought, in the sense that “it captures the ancient conflict of Apollo and Dionysus over what deserves to order our thought and serve as the aspiration of our cultural efforts.”

I write of the intermedium as a process of affect between the opposing forces of any mediums. While beyond our conscious capacity to decide its merit in ordering our thought it is crucial to the genesis of thought and deserves our attention. Its only aspiration is that from the intermedia caught up in the oscillations between the arts and sciences new signs of creative potential in their expanded fields might emerge.

Towards this aim this dissertation will provide: a new chapter in the history of the intermedium; thought experiments in new media and digital film in relation to mathematic equations and neuroscience; lenticular images and their visceral affect on the viewer; “event-related potential in the brain” in processing novelty.

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Chapter 2. *Noosigns: Images of Thought Affecting Narratives* P. 20


Chapter 4. *Processing Novelty II* P. 71

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CHAPTER SUMMARIES

My dissertation is principally about the interaction between intermedial art and thought processes. It is organized into four chapters related through this principle. Conference papers that I presented during the period of my doctoral research are here expanded in dissertation form to offer insight into critical issues in the contemporary arts.

The first chapter introduces a passage on the term *intermedium* by Samuel Taylor Coleridge; until now unnoticed in the history of intermedia arts. It shows a chemistry to be at work in Coleridge’s use of the term in critical thought. Drawing on affects between Coleridge and Dick Higgins, the initiator of the term in a 20th century fine arts context, the chapter deducts an affects-based hypothesis that the intermedia arts are fundamentally philosophical, scientific as well as artistic in origin and character.

Holding this hypothesis to be sustainable, and that it indicates a manner in which images of thought affect narratives, the second chapter examines correspondences between the mediums of art, philosophy, mathematics, and neuroscience as thought experiments. It shows that digital art authoring environments are ‘smooth spaces’ for testing these experiments as models of alternative narrative structure.

From these models comes a new term, *noomontage*, derived from Gilles Deleuze’s *noosign*; his term for a cinematic time-image of thought.

In the third chapter the theory of affect is applied to body and brain through the interlacing processes of lenticular imaging. Its matrix of *Light Affects* combines the engagement of the spectator with the gravity of perception. Taking parallel positions to their affect the writing interlaces divergences of thought between tissues, techniques and text.

The final chapter reprises questions raised at the University of Auckland symposium on *Processing Novelty* in 2004. My endeavour is to make the event-related potential of the human mind visible now, in its response to novelty.
CHAPTER 1

Confusion and conceptual fusion: the intermedium
of Samuel Taylor Coleridge (1772–1834)
and Richard Carter Higgins (1938-1998)

The intermedium as a subject of controversy
Conceptual fusions of the intermedium
Summary of confusions
Summary of conceptual fusions
Conclusion
Coda

chemistry n. 1 the branch of physical science concerned with the composition, properties, and reactions of substances. 2 the composition, properties, and reactions of a particular substance. 3 the nature and effects of any complex phenomenon: the chemistry of humour. 4 Informal. a reaction, taken to be instinctual, between two persons. Collins English Dictionary 21st Century Edition
The intermedium as a subject of controversy

Narrative allegory is distinguished from mythology as reality from symbol: it is, in short, the proper intermedium between person and personification.

S.T. Coleridge

“Here we have it - Coleridge uses the term to signify exactly what I have done. What I might have known of it or not before having created it myself is subject to controversy.” Dick Higgins

In the historical context of intermedia as an art form there is confusion over the initial source and date of the term, and its subsequent use. The principal protagonists of its singular form, the intermedium, were Samuel Taylor Coleridge and Dick Higgins.

By introducing new material from Coleridge this essay attempts to disentangle the confusion and contribute new complexity to the discourse on intermedia. My aim is not to challenge Higgins’ use of the term but to expand on the intermedium’s potential in its relations between art and science.

Higgins states that Coleridge used the word “only once” in Lecture III [on the poet Edmund Spenser]. He goes on to say: “I might very well have read this word at Yale, where I read almost all the writings by Coleridge, but if this is the case, I no longer remembered the word when I started to use it.”

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2 My translation of “Ici nous l’avons - Coleridge utilise le terme pour signifier exactement ce que j’ai fait. Que je l’aie connu ou non avant de la créer moi-même est sujet à controverse.” Dick Higgins 1998 in Dick Higgins 1938-1998 Intermédia (Canada, Quebec) Inter Éditeur, Le Lieu, Centre en Art Actuel, Les Éditions Intervention Inter 73, Juin 1999 p.5

3 Ibid. My translation of “J’ai très bien pu lire ce mot à Yale, où j’ai presque tout lu des écrits de Coleridge, mais si c’est le cas, je ne me souvenais plus du mot lorsque j’ai commencé à l’utiliser.”
Although forthcoming about acknowledging him, Higgins, for many years, did so without citing the source in Coleridge's works, making it difficult for those interested to trace the context of how the initial use of the word was so like his own. Without his elaboration on the significance of the source made a mystery of why the term had so affected him. In a discussion around poetic synthesis between the arts Nicholas Zurbrugg suggests its relation to “one of your key terms: ‘intermedia’” to which Higgins responds:

I revived this term from Coleridge. He used it in a lecture that he wrote in 1814 and which he published in 1816, and used it only once as far as I know. But it was such a striking notion that when I came across it, it was easy to pick up.

What was it about Coleridge’s use of the intermedium that gripped Higgins’ imagination? What was the “conceptual fusion” by which he defined intermedia in contrast to multimedia? Was it what Coleridge meant by narrative allegory being “the proper intermedium between person and personification?” Ultimately, research by Thomas Dreher on the early years of action art and intermedia provided the source of this instance of the term as Coleridge’s Miscellaneous Criticism.

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4 Friedman, K. 1998 Ken Friedman’s contribution to “FLUXLIST and SILENCE Celebrate Dick Higgins” http://www.fluxus.org/higgins/ken.htm (29 12 04) “Higgins coined the term “intermedia” in the mid-sixties to describe the tendency of an increasing number of the most interesting artists to cross the boundaries of recognized media to fuse the boundaries of art with media that had not previously been considered art forms. Higgins noted that Samuel Taylor Coleridge had used the term over a century and a half before he himself independently rediscovered it.


6 Ibid., p.24

7 Raysor, T. M. (ed.) (1936), Coleridge’s Miscellaneous Criticism, London Constable & Co Ltd. p.33

AFFECTS

Higgins had previously given 1812 as its date \(^9\) whereas Coleridge’s Lecture III is authenticated as 1818. \(^{10}\) Why the different dates in the Zurbrugg interview? Had Coleridge used the term more than once? Searches on Coleridge + intermedium linked to an article \(^{11}\) containing passages from Coleridge’s Biographia Literaria \(^{12}\) including emphatic italicized use of the intermedium \(^{13}\) in terms of chemistry, written a year before its use in Lecture III on Spenser.

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\(^{10}\) Coleridge’s Miscellaneous Criticism, edited by Thomas Middleton Raysor, London Constable & Co Ltd 1936 p.3 “Lecture III Tuesday evening, February 3. Chaucer and Spenser; of Petrarch; of Ariosto, Pulci, and Boiardo. 1818”; see p.28 note 1 (watermark of first draft 1817); p.32 note 4

\(^{11}\) Milne, D. “Flaming robes: Keats, Shelley and the metrical clothes of class struggle” Textual Practice 15(1), 2001, p.106 http://taylorandfrancis.metapress.com/media/1B22YJMRRLST17HP9G77iContributions/A/G/T/M/AGTMCB3580T0R4YW.pdf (29 12 04)


\(^{13}\) Ibid. P.95
Conceptual fusions of the intermedium:

Coleridge started writing his *Biographia Literaria* in 1815 and published in July 1817. In February 1818, he delivers the lecture on Spenser. Having read almost all Coleridge's writings in his youth was Higgins also familiar with the *Biographia* critique of Wordsworth? The dates Higgins gives in the Zurburg interview are only a year out on the dates of its writing and publication. If it is correct that Higgins used only the 1818 passage, I suggest that in that instance Coleridge's use of the intermedium is in-formed by his use of it just seven months prior i.e. in the sense of its chemical or transformative agency. I also suggest that Higgins' understanding of the intermedium bears traces of its agency in altering the state of elements.

It has been argued that Coleridge's use of the intermedium “was different in meaning and in form” than Higgins'. Given their different cultural and temporal contexts that is to be expected yet reading between their writings and between Coleridge's on Spencer and Wordsworth indicates a closer intertextual relationship than previously considered. My hypothesis is that Higgins adapted a tone and mode of thought that resonates with Coleridge's stylistic and conceptual use of the term, intermedium; and that the intermedium's affect on Higgins led him to understand the term as indicating an intensification and fusion of particular elements in the experimental mix between combined mediums. The first proposal suggests that Higgins felt an “intermedium of affinity” with Coleridge, leading him to adapt Coleridge's mode of thought in his own critical practice. The second point stems from Higgins' comprehensive reading of Coleridge concurrent with taking courses in experimental forms of composition given by the avant-garde composer John Cage.

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14 http://etext.lib.virginia.edu/stc/Coleridge/resources/time_line.html#1812
15 Friedman, K. op. cit. "Coleridge's use of the word "intermedium" in Lecture Three: ‘On Spenser’ suggests a distant kinship to Higgins's construction of the term "intermedia." Nevertheless, Coleridge's usage was different in meaning and in form."
16 Dick Higgins 1938-1998 *Intermédia* op. cit. p. 2 “C'est ainsi que durant l'été 1958, j'ai suivi deux cours avec Cage, musique pendant la semaine et champignons les weekends.” (So it was that during the summer 1958 I took two courses with John Cage, music during the week and
With these combined interests in poetry and music would he not have been attracted to Coleridge’s critique of Wordsworth in *Biographia Literaria* on the role of *metre*\(^\text{17}\) in poetry – where the initial use of the intermedium occurs?

### 1. *a tone and mode of thought*

When read without the 1817 use in mind, the 1818 passage seems to be talking about personification in the literal sense. When read with an awareness of the earlier passage’s different contextual material it takes on a new significance. That is, it indicates an additional layer of complexity, which Coleridge refers to as “the superadded metre”. It is the affect that metre has on words. Not only is Coleridge referring to narrative allegory as seen in a character such as Milton’s *Old Stupidity*\(^\text{18}\) but also to “the proper intermedium between person and personification” as a conceptual image.

Higgins echoes these two aspects in his critical essay, “Intermedia” (1965), where *Sir Fretful Callous* features in contradistinction to his concept of an art “that seems to fall between media.”\(^\text{19}\)

The mordant wit used by the two writers binds the opposing elements by their intermedium interaction. It seems to mirror mutual disturbances in their personal lives; Coleridge’s estrangement from William Wordsworth,\(^\text{20}\) Higgins fall-out with fellow Fluxus founder George Maciunas.\(^\text{21}\)

Is it possible that Higgins, fired up by this split, found a trigger in Coleridge’s tone and style when he wrote his essay? Whatever the personal implications, both critiques had the desired affect of rousing the cultural interest of their time. Within a year of his first use of the term “intermedia” Higgins had

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\(^{17}\) *metre* Prosody: the rhythmic arrangements of syllables in verse, usually according to the number and kind of feet in a line. *Music*: another word for *time*. [from Greek *metron* measure]\(^\text{18}\)

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\(^{18}\) Raysor, Coleridge Lecture III p.31

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\(^{20}\) A. Quiller-Couch 1919 in: Sampson *Biographia Literaria* op. cit. pp. xxxviii - xxxix

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collected “hundreds of citations” from press clippings. Coleridge, for his part, had used the term in a similar strategy for inducing critical thought.

In “Flaming Robes: Keats, Shelley and the metrical clothes of class struggle” Drew Milne cites passages by Coleridge alongside other poets that indicate a measure of their “dressing up” poetic language to retain, or change and advance, the ‘fashioning’ of critical judgments in 19th century England. 23

In *Biographia Literaria*, Coleridge argues that metre works to balance the antagonisms of spontaneous efforts and the supervening acts of willed judgment. Balance requires ‘an interpenetration of passion and of will, of spontaneous impulse and of voluntary purpose.’ [BL 90] He goes on to say: ‘metre resembles (if the aptness of the simile may excuse its meanness) yeast, worthless or disagreeable by itself, but giving vivacity and spirit to the liquor with which it is proportionally combined.’ [BL 92] Uncomfortable with such small beer, Coleridge later tries a more scientific simile: ‘whatever else is combined with metre must, though it be not itself essentially poetic, have nevertheless some property in common with poetry, as an intermedium of affinity, a sort (if I may dare borrow a well-known phrase from technical chemistry) of mordaunt between it and the superadded metre.’ [BL 95] 24

Milne’s article is concerned with the art of poetry. Thanks to access to his research, my essay is the first to develop the intermedium as a scientific metaphor in relation to research on intermedia art.

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22 Dick Higgins 1938-1998 *Intermédia* op. cit. p.5 “dans ce laps de temps, j’ai récupéré plus de cents significations.”
23 Milne, D. “Flaming robes” op. cit. p.106
24 Milne, D. “Flaming robes” p.105
Milne’s interest is in Coleridge’s manner of address. What caught my attention was the intermedium’s connection to experimental chemistry. The three passages build in intensity: from a balance between reason and passion, to intoxication to combustion. From this perspective I suggest that ‘the flaming robes of criticism’ were intended to induce a physical and mental reaction i.e. each of Coleridge’s uses of metaphor has a synaesthetic affect: a sensation of creative equilibrium, then a pleasant taste to the palate, followed by a chemical hangover. They are different intermedia of affinity interrelated in different measure throughout Coleridge’s critique, to bind the interest of the audience without them knowing the means of its chemistry.

As far as metre acts in and for itself, it tends to increase the vivacity and susceptibility both of the general feelings and of the attention. This effect it produces by the continued excitement of surprise, and by the quick reciprocations of curiosity still ratified and still re-excited, which are too slight indeed to be at any one moment objects of distinct consciousness, yet become considerable in their aggregate influence. As a medicated atmosphere, or as wine during animated conversation, they act powerfully, though themselves unnoticed.  

Do these examples of Coleridge’s poetic diction find a correspondence of thought in Higgins notion of conceptual fusion?

… with intermedia there is a conceptual fusion, and you can’t really separate out the different media in an integral way…. They all have to go together, or you simply do not get the aggregate experience.  

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25 Sampson, BL p.91 italics Coleridge
26 Looking Back op. cit. p.24 italics Higgins/ Zurbrugg
I want to turn now to Higgins’ writing, and suggest that it is fashioned through a similar layering and oscillation of mediums different in kind. In “Intermedia” he contends that: “much of the best work being produced today seems to fall between media.” He goes on to note Duchamps [ready-made] art practice “between sculpture and something else”, and the political power generated by invasions between collage and photography. He sees the ready-made, “in a sense an intermedium since it was not intended to conform to the pure medium” as usually suggesting a similar political agenda situated between “the general area of art media and those of life media.” Higgins relates this to the collage of “incongruous objects” or “combines”, and remarks on how Allan Kaprow “began to include live people as part of the collage, and this he called a ‘happening’.” In his own direction, Higgins systematically replaced the structural elements of theatre (such as the script) “with change”. For example, the audience’s reaction to changes in the lighting and the performance’s reaction to that reaction: “the performance-audience separation was removed and a happening situation was established.”

From an in-between space Higgins draws the combined affect of objects from the everyday world, to the spicing-up inclusion of the human object, to the highly variable orientation of mental and physical coordinates. His account, like Coleridge’s, deploys an intensification of aesthetic strategies to engage audience participation. The conceptual mode of both poets stimulates visceral and perceptual reactions happening outside cognition in “an uncharted land” of the reader/spectator experience.

Thus the Happening developed as an intermedium, an uncharted land that lies between collage, music and the theater. It is not governed by rules; each work determines its own medium and form according to its needs. The concept itself is better understood by what it is not, rather than what it is.

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27 Higgins, A Dialectic of Centuries op. cit. pp12-16

28 Ibid., p.16
If Higgins was familiar with Coleridge’s comments on “aggregate influence” we can surmise that he was also familiar with the passage on the intermedium from technical chemistry a few pages further into the text.

2. an intensification and fusion of particular elements

When Coleridge asks why it is that metre has the power to stimulate attention, part of the answer lies in his allusion to chemistry. Aware of the popularity of public lectures on scientific experiments, his “intermedium of affinity,” a sort of mordaunt, fuses linguistic terms essentially different in style to ‘chemically’ prepare the audience’s ‘take’ on metre’s binding affect.

The intermedium as a technical term takes on an artistic force by which any mediums’ elements undergo not only a transformation in relation to one another but also forge the idea that embodies the exchange of energy as an intensified image of thought.

The use of the term in chemistry almost certainly entered Coleridge’s vocabulary due to his friendship with the physicist and experimental chemist, Sir Humphry Davy, himself an “accomplished poet.”

Lisa Moren’s research on Dick Higgins and Intermedia art endorses the connection to Davy, and Coleridge’s interest in the power of chemical reactions. Evidently unaware of Coleridge’s earlier use of the intermedium, Moren speculates on its agency as a technical binding medium in juxtaposition.

29 Sampson, BL, p. 93
30 affinity Definition 6 Chem. 6a the force holding atoms together in a molecule; chemical attraction 6b a measure of the tendency of a chemical reaction to take place expressed in terms of free energy change.
31 Sampson, BL Notes, p.306 mordaunt. A mordant is a substance used to prepare textile fabrics for receiving colours that would not ‘take’ otherwise. Fabrics are usually treated with the mordant before the colour is applied.
32 Ibid. BL p.88; and McKusick, J.C. 1986 Coleridge’s Philosophy of Language (New Haven and London) Yale University Press pp. 113 - 118
33 Root-Bernstein, R. “A Common Creative Aesthetic” in Tauber, op. cit. p.53
to his relationship with Davy, from whose lectures Coleridge renewed his “stock of metaphors.”

The free exchange of their ideas reflected Coleridge’s interest in the interrelationship between chemical affinity and Naturphilosophie. With Davy’s consequent move towards more mechanical structures, Coleridge in 1812 became acquainted with Hans Christian Oorsted’s theoretical chemistry that “retained the Nature Philosophers’ emphasis on dynamism, unity, and polarity.”

A similar dynamic synthesis of difference informs Coleridge’s criticism when he writes: “All the fine arts are different species of poetry. The same spirit speaks to the mind through different senses by manifestations of itself, appropriate to each”

Dick Higgins quotes from this passage on two occasions, citing Coleridge as the source and the date as 1814 (rather than the correct date 1817). The second occasion is in Some Thoughts on the Context of Fluxus written in 1978. Its source is footnoted as Biographia Literaria proving Higgins familiarity with the text, but not necessarily with its passage on the intermedium.

To intensify and fuse the intermedium between Coleridge’s two usages of the term I want to revisit and consider the second instance of 1818 in light of the discussions previously considered. Writers have taken different meanings from this passage on the intermedium. My interpretation takes into account

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40 Other interpretations of the passage on Spenser: Moren, op. cit. p.2, “Coleridge constructs the word “intermedium” to compare Edmund Spenser’s (16th century) traditional use of medieval allegory with William Shakespeare’s (17th century) superior sense of timelessness in his work”.

the connection to allegory which forms the base\textsuperscript{41} of the passages to be discussed. It also an attempt to see through Higgins’ eyes what it was that seized his imagination. The gist of the 1818 sample is that narrative allegory is the proper intermedium between person and personification. In his preceding paragraph Coleridge describes “the nature of allegorical writing” as:

\begin{quote}
the employment of one set of agents and images to convey in disguise a moral meaning, with a likeness to the imagination, but with a difference to the understanding, - those agents and images being so combined as to form a homogeneous whole.\textsuperscript{42}
\end{quote}

\textit{With a likeness to the imagination, but with a difference to the understanding} suggests that the intermedium can be taken as a fusion of “agents and images” that transforms what is already known into a different mental image. Coleridge adds: “In an allegory there may be that which is new and not previously admitted.”\textsuperscript{43} Is this the context of the intermedium that catalyzed for Higgins “an uncharted land ... not governed by rules ... a concept better understood by what it is not”?

An expanded view of the use of the intermedium in this context incorporates the idea of the ‘mordant’ (in the 1817 usage) as a fixative and intensifier of ‘colour’ in whatever is to be thus affected; that allegory comprises a process that casts an otherwise invisible characteristic between an actual being and what typifies that being.

\begin{flushright}
Friedman, op. cit. “Coleridge referred to a specific point lodged between two kinds of meaning in the use of an art medium. Coleridge’s word “intermedium” was a singular term, used almost as an adjectival noun. In contrast, Higgins’s word “intermedia” refers to a tendency in the arts that became both a range of art forms and a way of approaching the arts.”
\end{flushright}

\textsuperscript{41} Raysor, p.32 footnote 4
\textsuperscript{42} Ibid pp. 32-33
\textsuperscript{43} Ibid p.33
In other words the intermedium intensifies and fuses the experiential processes between actuality and patterns of that actuality in the mind, generating a ‘personified’ image of conceptual thought.

Knowing that Higgins did read Biographia Literaria and uncertain whether he in fact read its intermedium passage it can be said that whichever way the 1818 usage is understood the affinity between Coleridge's and Higgins' antagonistic use of personification gives leverage to the conceptual personifications of their individual critical concerns.

**Summary of confusions:**

Higgins was familiar with Coleridge's notes on criticism in Biographia Literaria written 1815> and published 1817. [Horizons]

According to Higgins' the date for these notes BL is 1814. [Horizons]

Higgins refers to finding the term *intermedium* in a Coleridge text written 1814 and published 1816. [Zurbrugg interview].

Higgins refers to the term as being part of a lecture on Spenser. [Zurbrugg interview].

**Summary of conceptual fusions:**

Higgins, by citing 1814 and 1816 as references for his use of the term was referring to Coleridge's use of the intermedium in BL (1815 > 1817), and confused this instance with the later passage in Lecture III on Spenser 1818

The conceptual process alluded to by Coleridge as a transformative (chemical) process in BL intermedium 1817 informs the understanding of the intermedium in Lecture III 1818

The term intermedium refers to the chemistry between elements of different character.
Coleridge's ideas on syntheses of dynamic difference contained in *Biographia Literaria* influenced Higgins in his critical response to experimental forms of contemporary art that generated a dynamic interplay between their mediums' 'natural' elements.

**Conclusion:**
A chemical bond gives substance to the conceptual use of the intermedium. Through their respective interests, and perhaps, personal experience of chemically-induced alteration of their mental states, Coleridge and Higgins emphasise how the dynamics in play between elemental forces engage and change human perceptions. A correspondence between art, philosophy, and science has to be taken into account in any measure of the intermedium from 1817 to the present.

As for the chemistry between Coleridge’s conceptual style and Higgins’ this cannot be proven only hinted at as a form of transduction where the energy of one transforms into the inspiration of another. Is there “a domain of interwoven consciousness” named by the paleontologist Pierre Teilhard de Chardin as the *noosphere*? Are thoughts “eye-beamed” across time and space as suggested by the architect/engineer, Richard Buckminster-Fuller?

Like Coleridge, through his use of the *intermedium* Higgins provided a catalytic expression pertinent to the critical aesthetics of his time and the future. Ironically, where his use was to identify the variables in art, today it is needed to challenge a mindless homogenization of the arts and critical thinking.

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44 see Dick Higgins 1938-1998 *Intermédia* op. cit. p. 2; Sir Arthur Quiller-Couch, introductory essay in *Biographia Literaria* op. cit. xxvi - xxviii

45 Besides examples already given a further comparison appears in Coleridge Bl. p. 88 and Higgins “Some Poetry Intermedia” in *Dialectics* p.87: both use geometrical principles to image the properties of essence as being incommensurate with actual experience.


47 R. Buckminster-Fuller introduction to *Expanded Cinema* by Gene Youngblood, 1970 Great Britain London Studio Vista Limited p.29
Recognition of cybernetic technologies’ cultural impact, articulated by Marshall McLuhan in Understanding Media (1964) and The Medium is the Message (1967), has led to integration of media studies and multimedia design in educational systems worldwide.

At the same time, attraction to the power of the intermedium to affect change between media remains in effect. Lisa Moren has outlined the broad international sweep within the last decade of intermedial programmes and artistic methodologies, drawing attention to its rise in Eastern European countries emerging from repressive regimes.48

Coda

When he used the plural form in “Intermedia”, Dick Higgins was indicating the many divergent forms that might be generated between different media practices.49 When he later considers what it was that holds diverse practices together he comments on different inter-mediums, including “the art of thought, philosophy”, as belonging to “‘different species of poetry’”50

An early example of the philosophical inter-medium is Expanded Cinema where Gene Youngblood sees the emergence of an intermedial network between cinema and consciousness: “When we say expanded cinema we actually mean expanded consciousness… Expanded cinema isn’t a movie at all: like life, it’s a process of becoming.”51

A differently open-ended interactive process of intermedial thought engages Henk Oosterling’s questions concerning the essential role of the ‘inter’: “What does the “inter” in intermediality, beyond its artistic and political

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48 Moren, op. cit. pp. 2-5
49 Higgins, A Dialectic of Centuries op. cit. pp 12-17. In his essay Higgins does not use the term intermedia in the sense of a singular noun. He uses the term intermedium five times; the phrase “the use of intermedia” three times; intermedia in its multiple inclusive sense twice.
50 Coleridge BL 1817 quoted by Higgins 1978 in Horizons 1984 op. cit. pp 93 -95
51 Youngblood op.cit. p.41
implications, point towards? Indicating a quantum of indeterminacy he goes on to say: “The in-between is the movement that inevitably positions beings. But notwithstanding this inevitable fixation, the movement of the in-between cannot be reduced to positions taken.” Oosterling seems to be alluding to the uncertainty principle regarding the variable nature of things in correspondence with one another.

As a pre-fix for the future inter can be seen as the position of being in the process of becoming i.e. the pre-individual condition of the inter-medium is the inter-esse, the being-between things before becoming individualized, fixed or fused.

This is why research on the intermedium is so remarkably interesting. Becoming inter-medial is “a question of emergence … the notion of self-organization”; a measure of the autonomy of affect.  

53 Ibid., p.44
CHAPTER 2

When two or more discrete media are conceptually fused, they become intermedia. They differ from mixed media in being inseparable in the essence of an artwork.
Dick Higgins Horizons: The Poetics and Theory of the Intermedia 1984

Between different types of aesthetic image, scientific functions, and philosophical concepts, there are currents of mutual exchange, with no overall primacy of any one field. The relation between cinema and philosophy is that between image and concept. But there’s a relation to the image within the concept itself, and a relation to the concept within the image: cinema, for example, has always been trying to construct an image of thought, of the mechanisms of thought.
Gilles Deleuze Negotiations 1995

Different patches of stimuli oscillating at the rhythm of their magnetic field strength interact with each other. The oscillation generates “bursts of gamma activity, the fundamental information-processing operation of the cerebral cortex. … They fall into harmony with each other…”
James Wright Electrical Activity in the Brain, and Adaptive Self-Organization 2004
**Part A**

*Noosigns: images of thought affecting narratives*

The genesis of the noosign

An explanation of affect in Intermedia art and Philosophy

The political nature of my field of research

1<sup>st</sup> Thought experiment: *al-jabr: Flesh_n_Flash@TheGatesOfBaghdad*

The variable properties of montage in new media

Results of *al-jabr* thought experiment

Glossary of terms in *al-jabr*

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**Part B**

Intermedia art and its correspondence to neural processes

2<sup>nd</sup> Thought experiment *SUITE* composition: as noo-montage

Nomad thought

Results of *SUITE* thought experiment
Part A

Noosigns: images of thought affecting narratives

In previous papers I have argued that intermedia indicates an integral process of affects in interactive multimedia practices. These affects are said to become self-organized as autonomous images distinct from their component elements. Moving between philosophical and scientific research in relation to my use of the intermedium in the arts, Noosigns: Images of Thought Affecting Narratives outline different images of thought from my experimental intermedia practice.

Alluded to above and at the end of the previous chapter, this practice is a process of becoming: a practice of its own making through its interaction with other powers and which through this interaction induces images different from whatever elements are involved.

The works differ in appearance yet belong to the same principle of poetic thought. The aim is to generate variable ideas in intermedial narratives.

The genesis of the noosign

The ‘noosign’ is a concept of cinematic time invented by the philosopher, Gilles Deleuze to indicate an image of thought.

Deleuze defines a noosign as: “an image which goes beyond itself towards something that can only be thought.” The affect of a body’s passage from one experiential state to another is the genesis of a noosign e.g. a change in attitude.

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\[
[57] \text{Deleuze C.2 p. 335}
\]
In cinema, affect can be explained by the changes in a character or entity over the duration of the movie. For example, in The Passenger the lead character experiences confusion between opposing forces from outside and from an inner, mental and physical turbulence external to, but within the external pressure. Through the interaction of these oppositions his life changes in unexpected ways. Thought is generated that is external to the specifics of the narrative, but specific to an attitude of a body.

This is an image that we can’t think into existence. It is an attitude to life: an autonomous image engineered through the individuating interactions of external and internal forces.

Taking the affect of these interacting forces as a model of correspondence between art and thought, a new sensation is generated in intermedial cinema and a new idea in thought; each having an affinity with the other. Table 1.

An explanation of affect in intermedia art and philosophy

The verb affect means to act upon or influence; to move or disturb emotionally or mentally; to attack. The noun form denotes an emotion associated with an idea or a set of ideas. Affection is defined as a feeling of fondness for a person or thing; an attachment; emotion, feeling, or sentiment.

According to Deleuze & Guattari “neither word denotes a personal feeling. L’affect is an ability to affect and be affected. It is a pre-personal intensity corresponding to the passage from one experiential state of the body to another…” implying an increase or reduction “in that body’s capacity to act.” L’affection is each such experience “considered as an encounter between the affected body and a second, affecting, body.” Deleuze & Guattari understand the term body “in its broadest possible sense to include ‘mental’ or ideal bodies.”

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58 Italian title: Il Professione: Reporter directed by Michelangelo Antonioni 1975
In my intermedia art practice and writing I similarly understand the
generation of affect in this expanded sense of an autonomic interaction\(^6\)
between bodies.

### Table 1  The Noosign in Intermedia art and Philosophy

<table>
<thead>
<tr>
<th>Intermedia art</th>
<th>Philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td>- The processes of affect between media give rise to an image distinct from its component media: an intermedia affection-image, a noosign.</td>
<td>- The genesis of a noosign is the process of affect: the gradual adaptation of systems to stimuli of signaletic material from different fields.(^6)</td>
</tr>
<tr>
<td>- When two or more discrete media are conceptually fused, they become intermedia. They differ from mixed media in being inseparable in the essence of an artwork.(^6)</td>
<td>- A feature of Gilles Deleuze's time-image in cinema, the noosign emphasises a specific connection [in the cut] between de-linked images by which new ideas are generated.(^6)</td>
</tr>
</tbody>
</table>

Deleuze poses a question:

“I say that I do philosophy, which is to say that I try to invent concepts. What if I say, to you who do cinema: What do you do?”\(^6\)

Having his definition of the noosign in mind, my response would be:

I try to invent moving images that affect thought.

\(^6\) Agnostikos, p.268: autonomic auto = self ; nomos = law a reference to the autonomic nervous system which operates involuntarily according to its own law of organization.

\(^6\) Higgins, D. Horizons op. cit. p.138


\(^6\) Deleuze C.2 pp.179 – 181

The political nature of my field of research

My intermedia art practice in experimental film and video art is a political practice in that it disturbs conventional ways of thinking about art processes and moviemaking. Intermedia art combines time-based elements, each element being of autonomous value. Its components vary across the spectrum of sound, light, colour, gesture, text, movement, etc according to intensity and duration. Distinct from multimedia, intermedia art is concerned with what happens between sensorial, conceptual, and technological processes of any media. In this sense it is a transgressive yet targeted practice that does not recognize borders.

Hannah Higgins notes that “intermedia is an unstable descriptive term, predicated as it is on the dynamic exchange between traditionally distinct artistic and life categories.” The term refers to versatile and explicit practices: “Like a mathematical equation, it is extraordinarily precise, for it relies on structurally codependent relationships.”

Rather than an interest in the happenings and action art that initially informed intermedia, it is what comes after, between, and before events that occupies my intermedia art and theory practice. It is the intervals between images, the spaces between thought, whether empty or open to new arrangements. Strengthening these mutual practices has been in large part due to the relationship developed between cinema and philosophy by Gilles Deleuze.

In the nineteen-eighties, among several writers from both the United States and Europe who contributed to a theoretical analysis of intermedia as an art form, was Abraham Moses. He made the following points: that the media may be any channels of communication and the intermedia arts will combine two or more of them “out of a ‘creativity matrix’ [or ‘a bundle of potential

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67 Ibid.
functions’] which has to be explored by building original contents out of the interference of their respective constraints."

Moses is talking about a creativity matrix as sign systems from which two or more channels of communication are combined. Original contents come about due to the interference between the discrete mediums of communication. The matrix is explored/interrogated/ expanded by this operation. Thus, theoretically, any monopoly of channels of communication becomes disrupted; preconceptions as to what sign systems signify are thrown into doubt; debate regarding relations between any kind of medium is stimulated, and new practices, new ideas, emerge.

These processes relate to what Deleuze refers to as the constituents of the time-image in cinema. The correspondence rests between Moses’ comment on combining different mediums from ‘a ‘creativity matrix’, which has to be explored’ and Deleuze’s constituent signs.

What is not articulated by Moses but made explicit by Deleuze is the model of time as the crucial factor that enfolds all signifying systems, all media signs. Individually and collectively, sign systems are indeterminate fluctuations of differently combined signs; self-generating other signs through their affect on one another.

Constituents of the time-image include (the visible) op-signs, (the audible) son-signs, (the readable) lecto-signs, time as a series chrono-signs, – and noo-signs.69

A noosign (from Gr. nous the mind) and the phrase ‘image of thought’ can be understood as a technical expression of thought processes – for example, how optical and sonic signs are assembled as expressions of intermedia art, and other forms of expanded cinema.

An image of thought can also be expressive visualization of thought experiments, of the tests or investigations that investigate the dynamic affect between the elements of any mediums.

68 Moses, A. “Intermedia Art” in Theoretical Analysis of the Intermedia Art Form Experimental Intermedia Foundation; Solomon R Guggenheim Museum, (Buenos Aires, Argentina) Centro de Arte y Comunicacion 1979 [pages unnumbered]
69 Deleuze C.2 pp. 270-279
The former can be demonstrated. The latter image of thought extrapolates from our thinking and sensorial processes. It does not belong to conventional forms of logic. The “irrational cut” between different media presents its own ‘image’ as distinct from these un-linked media-images, which confront us with an image of “this un-thought within thought.”

This de-framed image of thought equates with the sort of thinking that images the ‘visible’ of the invisible, unthought ‘image’ generated in the overlap between different media. They are pre-personal and pre-cognitive signs of affect that answer to the potential to induce thinking.

Differentiated from Eisenstein’s cinema of attractions (known today as the ‘roller-coaster’ movie), and from intellectual montage (the involuntary response arising from linked but disassociated images), the emphasis in these experiments is on a co-respondent montage between images, between entities separated from each other whose angles of view are in opposition. Be they optical, sonic, or text images they are selected to induce an interstice “in such a way that a difference of potential is established between [them]”. The induced interval opens up space for negotiations, where thinking the ‘what if’ can distribute its energy in a different arrangement: a corresponding noosign.

What if we experiment with the constraints of an authoring environment? Are we more likely to discover truths beyond the frame of a pre-formatted ‘truth table’?

**Thought experiments**

Influenced by David Bodanis’ descriptions of the transformative affects of energy, Figure 1 my four synoptic narratives: *al-jabr & Other Equations* are examples of such experiments to induce narrative changes.

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70 Ibid., p. 278
71 Ibid., pp.179 – 180
Understanding from Bodanis that energy is relatively distributed in variable ways sparked a connection to Werner Heisenberg’s uncertainty principle [HUP]. Figure 2.

\[ \Delta x \Delta p \geq \frac{\hbar}{2} \]

Figure 2 Heisenberg's Uncertainty Principle

This principle is a proven theory, that at the atomic level the speed and position of things cannot be accurately measured simultaneously. Any attempt to do so disturbs the character of whatever you are measuring.
Establishing this principle of indetermination, at the start of *al-jabr*, my fourth experiment, we hear Heisenberg's voice:

> You can say, well, this orbit is really not a complete orbit - actually at every moment the electron has only an inaccurate position and an inaccurate velocity, and between these two inaccuracies there is this uncertainty relation.

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**al-jabr**: Flesh_n_Flash@TheGatesOfBaghdad

The variable probabilities of *al-jabr*, like the emergence of algebra as a shorthand form of thought, are expressions of noosigns generated from transdisciplinary or nomad thought.

The experiment takes its characters from HUP to constitute the ‘algebra’ of indeterminate and complex relations in times of conflict, such as the war in Iraq, as well as in the contested field of new media art.

Equations are examples of synoptic narratives, each with its own compressed history. They are like mini-movies. The economy and structure of their information has a signaletic correlation with the code/decode compression of new media information for transmission by email or the Internet.

Symbols of concepts in correspondence with codified signals where each example contains its own invisible history. The idea for *al-jabr* follows this correspondence.

In *E= mc²: A Biography of the World’s Most Famous Equation* David Bodanis breaks apart Einstein’s equation to reveal the history of each component character. They are like the back-stories that writers create to give

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75 Bodanis op. cit. pp.24-26

76 The Brain is the Screen op. cit. p.367 Deleuze talks about looking to cinema to solve problems in philosophy. Here I explore equations for help with problems in new media art narratives.

77 CO(DE) + DE(CODE) *Codec* Electronics. A set of equipment that encodes an analogue speech or video signal in digital form for transmission purposes and at the receiving end converts such a digital signal into a form close to its original. Collins English Dictionary 21st Century Edition
complexity to characters and events in a film script, and to help actors bring the character to life. Other parallel devices e.g. colour, setting, sound, lighting, camera angles, physical expression, movement, editing decisions etc. fill in for what is not revealed. In other words, the information is implicit in the combined elements revealed by attitudes of thought that the entire film engenders between its parts and in participation with the viewer, just as an equation carries its complexity in its arrangement of characters, what they signify, and their prior histories in other contexts.

Examples of algebraic complexity found in Cosmicomics, a collection of short stories by Italo Calvino, influenced comic elements in al-jabr. Calvino’s style interlaces macro- and microcosmic events, balancing scientific facts with the complications that ensue when creatures of indeterminate character become entangled in these narratives.

In the differently calculated context of Flash software, al-jabr tests the dynamics between uncertainty and comedy.

Play al-jabr: Flesh n Flash@TheGatesOfBaghdad.

al-jabr takes its name from the first publication on algebra by the scholar abu-Jaífar Mohammed ibn-Musa al-Khuwarizmi, who lived in Baghdad in the 9th century. The title of his treatise “al-Kitab al-mukhtasar fi Hisab al-jabr wial-muqabalai (The Compendious Book on Calculation by Completion [or Restoring] and Balancing)” gives us the word ‘algebra’. Summarising this history, O’Connor and Robertson stress that “it is important to understand that the book was intended to be highly practical, that algebra was introduced to solve real life problems that were part of

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78 Calvino, I. Cosmicomics (1965 Cosmicomiche) Translated from the Italian by William Weaver, London, Jonathan Cape Ltd 1969
79 Sumich, J. al-jabra Duration 1min 10 secs. File size 336 Kb
80 algebra: a mathematical method for defining operations and studying the relationships of their properties
AFFECTS

everyday life. With this in mind the Flash al-jabr aimed at also advancing the process of thought. It operates between the symbolic logic gates initiated by the mathematician George Boole in relation to human thought processes, Paul Dirac’s prediction of electron spin, and the in-formation speed of integrated Flash expressions. Algebra is a form of algorithm: a series of computational steps which, if correctly applied, ensures the solution of a problem.

al-jabr’s interaction with electrons, wads of flesh, a deck of cards, and the crystal ball engineers the reflexes prototypical of game theory. Can al-jabr solve the indeterminacy of the characters playing at war in Iraq? How can an image of thought half-hinted restore a balance to problems in narrative expression? Answering these questions meant parallel processing the in-formation between the self-organizing potential of the software’s Action Script and the affection of its component media to generate a noosign; an as-yet-unthought expression of the equation’s narrative.

The variable properties of montage in new media

New imaging software technologies have expanded the potential for creating fundamental disturbances in media communication. The camera has become subordinate to the different and variable properties of digital mediums’ information e.g. strings of code, new expressions of compositional space, and its capacity to generate “nomad thought” i.e. the filmmaker is freed from the beginning-middle-end thought patterns in narrative film and video production. With Flash Action Script she can create strings of code to target particular frames and object actions activated by the user. Figure 3. In compositional

81 Extracts from article by: J J O’Connor and E F Robertson JOC/EFR July 1999 http://www-history.mcs.st-and.ac.uk/~history/Mathematicians/Al-Khwarizmi.html
Game theory deals with the analysis of “games” i.e., situations which involve conflicts of interests. As well as simple games the theory has applications in “real games” like poker, chess, etc as well as in areas like politics, economics etc.
83 Parallel with researching the operations of algebra and learning the Flash software program came a call for new media artists to contribute to an online publication special issue on Artists and Scientists in Times of War.
design, objects can be multiplied simultaneously within, over, and outside the other; timelines intersected and reconfigured in real time,; images nested within images. Authoring options encourage experimentation often leading to affects that inventively modify the narrative premise.

Figure 3 **Action Script targets nested h-bar of HUP. J. Sumich 2003**

Figure 4 **Bitmap fill from J.Sumich home-movie affects atom-ball texture**
Bitmap fills allow computer-generated objects to be dressed up with imported textures. In Scene One of *al-jabr* the digital process has generated an unexpected affect autonomously. Figure 4. In this instance the black and white gradient already applied to the atomic particle’s surface has been attacked by bits imported from a home-movie, giving the atom-ball object greater complexity by its resemblance to a spent bullet.

Motivated by Bodanis’ notes related to the energy dispersed when a door is slammed shut, (see Figure 1) the sound of a door banging was imported to synch with momentum of the ‘tanks’ entry into Baghdad where ‘x’ marks their position. Figure 5.

![Image of animation software interface](image1.png)

**Figure 5** Door slam sound of attack synched to variable ‘x’. J.Sumich 2003

‘Energy’ disperses through Saddam Hussein’s *fedayeen* fade-out. Figure 6. The equation suggests that if the position of the tanks can be reasonably well determined then the momentum (p) of the *fedayeen* is less easy to determine.

The disappearance of unknown personalities mark a turning point, a reverse engineering of thought through the House of Wisdom and logic gates. If the contents of the movie are valid then the script’s expression is ‘true’. Figure 7.

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84 Cards made from US Military’s “personality identification playing cards”. www.defenselink...
Figure 6 Sound of attack disperses energy to fédayeen

Figure 7 true: Flash Action Script expression if the contents of a field are valid
Results of *al-jabr* thought experiment

Action Script can be used as a script for action beyond the constraints of its programming.

Interactions between ‘events’ and ‘event handlers’ created from imported media and strings of code resemble the way mechanisms in the brain handle activities informing its nervous system.

Arabic language is outside our frame of reference so ‘truth’ tables don’t tell the whole story.

*al-jabr* solves problems in making mini-movies.

*al-jabr* is a noosign: a novel idea for movie-making and video-games.

Glossary of terms in *al-jabr*

Algorithm: the Westernised term derived from Al-Khwarizmi’s name.

House of Wisdom: the house of scholars in Baghdad, where Al-Khwarizmi studied.

the NOT gate: inverts previous input value. NOT operations take precedence in the hierarchy of logic operations used to program a computer’s hardware; they are part of George Boole’s symbolic logic developed in relation to human thought processes.\(^5\) (an operation similar to the turning point in a movie).

the OR gate: The output of the OR function is true if any of the inputs are true.\(^6\)

the AND gate: The output of the AND function is true only if all of the inputs are true.\(^7\)

In online library catalogues Boolean operators, (AND, OR, NOT), allow you to broaden or narrow your search.\(^8\)

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\(^5\) How Boolean Logic Works [http://computer.howstuffworks.com/boolean1.htm](http://computer.howstuffworks.com/boolean1.htm) \(\{(25.4.03)\)

\(^6\) Ibid.

\(^7\) Ibid.

\(^8\) [http://voyager.auckland.ac.nz/help/boolean.htm](http://voyager.auckland.ac.nz/help/boolean.htm) Voyager - the on-line University of Auckland Library Catalogue. In Voyager, Boolean operators are available in the Keyword Boolean and Guided Keyword Searches.
al-jabr: completion.

muqabala: balancing.

on rollover: Flash Action Script for mouse over action.

ture: a Flash Action Script expression if the contents of a field are valid.

al-jabr & Other Equations

http://www.window.auckland.ac.nz/archive/0409al-jabr/default.php
Part B

Intermedia art and its correspondence to neural processes

Is there a correspondence between intermedia affects and the neural processing of stimuli? The dynamics of neural processes occur prior to, and independent of, any conscious means of control. Can the same be said of intermedia dynamics? Table 2.

<table>
<thead>
<tr>
<th>Intermedia art processes</th>
<th>Neural processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Two or more mediums [stimuli] different in quality, duration and intensity overlap and intersect each other. At the point of their intersection each medium feeds back feeds forward its participation in the other’s elemental condition.</td>
<td>• Different patches of stimuli oscillating at the rhythm of their magnetic field strength interact with each other</td>
</tr>
</tbody>
</table>
| • The media affect, modify, or transform each other at different speeds and levels of intensity. | • The oscillation generates “bursts of gamma activity, the fundamental information-processing operation of the cerebral cortex.”
| • The rhythms of their oscillation fall into harmony with each other forming new patterns: an inter media affect. If there is sufficient activity it generates a long-term affect. This process occurs between its elements and between artwork and receptor. | • The oscillation is due to a delay between local excitation and return inhibition in cellular activity “so that cell firing rates see-saw back and forth.” |
|                                                                                       | • “They fall into harmony with each other forming peaks and troughs of correlated activity.” |
|                                                                                       | • “If there is sufficient activity there is an outward propagation of a wave of activity.”|


Wright. 2004
Do both art and neural systems generate and sustain impulses that affect human thought processes?

Rather than being consciously controlled, the dynamics of the nervous system are said to be a natural process fundamental to the feeling of what happens in the body and mind — core sensations described by neurologist Antonio Damasio as “hints half hinted”92. They are the sensations or affects that contribute to the making of new connections or expansion of impressions already received. A dynamic series of oscillations between the stimuli of different experiences generate self-organizing participation in the elemental condition of each stimulus. If this disturbance is of sufficient intensity, the charge from the stimuli at this point of overlapping participation have the potential to fire connections between various neurons and to induce short-term or prolonged affect.

The dynamics of affect generate changes in patterns of thinking processes in the neural network. Similar to the involuntary nature of human intuition it is an autonomous process — referred to by the microbiologists Varela and Mataurana as the autopoetic the self-organization of cellular life systems.93. Do these correspond to the dynamic processes of intermedia art? Often combining a sense of humour, process art is associated with a serious intention to merge art and life, the possibility of a way of art-making autonomous by nature. As a means to its expression, artists sometimes work collaboratively.

This characteristic of interchange between different mediums (in the broadest sense of medium) meant that the combined affect is synonymous with a natural process.94

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My hypothesis is that a correspondence can be detected between the processes of affect in the time-based practice of intermedia art and the neurological processes of affect.

It is the interaction of intermedia affects in art and neurology that change or generate actual virtual images. These are understood respectively as images of sensation and images of thought natural to their corresponding processes.

Considered together these affects ‘naturally’ inhabit each other. Images of sensation become nested in images of thought and vice versa.

What does this allow us to do in cinema?

“What, for example, is having an idea in cinema?”

Correspondent processes of sensation and the ‘unthought’ can be used as an idea, as a map for a noo-montage in cinema.

**What if** we align these processes according to the principles of affect?

Would their elemental material organize itself?

Would the viewer sense a natural familiarity with something that looked unfamiliar? Would the affinity between the intermedial and the neural induce a new image of thought?

**Thought experiment:** a SUITE composition by Julainne Sumich

Rather than working strictly to conventions of time, my ‘nomadic’ way of thinking affects the instrumental use of technology.

The intermedial mix between techné and author is the genesis of the unthought in thought, a noo-montage.

It is ‘a bringing forth’, that Martin Heidegger calls a “poetic revealing”, becoming embodied within a distinct fabric of thought; the autonomic affecting narratives.

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95 Kaufmann and Heller, p16
96 Term ‘noo-montage’ coined by Julainne Sumich 22.8.05
According to Rachel Cooper, in her article *Thought Experiments*, “a thought experimenter manipulates her worldview in accord with the ‘what if’ questions posed by a thought experiment.” Cooper suggests that “sometimes the answers to the ‘what if’ questions are provided by implicit laws that are contained in the implications of the concepts we are employing.”

Where the implicit law behind *al-jabr* is mathematically and cinematically an equation, in my thought experiment for **SUITE** we consider the laws of affect in *noomontage*.

In the past mechanically generated moving pictures had affected audiences with a “shock in the mind” by showing “through unexpected framings, shot angles, slow motion, fast action, stop action - features of the world as yet unperceived by human beings.”

Today digital movies can affect the audience by showing additional aspects of cinema’s capacity to startle the mind. These experiences of novelty can have “decisive significance” in one’s future; their affect in some cases lasting a lifetime.

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99 Cooper, ibid. p. 336. “A point of key importance to [her] account is that the reasoning employed in constructing thought experiments is of a perfectly commonplace kind. Answering the “what if” questions of a thought experiment uses the same kind of processes as answering “what if” questions in all other contexts.” p. 337 “Sometimes when all the “what if” questions are answered, the result is an internally consistent model.” By model Cooper means “a dynamic representation of a situation. The model might consist of a set of propositions describing a situation, or it might be pictorial. The strength of the possibility, physical or logical, depends on whether the thought experimenter has constrained herself to constructing only models where the actual physical laws obtain.” 338


101 Jaspers, K. 1962 *General Psychopathology* (Manchester, England, Manchester University Press) p. 697 “All first experiences have decisive significance. ‘An experience which evokes a certain affect for the first time creates the life-long capacity to experience this affect.’ (Bleuler) This automatic effect is the foundation of our own existential significance which matures through our choice of experience and of what we undertake.”
Correspondent with how novelty is processed in the mind, I suggest that the audience processes the experience of new image technologies by generating what neurologists, such as David Friedman, term a “mismatch negativity”.

“Mismatch negativity” is a form of comparator mechanism; “a `call' to involuntarily orient to a potentially significant event.”

It was this sort orienting affect that I experienced on seeing Video Quartet, by the experimental artist Christian Marclay, at the Armand Hammer Museum of Art in Los Angeles.

Hundreds of film clips from different periods of time and diverse in genre, digitized and edited onto four Digital Video Disks, played on four projection screens overall 40 feet in length.

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102 Friedman, D., Cycowicz, Y. M., and Gaeta, H. 2001. “The Novelty P3: an event-related brain potential (ERP) sign of the brain’s evaluation of novelty.” in Neuroscience and Behavioural Reviews Volume 25 Issue 4, June. P. 355 “Distinguishing between what is novel and what has already been experienced or between degrees of novelty encompasses fundamental processes that enable one to appropriately react to stimuli in the environment. What is considered novel and/or salient depends also upon the context in which the eliciting event is encountered.”
It was an experience of hearing a musical composition from a quartet of visual instruments’ each of which, cutting between various sonic events, varied its ‘tempo’ and ‘colour’.

The sensation returned months later, one morning when I was in Prague; hearing the sound of hammers ringing on cobblestones. My video recording of this event and others I had made in California and London, during the same year, came suddenly together. Figure 9.

What bound their disparate character was their acoustic intensity.

Figure 9 Sketch of acoustic environments for SUITE Julaine Sumich Dec 2003

They suggested an idea on how correspondences between intermedial and neural processes, as a fundamental disturbance to conventional ways of thinking and imaging, can be dynamically induced between parallel channels of communication.

SUITE is a series of affects as they occurred in real-time - in contrast to Video Quartet, which besides samples from old movies, documentaries and news items, included passages of piano performed specifically for the work.

The SUITE Scenario: a series of encounters in different foreign locations organize themselves into a trio of ‘instruments’ through the intermedial non-localized affects of their resonances. As three channels of simultaneous communication they interfere and participate in each other’s part in the composition; it is a musical form of neurocinema.\[1][http://greg.org/archive/2003/01/24/see_christian_marclays_video_quartet_at_paula_cooper_by_saturday.html (27 December 2005)]

\[1\] Neurocinema: a term used by Peter Weibel in Future Cinema: The Cinematic Imaginary after Film Edited by Jeffrey Shaw and Peter Weibel. (Cambridge, Mass; London MIT.) 2003 pp. 594 – 601

Weibel traces the genesis of neurocinema from Boolean logic to artificial neural networks. p.599
The frame for a three-screen composite image was measured up in After Effects authoring environment. Stacked layers of information become organized through vertical and horizontal interlacing of temporal contexts, and like noosigns, are experienced differently each time they occur. Figure 10

Tests in positioning these layers became a matter of acknowledging “the principle of individuality”, the process whereby raw material becomes individuated in stages. With this autonomous process of becoming in mind, rather than the narrative being character-driven in the conventional sense, the ‘background’ environment is fore-grounded.

Figure 10 Stacked layers of SUITE in After Effects authoring environment J. Sumich 2004

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105 Deleuze C.2 pp. 243-246 on the reading of the visual image, which becomes archeological, etc.
Particular compositional and drawing tool experiments suggest themselves more than others as salient to the trio’s performance “while others recede from the mental foreground.”

Putting it differently, in the brain’s processing of stimuli, significant features gain ground, affecting autonomic neural behaviour and the narrative self.

In a composition for three instruments, the organizing principle of SUITE was to focus attention on the oscillations between sonic, kinetic, and topographical events. Sounds incidental to the events, movements of passers-by, horizon-lines, streets and architecture become instrumental in the movie’s self-organization as a noomontage. Cuts to black extend and foreground irrational cuts and the screen as direct images of time.

In other words irrational cuts emphasize cinema’s matter and mechanisms. They bring the time-image into contact with an “unthought” where the outside of the images replaces the unifying forces of association or continuity in standard cinematic practice.

Dialogue hints at *The Gradual Formation of Ideas in Speech*, “an anti-dialogue between brother and sister where one speaks before knowing while the other relays before having understood.” Their voices set up an absurd oscillation between the gaps and fissures in what they mean to say. It compares with Antonin Artaud’s vision of “the difficulty of being, this powerlessness at the heart of thought.”

It is “a matter ‘of bringing cinema together with the innermost reality of the brain’ where ‘what comes first is not the fullness of being but the crack and the fissure...’”

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106 Damasio, p.128
107 Deleuze, C.2 p. 214
109 Deleuze, C.2 pp.166-7
Artaud’s thoughts on what comes first resemble Friedman’s description of the comparator mechanism, its operations in microseconds between the sensation of stimuli and related action. Deleuze refers to these temporal breaks in cinema as occurring in “the space before action.” This space is a “pre-hodological space”, like a fluctuation of the spirit, which points to “an undecideability of the body.”

These micro-fissures [synapses] are random mechanisms introducing themselves at each moment between the sending and receiving of an association image.

At the central point of SUITE time-lapses interfere with a smooth logic of association in dialogue. It’s a bit like actors forgetting their lines. Confusion of overlapping events disrupts the ‘reading’ of the composition. Hammer sounds recorded in Prague resonate over a conversation in London parallel to a composite image animated by a ‘squash’ function. Figure 11.

Ringing hammers, fluctuations in animated conversation and erratic squeezing of the digital animation generate a sequence of atonal intensity designed to accentuate the composition’s turning point, invading the spectator’s head-space where “what is spoken of is under what we are made to see.”

Deleuze finds a correspondence between the time-image in cinema and the evolution of scientific knowledge of the brain both of which carried out a general rearrangement of thinking post World War II. The new orientations were the discoveries of “a topological cerebral space” and “a probabilistic or semi-fortuitous cerebral space, an uncertain system.”

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110 Ibid., p. 203 pre-hodological – before becoming individuated - see ref to Simondon, n.19
111 Ibid., p. 211
112 Russian example of how an inventive director puts ‘forgetting lines’ to creative use: The Return (Vozvraschenie) directed by Andrey Zvyagintsev 2003, Golden Lion prize Venice Film Festival 2003
113. Kaufmann & Heller, p.16 “A voice speaks of something. Something is spoken of. At the same time we are made to see something else. And finally, what is spoken of is under what we are made to see.”
114 Deleuze C.2 p. 211 Deleuze’s debt to Gilbert Simondon is evident in endnotes N31 and N32
These new understandings on the working of the brain strike through the striated space or rationalized order of narrative cinema. Before the striated space of action “the body is initially caught in a quite different space, where disparate sets overlap and rival each other, without being able to organize themselves according to sensory-motor schemata.”

That is to say, prior to any actions based on spatio-temporal orientation a different world experience occurs where a different organization is in process: it is a nomad space where thought becomes organized through the autonomy of affect. This temporal process prior to action has been termed a *readiness potential*, and compares with the processes described in Table 2.

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115 Ibid., p. 203
Nomad thought

Nomad thought can be understood as an assembling of variable potentials in the mind external to conscious control; those potentials bearing with them prior patterns ready for creation of different constructs.

“The space of nomad thought is ‘smooth,’ or open-ended. One can rise up at any point and move to any other.” 117 Smooth space is defined by movement yet is itself not defined. It is the space of becoming, of drift. It is like a groundswell of feeling or opinion, having its own intuitive character; one that is not systematically organized, but palpably sensed.

On the other hand striated space is organised space, the space of the institutions, of the military, the space of homogeneity, clock time, and the assembly line. These spaces have different geometries (the network versus the grid), different cartographies (the personal versus the political), yet in their opposition "there are always passages from one to the other, transformations of one within the other, reversals." 118 Each space of thought confronts the other and adapts its strategic behaviour accordingly.119

Nomad thought belongs to the smooth space of thought experiments; a site that disturbs familiar coordinates and invents new diagrams.

In digital cinema it is a matter of challenging constraints. For example, a seemingly endless 360° pan expands beyond the set coordinates of SUITE’s composite frame. Figure 12. The pan plays parallel to rotations in the adjacent view. Corresponding to the topologies of the brain, these intermedial channels work in counterpoint.

While one accentuates a smooth movement left, the other’s oscillations stress the striated confinement of its space.

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117 "nomad thought" Massumi, B. “Translator’s Foreword” in Deleuze and Guattari, 1987 p. xiii
118 Deleuze and Guattari, 1987 p. 482
119 Sumich, J. They become nested in each other in a way that influences the genesis of noosigns: forms and expressions previously unimagined.
In this way new media’s cerebral architecture offers a fluid multidimensional environment for nomad thought,\textsuperscript{120} where unexpected connections can happen. Its intermedial affect points to a transductive movement of the psyche in relation to the fluctuations of energy between individual and collective existence.

Vertically and horizontally, between the strata of the brain’s cortical context, variable coordinates of space and time transform perceptions according to networks between different cortical areas and phases of intensity. As indicated earlier, their oscillations can fall into synchrony, and, if prolonged, fire new connections in neural pathways.

\textsuperscript{120} Massumi, in Deleuze and Guattari, 1987, pp. xii – xiii (on nomad thought) “it replaces restrictive analogy with a conductivity that knows no bounds.” “The kind of philosophy it is comes in many forms. Filmmakers and painters are philosophical thinkers to the extent that they explore the potentials of their respective mediums and break away from the beaten paths.”
AFFECTS

It is as if they germinate an emergent behaviour the purpose of which is not yet known. It is a process of affect that Brian Massumi, in his noted essay The Autonomy of Affect, relates to as “a bundle of potential functions”:

The philosopher of science Gilbert Simondon sees this functioning of affect in the feedback of atoms on the physical level where ‘germs’ of forms are present in an emergent dimension along with unformed elements … According to Simondon, the dimension of the emergent - which he terms the ‘preindividual’ – can not be understood in terms of form, even if it infolds forms in a germinal state. It can only be analysed as a continuous but highly differentiated field that is ‘out of phase’ with formed entities. A germinal or ‘implicit’ form cannot be understood as a shape or structure. It is more a bundle of potential functions localized, as a differentiated region, within a larger field of potential.”

It is suggested the same process applies to intermedial processes of experimental movie making. Just as the neural system accesses different cortical regions that respond to particular elements of stimuli, drawing them together to form a composite ‘image’, so the dynamics of the intermedium organize disparate aspects of its elemental material and bind them according to their levels of intensity.

“A larger field of potential” relates to a ‘world’ (as opposed to ‘environment’). In our case, we could refer to the germinal potential of editing functions within the digital media world of potential, as a form of chemistry, the art of transmutation. For example, we can take After Effects authoring environment as ‘a bundle of potential functions’ and what happens within this region affects the potential of digital media’s larger field, its world. It has an actual virtual affect on its discourse. It is an autonomous image of thought where “‘germs’ of forms are present in an emergent dimension along with unformed elements”.

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121 Massumi, The Autonomy of Affect in Patton, p. 227
We can also suggest that the three screen composite frame and the focus on ‘background’ sound, kinetics, etc places SUITE, in the actuality of making digital movies, in a “differentiated field that is ‘out of phase’ with formed entities”, in the sense that it is out of step with the world of conventional cinema. Figure 13

![Figure 13 Composition ‘out of phase’ with formal cinematic structure](image)

‘Germs’ of forms playing between its three channels can be said to correspond with a variable mix of neural activity where the oscillation between ‘germinal’ stimuli of disparate levels of energy testifies to a “readiness potential” for outward action.

As referred to earlier, cuts to black or desynchronized continuities draw attention to cinema’s matter and mechanisms. Similarly, in neural processes split-second delays between actions (a different expression of desynchronized continuities) correspond to the autonomy of affect tested by Benjamin Libet in his theory on the ‘readiness potential’.

Libet’s tests proved a lapse of 0.2 ms time [readiness potential] prior to the decision to act which in turn is followed by 0.3ms before action from that decision takes place.\(^\text{122}\)

It is an autonomic – conscious mix of neural activity indicative of its partial and relative participation in our own unbidden narratives. It is the affect of neurochemical transmission that binds these temporal states.

\(^\text{122}\) Ibid., pp. 217–239; Libet, 229-242
When neurotransmitters are active, the surge of enzymes released by their catalytic compound affect on chemical molecules increases the firing rate of connections between neurons.¹²³

Connections are induced in SUITE both through dynamic delay or disjunction between its instruments - “It is a whole new system of rhythm, and a serial or atonal cinema, a new conception of montage”¹²⁴ - and momentary synchronies when things fall into line.

Defending his experiments on the readiness potential, Libet describes how a sense of continuity is generated in cognitive processes: “We subjectively compensate for the time lag in our awareness of tactile sensations, Libet contends, through a process he calls ‘backward referral in time.’”¹²⁵ The mind’s ability to fabricate in this way comes under the rubric of what the philosopher Henri Bergson called, in his analysis of “the retrospective character of attributions of linear causality and logical consistency,” the ‘retrograde movement of truth.’¹²⁶ This talent of the mind could be thought of as an intermedial fusion to avoid confusion that informs the fabrication of continuity in Hollywood fiction.

Rachel Cooper concludes that “sometimes when all the ‘what if’ questions are answered, the result is an internally consistent model.” By model Cooper means “a dynamic representation of a situation”. “The model might consist of a set of propositions describing a situation, or it might be pictorial.”¹²⁷

¹²⁴ Deleuze, C. p. 214
¹²⁷ Cooper, Thought Experiments op. cit. p. 338 “The strength of the possibility, physical or logical, depends on whether the thought experimenter has constrained herself to constructing only models where the actual physical laws obtain.”
Results of SUITE thought experiment

The composition of the movie is consistent with the laws of affect.
The principles of affect organized the film’s material in relation to its elemental correspondence with neural processes.
A sensation of natural familiarity with the unfamiliar composition of the film is unlikely due to the consistency of cinema’s focus on foreground action and of our enculturation by cinema’s fabrication of truth.
Affinity between the chemistries of the intermedial and the neural induce new images of thought.

Conclusion

Noosigns, new narratives in thought, occur “when one is in search of the ‘singularities’ of a matter, or rather of a material, and not out to discover a form; … when one engages in a continuous variation of variables.”128
Simondon’s theories on individuation have informed and overlapped Deleuze’s concepts on cinema as an image-becoming-thought inducing an image of noo-montage in thought experiments. Connecting ideas on psychogenesis to the pre-individual state of intermedia art with its own particular unformed elements, potential distributions of energy, and resonation, establishes a correspondence between intermedia and neural processes each with its own distinct image of affect.
From the set of propositions and pictorial examples we can say that the scenario of SUITE’s noo-montage provides an internally consistent model of the laws of affection. Integration of material ideas from neurology allows a reverse engineering of conventional cinematic practice and a closer approximation of truth to reality. Noomontage, as an intermedial assemblage of emergent sensations and thoughts, offers signaletic material to its related fields of philosophy and neurology.

128 Deleuze and Guattari.1987 p.372
CHAPTER 3

Light Affects
A Thousand Tiny Lenses

Introduction
Looking Awry
The Individuation of Light Affects
Lenticular images
Affects on Body and Brain
Into the Light-Year
Texting Art
A Thousand Tiny Lenses
Lenticular Cosmogonies

Make move my body
Katrin Simdorn: record of affect from The Light-Year exhibition October 2005

Flicker of travel – also my right eye feels out of focus afterwards
Jeffrey Holdaway: record of affect from The Light-Year exhibition October 2005
**Introduction**

One of the intentions in *Light Affects* is to make your body move. The way they are constructed forces a different angle of looking which in turn can induce a different way of thinking about a 'moving' image. They began from out-of-date film stock and exhausted processing chemicals. During development, the bonding agent dissolved leaving random patterns of light-sensitive emulsion on the film's base. This natural residue was recorded on analog video and converted to the binary division of digital code, before reappearing in analog form. The film was digitally scanned for signs of vitality invisible to the naked eye when it is projected at the standard 24 fps. There was something diagnostic about this process: like an analysis of symptoms in order to distinguish the emergence of some thing vital for the future of art: some thing between the generations of an image and the lightness of its life. Frame captures equal to less than one twenty-fourth of a second were layered in Photoshop, interlaced together then fused with the concave lenses of lenticular animation and 3D processes. Their affect skews our habit of seeing, and triggers an event-related potential sign of the brain's evaluation of novelty. It corresponds with that 'lost' half-second of Libet's readiness potential, the autonomous affect between the unknown and the knowing.

In this chapter the intermedia dynamics of *Light Affects* are sparked off by Italo Calvino's short story *The Light-Years* where known facts about the universe are combined with the confusion of trying to comprehend them. *Light Affects* speak of the gravity of temporal life but, like Calvino's *Cosmicomics*, their narratives are filtered through the "comic" genre.

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19 a film 00:05:05 16mm direct film, duration 5 mins 5 secs, produced by Julianne Sumich. Screened at The 35th Auckland International Film Festival, New Zealand, 2003

129 Fps is a film term for frames per second.


Looking Awry

The strategy for seeing things from a different perspective is taken up in Jeanette Winterson’s interpretation of Calvino’s texts:

They make no attempt to document or interpret the real world; rather, they explain it by moving sideways from it. In a parallel universe, where different rules apply, we find we are able to think more clearly about our own situation.\textsuperscript{134}

Yet in her understanding of “the real world” Winterson seems to fall short of the point that Calvino looks awry to render more lightly the reality of the human condition.

Whenever humanity seems condemned to heaviness … I have to change my approach, look at the world from a different perspective, with a different logic, and with fresh methods of cognition and verification.\textsuperscript{135}

The Individuation of Light Affects

Patterns left on the film oscillate between the internal and external scales of the microcosm and macrocosm: for example, between cellular tissue in the nervous system and galactic planes in cosmic systems.\textsuperscript{136}

\textsuperscript{133} Cosmicomiche di Italo Calvino http://www.italocalvino.net/cosmicomiche_ragazzi.html (4 July 2005) The writer explains that his stories, that treat very serious arguments, also are told ironically: in this manner the “comic” genre acts as a filter and helps to better understand the "cosmic". adj. from cosmos: the world or universe considered as an ordered system cosmology: the studies of the possible models of the universe [from Greek, kosmos order, world, universe]


\textsuperscript{136} Macro- combining form: large, long, or great in size and duration [from Greek makros large] 

Micro- combining form: small or minute duration [from Greek mikros small]

Macrocosm: A complex structure, such as the universe or society, regarded as an entirety, as opposed to microcosms, which have a similar structure and are contained within it.

Galactic plane: the plane passing through the spiral arms of the Galaxy [from Greek gola milk]
In their milky space, shapes were detected that by their particle nature find a correspondence with quixotic equations that populate Cosmicomics. In particular, Qfwfq, inhabiting the inter-galactic environment of “The Light Years,” repeatedly tries to communicate across a distance of one hundred million light years.

My aim in Light Affects is to draw together the dissolution of cinema’s bind and the potential this generated for imagination to take flight according to laws of affection. How might these microscopic film particles combine with thought to communicate universal problems in communication? How could their artlessness affect body and mind in their encounters across time? It calls for a process of anamorphosis, where things, seen from a different point of view, change into something else.

An argument is made in Light Affects for an autonomous movement between particles from celluloid tissue in the digital domain and cellular neural processes. Their relation exists as an affect in its own right and is coexistent with other processes of transformation such as thought to speech, speech to text, text to rat. How do you picture a rat?

Previous comments in Chapter 2 on the gradual formation of ideas in speech referred to an anti-dialogue and a powerlessness at the heart of thought. Confusions and breakdowns in language are seen as examples of the transformative power of affection. They are haecceities (or individuations). In their chapter on ‘Becoming-Intense, Becoming-Animal’, regarding their definition of a body, Deleuze and Guattari write:

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137 Other Calvino characters are named G’d(w)n, Kgwgk, Mrs.Ph(i)Nko, Mr. Pbert Pberd
138 Who or what is qfwfq? “qfwfq is nothing more than a particle of pure thought which comes to be integrated into various bodies across time.” http://www.googlism.com/who_is/q/qfwfq/
139 anamorphosis: from Greek anamorphoun to transform, from morphē form, shape
140 Sumich, J. AFFECTS, Chapter 2., Noosigns n.108.
There is a mode of individuation very different from that of a person, subject, thing, or substance. We reserve the name *haecceity* for it. A season, a winter, a summer, an hour, a date have a perfect individuality lacking nothing, even though this individuality is different from that of a thing or a subject. They are haecceities in the sense that they consist entirely of relations of movement and rest between molecules and particles, capacities to be affect and be affected.\footnote{Deleuze and Guattari, 1987 p.261}

**Lenticular Processes**

Lenticular animation involves interlacing alternate strips of two different images. Video systems apply a similar method.\footnote{Cotton, and R. Oliver. (1994), *The Cyberspace Lexicon: an illustrated dictionary of terms from multimedia to virtual reality*. Phaidon} Information is delivered in alternate fields; each field being continuously supplemented by the next. Through their elements' interaction an intermedial affect of disjunctive synthesis is generated. Like the flicker between frames in film projections it is something we are unaware of in our reception of their optical illusions.

A lenticular image has two components; a printed image and a lenticular lens screen through which the image is viewed. The first step is to prepare two or more images and then use a program to interlace them.

The interlacing software takes the selected images and cuts them into very narrow strips. It then interlaces these strips like a perfectly shuffled deck of cards. If two flips are being created, the first band is a strip from image 1, the second from image 2, the third from image 1, and so on. The software then saves the interlaced image in a file for

\footnote{Cotton, and R. Oliver. (1994), *The Cyberspace Lexicon: an illustrated dictionary of terms from multimedia to virtual reality*. Phaidon}
printing. Once the image is printed, the final step is mounting it behind the lenticular lens screen; a sheet of plastic on which a series of cylindrical lens are moulded in parallel rib-like rows. Each of the lens, called a lenticule, has a focal length equal to the thickness of the clear plastic sheet on which it is molded. Each lenticule magnifies a very narrow strip of the image placed behind it. If you change your angle of view, the strip that is being magnified also changes.\textsuperscript{143}

Since lenticular images do not need any mechanical or electronic apparatus for their display “they are sometimes called auto animated and auto stereo images. Some go so far as to call animated 3-D images 4-D images because they add the dimension of time.”\textsuperscript{144}

Affects on Body and Brain

Body and brain do a double take. Something unusual in one’s peripheral vision triggers an autonomic physical reaction to turn and look which is followed by a mental message: What was that? The reactions are due to a disruption to single binocular vision, a characteristic of the human capacity to see.

Precision in sight depends on the convergence of light rays “refracted to identical spots on the retinas of both eyes.”\textsuperscript{145}

It is as if the eye is alerted to a divergence of its function; its afferent fibres sending a message to the central nervous system’s comparator mechanism to assess the event’s potential affect on its normal function.

\textsuperscript{143} Curtin, D. Lenticular Processes \texttt{http://www.shortcourses.com/how/lenticular/lenticular.htm} 
Copyright permission received from D. Curtin by email Wednesday, October 19, 2005

\textsuperscript{144} Lake, M. An Art Form That’s Precise But Friendly Enough to Wink, The New York Times \texttt{http://www.depthography.com/times.html} (23 May 2005)

Affects experienced through interaction with the work were recorded at a trial exhibition called *The Light-Year* held in Auckland 2005. In place of visitor-book platitudes people were asked to record their gut reaction.

*My right eye feels out of focus afterwards. The Light-Year*

Astigmatism is an abnormality of sightedness: the formation of distorted images; caused by the curvature of the lens being different in different planes. With its curved lens oriented differently to different eyes, the lenticular image could be said to be an astigmatic image that challenges a reorienting of the way we perceive the work of art.

Watching how spectators behaved in relation to a work of art influenced the direction taken by Allan Kaprow, an early proponent of intermedial action art. Inspired by Jackson Pollock’s ‘all-over’ action painting, Kaprow observed people’s “spontaneous [or autonomous]” movements through the Happening of his “Environments” (1958-59):

... it became a giant assemblage that grew and grew until it filled the room. Naturally people had to move within the parts in order to experience it. And as they did that, it became apparent to me that they were components, whether they knew it or not. I hadn’t figured on them, of course, and in order, now, to acknowledge their presence as integrals of the thing I began to score parts for people in such a way as to provide a maximum of flexibility, from almost passivity to a great deal of responsible activity.

Kaprow 1966

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147 Appendix 1. The Light-Year Affects: October 2005

148 Collins: *astigmatism* from *a* (not, without, opposite to) + Greek *stigmat-, stigma* spot, focus.

149 Dreher
Despite claims to allowing greater freedom to participants, such “responsible activity” belonged to set-up situations under the instructions of Kaprow. Viewers of installation or assemblage art have become accustomed to moving around to examine parts of works from different angles and bring them together in the mind, but for separate works hung on walls this is not generally the case. Light Affects, through its auto-animation, resists authorial exploitation of the spectator. Only by looking awry i.e. taking a sidelong view by physically standing to one side and then moving to the opposite side, do we, ourselves, animate and physically engage the work: to discover the full picture. Standing face on, between the two extended positions, the image falters, like the autonomic experience of proprioceptive time before connections become established.

I keep thinking there are more than two images. The Light-Year

3D images shift the experience of being animated. A sensation arises that something is awry when a 2-dimensional surface looks 3-dimensional. Shapes seem to slip backward and forward, or side-to-side, as the eye attempts to register a depth of field. This confusion in space triggers a visceral affect, a physical experiences of vertigo; an “irritation of the middle and inner ear” – the site of balance.

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150 Ibid., n.5, Die "instructions" auf dem Programm geben den Besuchern Auskunft über Anfang und Ende jedes "part", die Dauer der Pausen und den Platzwechsel. Diese "instructions" stehen rechts neben einer mit "Cast of Participants" überschriebenen Textspalte, in der die Akteure und ihre Aktionen aufgelistet sind. Kaprow führt auf dem Programmzettel nicht nur die "participants", sondern auch die "visitors" als Teilnehmer auf, die instruiert werden müssen.

The "instructions" on the program give the visitors information about the beginning and end of each "part", the duration of the intervals and the place change. These "instructions" are on the right next to a text column with "Cast of Participants", on which the participants and their actions are listed. On the program Kaprow lists not only the "participants" but also the "visitors" as participants, who have to be instructed. (My translation) Kaprow, Allan —“18 Happenings in Six Parts”, Reuben Gallery, 62 Fourth Avenue, New York, 4.10.1959, 6.-10.10.1959

151 Bartleby: [http://www.bartleby.com/65/ve/vertigo.html](http://www.bartleby.com/65/ve/vertigo.html) (6 September 2005), vertigo: sensations of moving in space or of objects moving about a person and the resultant difficulty in maintaining equilibrium. True vertigo, as distinguished from faintness, lightheadedness, and other
An autonomic reaction to falling out of kilter is a spontaneous repositioning of the body and readjustment of view to regain a state of inner equilibrium.

Makes me dizzy / like getting car-sick. The Light-Year

The term lenticular also relates to the lentiform nucleus (lenticula = shaped like a lentil or lens). The lentiform nuclei form part of the largest basal ganglia (cerebral nuclei) – “paired masses of gray matter in each cerebral hemisphere.” “The basal ganglia are interconnected by many fibers. They are also connected to the cerebral cortex, thalamus, and hyperthalamus.” Various components of this network of nuclei “control large subconscious movements of the skeletal muscles.”

In terms of retaining a balance of skeletal movement this may have a relationship to the lenticular process connected to the functioning of the inner ear, and consequently, to one’s general experience of equilibrium. Do lenticular nuclei and lenticular images echo each other harmoniously? Or is the natural muscular response a falling out with the digitally interlaced illusion, as if the glial cells that bind their nervous tissue had come apart and left the system in a hapless state of confusion?

forms of dizziness, occurs as a result of a disturbance of some part of the body’s balancing mechanism, located in the inner ear (e.g., vestibule, semicircular canals, auditory nerves). Labyrinthitis, or infection and irritation of the middle and inner ear, is a common cause of vertigo.

152 Tortora and Anagnostakos, pp. 325-326
154 Tortora and Anagnostakos, p.269 “The cells of the nervous system that perform the functions of support and protection are called neuroglia (neuro = nerve; glia = glue) or glial cells. Many of the glial cells form a supporting network by twining around nerve cells or lining certain structures in the brain and spinal cord.”
Figure 15 **Autonomic ganglion Nervous tissue PNS**

Figure 16 **Layers of Celluloid Tissue** from a film 00:05:05 J. Sumich 2006 Dim.A2

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155 Blue Histology [http://www.lab.anhb.uwa.edu.au/mb140/Big/Big.htm](http://www.lab.anhb.uwa.edu.au/mb140/Big/Big.htm) [26 Nov. 2003] (6 Jan 2006)
Glial cells form the supporting network in the nervous system. They are literally the neural 'glue' that hold the system together. They take various forms and have specific functions, one of which is to: “bind nervous tissue to supporting structures and attach neurons to their blood vessels.” Figure 14

Autonomic ganglions lie alongside or in front of the spinal column in the peripheral nervous system (PNS) and are in close proximity to the abdominal muscles and visceral efferent pathways. The fibrous tissues of autonomic ganglions are encapsulated collections of nerve cell bodies. Figure 15

If we can imagine the dissolution of the nervous system’s ‘glue’ - just as the binding agent of a film dissolved through using out-of-date stock and being developed in exhausted chemicals – we might experience a sensation of visceral turbulence. Figure 16

**Stutter–Step. The Light-Year**

I see viewers thrown into disarray, lost for words, falling out of plumb, their muscles strained beyond the frame by an intermedial affect networking between the cellular tissues of film, body, and nervous system.

**(non-verbal). The Light-Year**

I think Cells die OR don’t die.

**Into The Light-Year**

The argument: **Light Affects** embody “relations of movement and rest between molecules and particles” of natural elements and simulations. Their capacities to affect and be affected can be demonstrated only by being here. At various levels they move in different directions into different dimensions. They are variable movements, haecceities: of fire, uncertainty, dust, humidity, the Kafkaesque, smell, dark energy; evanescent things held fast by light.

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156 Tortora and Anagnostakos, p. 269
157 Ibid., p.364
Initially we are disturbed by *Light Affects* because we expect to find an image that has some immediate meaning for us but instead we are forced into different directions of the body and a different dimension of thought. We search around to try to understand how our vision is being affected, and then how our perception of the organized world is becoming re-presented.

*Light Affects* correspond to how we have to stretch our imagination when we are told that is how the world is: moving fields of particles, and waves of energy. *Light Affects* are images from the very basic matter of film; the movement of particles and waves of light. Yet they are still images that remain inert until our movement brings them to life.

**Texting Art**

The inclusion of text in the images unsettled some viewers. They preferred to be left free to follow their own thoughts through the work. As in silent movies, words signpost the directions in which affects have taken me. Text adds another layer of complexity between the work and its viewer. It can gather to itself sonorous aspects, some of which resonate longer than others. As for text as a ‘soundtrack’: when we speak, have you noticed how the first parts of the utterance instantly begin to fade from our hearing as the next words follow? A few remaining phonemes linger on the tip of the tongue.158

In my mind they tip over into phone me - a noosign for text-messaging art.

The philosopher Henk Oosterling is interested in just what sort of feedback tension that the incorporation of text into an image generates in the viewer. He says “I call this experiential dimension, the ‘intermedial!’” and questions “whether this intermedial tension could be the basis of our experience of self in postmodern times.”159

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158 Collins: phoneme: one of the set of speech sounds in any given language that serve to distinguish one word from another. [from Greek phone voice, sound]

In response to the temporary and dispersed nature of the postmodern ‘condition’ Oosterling argues for an aesthetic of micropolitical sensibility that can give shape to the in-betweenness of experience: “this ‘sense’ operates between body (sensory) and mind (meaning and direction). As such it is a continual movement which inevitably leads to the taking of positions.” He is quick to emphasize that “this movement cannot be reduced to these positions.” It is a ‘medial form’ in which the relationship between whatever is involved can “actually take shape.” Oosterling’s comments correspond with my sensibility to the role of the microscopic in changing points of view in art.

*Light Affects* takes a position that operates at the level of the molecular yet constantly transforms positions. The work belongs to intermedial art; an art form that has no fixed discipline, yet is disciplined, and no fixed place to dwell yet is at home in an any-space-whatever, a space of variable arrangements of affects, of becomings.

By the addition of text in variable movements of expression, for many years part of my practice in video, photography and new media, the visual image enters a field of *agon* with the words, where its position as a specific medium is challenged. The viewer must engage different faculties of the mind for ‘reading’: generating an antagonism between text and visual field (or between the lecto-sign and op-sign) that gives leverage to thinking.

When Professor Challenger, the fictional narrator(s) of *A Thousand Plateaus*, writes about “becoming-intense, becoming-animal”, he is in fact summing up texting strategies developed by women artists/thinkers who have preceded him and affected me:

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160 Ibid., pp. 99-100

161 Deleuze, G. 1983 *Cinema 1: The Movement-Image*. Trans: H. Tomlinson and B. Habberjam. London: The Athlone Press 1986 p.217 “An any-space-whatever is sometimes an emptied space, sometimes a space the linking up of whose parts is not immutable or fixed.” In my interpretation, it is a space that has potential to be occupied (affected), or a space whose parts can be of various arrangements.
Writing should produce a becoming-woman as atoms of womanhood capable of crossing and impregnating an entire social field, and of contaminating men, of sweeping them up in that becoming.\textsuperscript{162}

Women were swept up by the catch-cry of the sixties “the personal is political!” and by the mid-seventies their subjectivities were becoming transformed into text after text that critically undermined the foundations of male comfort zones and master narratives. The fruit of that period is the closer inter-textuality between female and male writers towards a vital rethinking of and respect for their different positions. In \textit{A Thousand Tiny Sexes: Feminism and Rhizomatics}, the philosopher Elizabeth Grosz writes:

In this paper, I would like to temporarily suspend critical feminist judgement in order to enter into the project(s) articulated in Deleuze and Guattari’s \textit{A Thousand Plateaus}. I would like to explore how this text might possibly be used by and for feminist theoretical projects, as it involves some commitment to their overarching framework, basic presuppositions and central concepts.\textsuperscript{163}

Had Challenger more affectively acknowledged those whose ideas he (they) alludes to in the text he (they) might have challenged men with women’s thought more readily. As it is, examples remain where the provocative image of becoming-woman is not part of the agenda for men’s new maps of thought.

In his discussion on \textit{Thought, Bodies and Intensive Cartography: Departures from “A Thousand Plateaus”} Justin Barton’s summary of passages from Deleuze and

\begin{footnotesize}
\textsuperscript{162} Deleuze and Guattari, p.276

\end{footnotesize}
Guattari’s chapter: Treatise on ‘Nomadology – The War Machine’ indicates both his attraction to their “ideas of exteriority, and of the transmutation of language in thought,” and his departure from the sense of the text by his excision of the ‘becoming-woman’. Cuts in the passage = arrows: 

The necessity of not having control over language, of being a foreigner in one’s own tongue, in order to draw speech to oneself and ‘bring something incomprehensible into the world’. Such is the form of exteriority, the relation between brother and sister, the becoming-woman of the thinker, the becoming-thought of the woman: the Gemüt [spirit] that refuses to be controlled, that forms a war machine. A thought grappling with exterior forces instead of being gathered up in an exterior form, operating by relays instead of forming an image; an event-thought, a haecceity, instead of a subject-thought, a problem thought instead of an essence-thought or theorem; ... 

Perhaps Barton thought that the forceful formlessness of ‘the becoming-woman’ sounded incomprehensible in his scheme for an intensive cartography? Yet it seems incomprehensible to excise sections that seem to embody the intermedial chemistry of Deleuze and Guattari’s philosophy on becoming; their philosophy on the affect of mapping thought exterior to concepts that control thought.

Becoming-woman can be seen as un-becoming, a kind of falling to pieces; liberating thought from fixed concepts. It lives at the heart of poetic thought. Becoming-woman is equivalent to bringing “something incomprehensible into the world”, just as the French use the term l’écriture féminine (feminine

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writing), meaning to write the poetic; an anti-logos as opposed to the logic of a dominant symbolic order. Écriture féminine places experience before language, and privileges the anti-linear writing of one’s own experience.

It is a longstanding practice of freedom in language; a practice intensively voiced and mapped over recent decades by critically influential writers such as Laura Mulvey Visual Pleasure and Narrative Cinema, Hélène Cixous The Laughing Medusa, Luce Irigaray This Sex Which Is Not One, Julia Kristeva Desire in Language, Kaja Silverman The Acoustic Mirror, Elizabeth Grosz Volatile Bodies, Donna Haraway A Cyborg Manifesto.

A thousand tiny lenses
Lightness of spirit and gravity of thought have been explored in Light Affects. Becoming-molecular, becoming-light means to disappear as constructed identities, becoming particular flows of energy. Muscles have been stretched, bonding agents have disappeared, and people have been behaving strangely, all in the attempt to communicate affection.

Art is a passionate business with incomprehensible power. Digital media art such as Light Affects should produce a falling out of harmony; forcing us to auto-animate a re-assemblage of body and mind. Then we can become capable of thinking the unthought: to look through a thousand tiny lenses and make us love art more lightly.

What counts is that love itself is a war machine endowed with strange and somewhat terrifying powers. Sexuality is the production of a thousand sexes, which are so many uncontrollable becomings. Sexuality proceeds by way of the becoming-woman of the man and the becoming-animal of the human: an emission of particles.

167 Helene Cixous first uses this term in her essay, “The Laugh of the Medusa,” in which she asserts, “Woman must write her self: must write about women and bring women to writing. http://en.wikipedia.org/wiki/%C3%89criture_f%C3%A9minine
168 Deleuze and Guattari. pp.278-9
Lenticular Cosmogonies

Just as haecceities can refer to molecular animal transmissions so they can also relate on a macro scale to cosmic emanations, such as the nature of lenticular galaxies. Figure 17. Intermediate in shape between spiral and elliptical, “lenticular galaxies are disk galaxies without any conspicuous structure in their disks.” 169 We might say they are the becoming-molecular, the becoming-woman, of the universe!

The fourth dimension of time emerges out of lenticular prints’ auto-animation. Embodied in their autonomous movement between particles from celluloid tissue and the reaction of ganglionic cellular tissues are dynamic processes of transformation in communication. In addition, their relation to the Milky Way exists as an affect in its own right. The artist Paul Klee “says that one ‘tries convulsively to fly from the earth,’ and that one ‘rises above it … powered by centrifugal forces that triumph over gravity.’” 170

Figure 18

From the exchange of bodily emissions to travel in galactic space each particle movement in Light Affects coexists with cosmogony, 171 the becoming of the universe in which we can be swept up by sensations of weightlessness.

169 Lenticular (S0) Galaxies http://www.seds.org/messier/lenticul.html#Messier [Last Modification: January 25, 1998] (22 May 2005) “From their appearance, and also their stellar contents (e.g., spectral type), they look more like ellipticals rather than spirals, and have often been misclassified due to this fact. Misclassification has e.g. occurred for all 3 or 4 Messier lenticulars.”

170 Klee, P. “On Modern Art” p.43 in: Deleuze and Guattari p.337

171 Cosmicomiche di Italo Calvino: cosmogony: the part of cosmology that it is interested in the becoming of the universe.
Figure 17 **Lenticular (S0) Galaxy** NGC 5866 / M102 ?, Distance 40000 (kly) \(^{172}\)

Figure 18 Lenticular print (Anim) *Anti- Gravity Julaine Sumich 2005 Dim Al*

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\(^{172}\) Lenticular (S0) Galaxy NGC 5866 (M102 ?), type S0_3, in Draco

[http://www.seds.org/messier/m/ngc5866.html](http://www.seds.org/messier/m/ngc5866.html)

“NGC 5866 is a beautiful lenticular galaxy of visual magnitude 10.0 or 9.6. It is seen almost exactly edge-on. The fine dark dust lane shows up nice in this image.) Copyright permission for use of graphic approved by Hartmut Frommert in email 5 September 2005
In light of current ways of imaging the world, the question concerning art and technology is how do we make the working of the human mind visible now?
How do we process novelty in our own time?
Julainne Sumich Speakers’ brief: Symposium on Processing Novelty 2004
Processing Novelty II

The questions raised in my speakers’ brief for the symposium on Processing Novelty in 2004 still concern us today. In this sequel, I want to consider how my intermedia art correlates with making the working of the human mind visible now. Just as processing novelty relates to how the brain responds autonomously to unexpected and unfamiliar stimuli, the novelty in my work is often an autonomic orientation to the unknown value of new media stimuli.

The first section concerns my personal research experiments using software programmes that were new to my experience. This mode of learning-on-the-go in relation to digital moviemaking sets up an intermedial correspondence between body, brain, and screen. The autonomic affect of this correspondence is outlined through the overlap between initial Quicktime movies and later work.

The second section looks at how my work affected and was affected by collaborative interdisciplinary events involving colleagues and students in the Science Intermedia Network Environment (SINE). Similar to the induction of a comparator operation in the brain during the processing of novelty, here I compare how both my individual and collaborative projects become oriented to those events’ particular features.

Lastly I discuss the ‘entanglement’ in my I x M project, in the sense of opening up new possibilities in intermedia art related to the phenomenon of interference in quantum theory, where waves of particles “can overlap one another to cause unusual and distinctive patterns of behaviour.”

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174 Julianne Sumich and Bruce MacDonald Coordinators: SINE: an interdisciplinary digital research hub at the University of Auckland. http://www.sinearts.auckland.ac.nz/

**Intermedial correspondence between brain and screen**

An unfamiliar image of the expanded brain triggers the thought of Gene Youngblood’s *Expanded Cinema*. Although new imaging technologies have expanded knowledge of the nervous system and cybernetics is no longer in its early phase, the points Youngblood raises on the extent of the intermedial network remain relevant:

For some time now it has been clear that intermedia art is trending toward that point at which all the phenomena of life on earth will constitute the artist’s palette. As with all other Paleocybernetic phenomena, the direction is simultaneously toward inner and outer space, the microcosm and the macrocosm. On the one hand, intermedia environments turn the participant inward upon himself, providing a matrix for psychic exploration, perceptual, sensorial, and intellectual awareness; on the other hand technology has advanced to the point at which the whole earth itself becomes the “content” of aesthetic activity.

Youngblood calls for the term “light show” to be expanded, to simulate aesthetic creations of atmospheric conditions generated by contemporary urban environmental, and space sciences. ¹⁷⁷

What is hinted at here and which holds my attention is picturing a multiverse of potential between intermedia art and the brain. It leads to my production

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¹⁷⁶ Dale, A. “Expanded Brain” image © permission to J. Sumich, February 2004

http://www.nimh.nih.gov/neuroinformatics/dale.cfm

¹⁷⁷ Youngblood, p.348
of possible worlds in movie structures, as outlined in Chapter 2 *Noosigns*, and in my focus on molecular movements in Chapter 3 *Light Affects*.

Like my work in Flash, using QuickTime Pro and Director were experiments with mini-movies, with a focus on non-linear structure. The experience of working with unfamiliar platforms finds a resonance with comments on how cinema has a different mode of presence than theatre: Gilles Deleuze discusses the film theory of André Bazin, which suggests that, although cinema doesn’t present bodies, its cinematographic presence has the capacity to rival theatre. This may be because cinema “sets itself a different objective:

> It spreads an ‘experimental night’ or a white space over us; it works with ‘dancing seeds’ and a ‘luminous dust’; it affects the visible with a fundamental disturbance, and the world with a suspension, that contradicts all natural perception. What it produces in this way is the genesis of an ‘unknown body’ which we have in the back of our heads, like the unthought in thought, the birth of the visible which is still hidden from view.

Learning software presents alternative objectives in cinema; and forces us to think. It is like an unhinging of the senses, between our sense of imagination and the sense of reason. This agitation between faculties is “what Deleuze means by sensation”. On the other hand, once familiar with Quicktime, the sensation of what is made possible is “like the setting off of a trip wire, the communication of a kind of synaptic frenzy through the faculties.”

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178 Bazin. *A. What is cinema?* Vol. 1. pp. 95ff n.17 in Deleuze, C.2 p316

179 Deleuze, C.2 p.201

180 Flaxman, p.13

181 Ibid.
AFFEYTS

These are the haecceities of cinema: the things that make up our experience of watching movies, and in making movies, that spread of 'experimental night' or a white space over us. Wouldn't we agree that it affects the visible with a fundamental disturbance, and the world with a suspension, that contradicts all natural perception? It is between the agitation of such chemical transmissions in the nervous system and the technology's affective processing power that the intermedium, the mordant, synapses us to the machines of cinema.

Series of images emerge from the affect of this fascination. QTVR Make Panorama, a feature of QuickTime Pro, enables the viewer to move through the space of the movie, with Shift and Control as options for the experience. Interacting with scale and frame of the programme's format autonomously generates novel options for extension. Figures 20-254

In Figure 26 a cluster of pixels, formed from bits of a digitized clip of a film, rotates across the advertising banner for ‘neurocinema’ towards “a new image of affect”. Here, intermedial processes work between film projector sound, text, a clip and frame capture from a film and ‘how to do a sunrise’ in Director. They are bound by the digital processing of their particles. Film becomes atomized, synchronizes the past in the present to indicate the future. The clustered pixels are their affection-image now made visible. This evidence of the intermedial made visible corresponds to Yvonne Spielmann's comments on digital simulations to which she gives the term “electronic film”:

The correlation and the merging of images that take place in the electronic simulation, where simulation means an aesthetic operation on the surface of the image, help to create an intermedia design visible on the surface of the image. 182

Some experiments are thrown into the past while others resonate in the imagination, storing potential for other related events.

182 Spielmann, Y. “Intermedia in Electronic Images” in Leonardo Vol. 34, No.1 2001 pp. 57-58
**Comparator operations**

In his article on the neural processing of novelty, David Friedman summarizes data that measures a sign of “event-related potential” in the brain in response to both targeted and novel stimuli. He finds novel or unsolicited stimuli are processed differently from target or predetermined events; and suggests that the response data measured in relation to unsolicited events is “most likely related to the evaluative aspects of the orienting response.”

I suggest that this is what happens in SINE events involving people from different disciplines. For example, during freewheeling discussions, one SINer might speak of something from her/his field, and this event, if odd or new, in the mind of another can trigger a response to process that novelty.

Friedman details the different operations in the brain that respond to novel events; they include the mismatch negativity system, the comparator mechanism I have referred to briefly in previous chapters.

The frontal lobes are where processing novelty takes place and “where big thoughts live.”

While the eliciting events in Friedman’s case study were chaotic environmental sounds, they can be any shock or surprise to the nervous system triggered by visual images, words, thoughts, collisions in time, etc

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183 Friedman, et al., pp. 370-1
184 Ibid. p. 359 MMN
185 MMN MisMatch Negativity: the operation of a comparator mechanism in the brain. “In certain circumstances, the information from the MMN system is transmitted to a frontal lobe mechanism that presumably serves to make the event available to consciousness and behavioural control.” “That neural event is the frontal aspect of the novelty P3, i.e., the P3a. For example, if the event is sufficiently deviant, the MMN is followed by the P3a.”
186 Cray D. Interview with neurologist, George Bartzokis, in TIME New Zealand Magazine January 9, 2006 pp. 54-57
In relation to intermedial images, evaluations of what is salient become processed in variable interdisciplinary forms over varying periods of time. They can be experienced as expressions of physical sensation, and the ‘unthought’ in thought, when ideas are still coming into focus. Friedman comments on studies showing that “highly deviant, task-irrelevant stimulus events engendered a P3 component that was significantly different compared to that induced by events designated as targets.”

[In one experiment] the novels were infrequently and unexpectedly occurring complex visual patterns that were difficult to label… This finding was interpreted to mean that unexpected, task irrelevant novel events were processed differently … As these events were unexpected and highly deviant, they most likely induced orienting …

Each individual within each discipline visualizes in a distinct way within the framework of that discipline’s language system. When these discipline-bound ‘images of thought’ are brought into interdisciplinary collaboration their conjunction can produce “unexpectedly occurring complex visual patterns”. They have induced deviant shifts between my work and SINE projects. They have led me to new experiments in cinematic structure; and confirmed the relationship I find between neural processes and intermedial affects. This was an important factor in my convening the symposium on Processing Novelty where many of the key terms provided were taken from Friedman’s article, such as “odd-ball task”, “raw voltage”, “event-related potential”.

The orienting response to collaborative novelty is seen by comparing my diagrams (Figures 27-31) with their interpretation by architecture students working on SINE project (~) Interaction in Embodied Time: Figure 32.

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186 Friedman et al. p. 360
187 ibid. pp. 360-1
188 ibid. p. 358
Figure 27. READY view. User enters system
Figure 28. GO view. User action potential
Figure 29. NEURO view. Neurotransmitter particles released. Figure 30. CAMERA feedback

Figure 31 (→) I E T interaction profile  Julainne Sumich / Sam Cuttriss March 2004

Figure 32 (→) 3D Studio models
Simon Chui, Hsuhan Chiang, August 2004

My brief for the project’s design had outlined how a nerve cell’s structure and its processes could help visualize the (→) structure and environmental processes. Processing the novelty of this approach corresponded to the spirit of the intermedium in experimental art: expecting the unexpected. The students’ view of interaction in embodied time as: “the potential for relatively simple and individual components to come together and create complex and unanticipated effects” was right on target for the project.

189 Sumich, J. SINE research project (→) IET Interaction in Embodied Time 25 Jan 2004; Appendix 2.
The Quicktime movie produced from this model emerges as an example of Friedman’s ‘event-related potential’ in terms of both ‘target’ and ‘novel’ events.

Friedman explains the difference between instructed and uninstructed events; and clarifies the two components of event-related potential that can be elicited together in responses to both ‘target’ and novel events.

Responses to the targeted tasks are processed along with deviant responses to novel events. Processing of targeted tasks takes place at the posterior of the brain, while the ‘novels’ are processed in its frontal region.

“We decided to have five simultaneous views, one for each of the entities, and one each for the pre-synaptic, the synaptic, and the post-synaptic nucleus.” Figures 33 “Exactly what images we would get could not be determined until the movie was actually rendered.”191

Friedman et al. p.358 “We will use the term ‘novelty P3’ to refer to the P3 component elicited by events about which the subject has not been instructed prior to the experiment (e.g., environmental sounds). These events are, by definition unexpected. The term ‘target P3’ will refer to the P3 component elicited by events about which the subject has been instructed and to which the subject is expected to generate some kind of response. The terms ‘P3a’ and ‘P3b’ refer to ERP components that can be elicited by a variety of stimuli, including those that are defined as targets as well as novels, and can also co-occur within the same ERP waveform. The P3a is frontally oriented, whereas the P3b is localized to posterior scalp.”

190 Friedman et al. p.358
191 Simon Chui, Hsuhan Chiang 2004
Working between the affects of Christian Marclay’s Video Quartet and my (~) prototype profile drawings my individual and collaborative practice converged. It was an instance of event-related potential where processing task-oriented stimulus operates in parallel with deviant or unexpected stimulus. The drawings had been done for a task unrelated to my individual SUITE production of interacting views, yet were another view of its internal oscillations. Specific points in the drawings indicate nodes. (Figure 12)

Nodes are auxiliary points or gaps in the transport of nerve impulses along the axons of nerve cells. Figure 35 They correspond to edit points in SUITE where ‘impulses’ or lines of engagement connect between the separate sectional views.

Comparative to operations in the cortical structure of the brain (Figure 36) the movie’s disjunctive processing generates an intermedial affect of sensation and an intermedial image of thought, bringing the potential of the combined views to a point of emergence.

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192 Tortora and Anagnostakos pp. 270-1 Nodes of Ranvier are found in the myelinated fibres of nervous tissue.

193 Gray's Anatomy of the Human Body

Awareness of the networked longitudinal and latitudinal pathways in the layered structure of the neural system affected my design of SUITE in the sense of simulating how the processing of stimuli affect separate regions and separate layers of the brain.  

Each of the three views in SUITE retains its distinct depth of view while simultaneously being connected laterally by ‘gestural pathways’ between movements, architecture and different topographies. Figure 37

The saliency or striking value of image and sound become intertwined. It is as if we took the linear model of time described in Libet’s tests and superposed it throughout the millions of networked connections in play every second throughout the nervous system.

We exist within the temporalities of the world, “marked by the qualities of a dynamic presence”, the movements of air, a night, the imperceptible growth of a child, and a tree, the sound of hammers; these are haecceities, evanescences; becomings.

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194 The Neuroscience of Consciousness  
http://www.users.globalnet.co.uk/~lka/conz3a.htm#introduction (13 September 2004)

195 Sumich, J. Supplementary notes to my earlier analysis of SUITE in Chapter 2. In this section I am discussing the architecture of SUITE in relation to convergence between my individual art practice and (~) neural design.

196 Clarke, C. 1999 Embodied Time  
In his paper on *Embodied Time*, Chris Clarke surveys various philosophical approaches to “the idea of time”. He places emphasis on *Time and Being*, by the philosopher Martin Heidegger who tried to solve the problem of how time was to be understood.

Heidegger acknowledged “the prevalence of the idea of “now” as a representation” of “the conjunction of the present as presence and the interweaving of past, present and future in our conception of time.”

“Time familiar to us as the succession in the sequence of nows is what we mean when measuring and calculating time.” Heidegger contrasts how we measure time by the clock: “it seems that we have calculated time immediately and palpably,” and yet time is nowhere to be found there in its technology. He decides that time is *presencing* what is absent. By this term he means that presence embodies absence.

When we refer to the past we don’t mean everything that is no longer present – we are referring to things that concern us, and are therefore palpably present by their absence. The same principle applies to the future – we are affected by whatever concerns us about the future; thus bringing the future into our moment in time.

Heidegger solves the problem of embodying absent time by expanding the spatial sense of the adjective for ‘present’ (*anwesend* in German) and transforming it into a verb-noun das *Anwesen* – ‘presencing’ in the sense of an *approach*. “But absence also concerns us in the sense of what is not yet present in the manner of presencing in the sense of coming toward us.”

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197 Ibid.
199 Ibid: quoting Heidegger
**Wesen**: definition 2. v.n. (Poet.) live, work, be. Plus separable prefix: **an**. towards.
201 Clarke: quoting Heidegger, M. *Zeit und Sein*, p.13
My understanding of this model of superposed time is sensed from a different approach to my 16mm movie, a film 00:05:05, when moved to research the capabilities of new software. Particular aspects, invisible to the cinemagoer, became nested in those experiments. Superposition of these haecceities of film and software processes expanded into Light Affects. Video Quartet x prototype drawings for (~) Interaction in Embodied Time x the multiverse x latitudes and longitudes of cortical brain structure = SUITE.

Clarke’s outline of Embodied Time is concerned with “how the interplay between creative being and temporality is the core of what it is to be human, as conscious feeling agents.” He refers to the “Russian dolls model of time” by saying that: “When we develop and analyse the multiplicity of our temporality, we see an intermeshed network of temporalities, each reflecting this same dynamic.”

The problem for my final section is How to make visible this entangled intermedial approach?

The answer = Make the equation fit the experiments.202 Make visible what remains constant throughout these experiments.203

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202 McEvoy, J.P. & O. Zarate, (2004). Introducing Quantum Theory UK Icon Books p. 37 “The constants C1 and C2 are numbers chosen by the physicist, Max Planck to make the equation fit the experiments” [in thermodynamics].

203 Collins: constant Physics: a theoretical or experimental quantity or property that is considered invariable throughout a particular series of calculations or experiments.
Entanglement and interference

If being present is turning toward what is of concern, what is it that generates concern? Haecceities: dynamic particularities of experience clustering together the particular salience and intensities passing through particular fields of energy. The agent of affection emergent from these dynamics is the constant: *intermedium* (*I*).

*I* belongs to “an intermeshed network of temporalities” = a brain, a screen, a field of energy, a plane of immanence; sites of becomings, individuations. 

The other constant is *movement* (*M*) – life. 

*I* x *M* = *E*² comprises *E*₁ energy *E*₂ entanglement

Deleuze defines the plane of immanence as a diagram, but also as both elevation and plan [*horizon* and *ground*].

The plane of immanence is essentially a *field* where concepts are produced circulate and collide with one another. It is successively defined as *atmosphere*, as something formless and fractal, as horizon and reservoir, and as an indivisible medium. ²⁰⁴

This section on *entanglement and interference* is a thought experiment about the future; it is turned toward a plane of indetermination. It considers what if without a what. *I* x *M* can only be known through experience, and mapped with reference to the sensations and images of thought that populate it. ²⁰⁵

As I referred to earlier in this Chapter, experiments in digitized film bits correlate with later experiment results. They become “entangled superpositions”.

²⁰⁵ Ibid. My adaptation from: [This field] “can only be defined and mapped with reference to the concepts that populate it.”
In the world of quantum systems, “according to some physicists it is specifically these entangled superpositions that open up extraordinary possibilities in information processing.”\textsuperscript{206} We could add that it opens up extraordinary possibilities for intermedia art.

\textbf{I x M} presents itself as a curved space stitched together in QuickTime VR Authoring Studio. Through their \textit{presencing}, interactants can carve up this amorphous world into objects and events. Figure 38

![Figure 38 Diagram: I x M Plan view Julaine Sumich 2006](image)

Functions:
Synaptic sensor points are embedded in interchanging regions of \textbf{I x M} i.e. behaviours trigger activation of a successive action in separate region.
Uses image recognition: takes camera as input > outputs gestural curves.

Options for behaviour:
In passing between these points the interactant, via webcam image recognition, triggers the release of embedded intermedial becomings. Figure 39
Gestural interactions become visibly entangled on the surface of the plane. Figure 40

\textsuperscript{206} Brown, p.36
Movements interfere with this world. Their interference brings to life the many worlds that populate *AFFECTS: Intermedial Images between Art, Philosophy and Science.*

Between their parallel realities, new clusters of potential emerge. They become visible on the screen of *I x M.*

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207 White, N.S. and M. T. Alkire, Department of Anesthesiology, University of California at Irvine, Irvine, CA, USA 2002. [http://www.users.globalnet.co.uk/~lka/conz3a2.htm](http://www.users.globalnet.co.uk/~lka/conz3a2.htm) (17 January 2006) My diagram outline is adapted from diagram by White and Alkire. All contents: J.Sumich 2006
David Deutsch, the noted Oxford physicist, sees interference rather than entanglement as the crucial phenomena in quantum computation. In a multiverse system of parallel realities, “entanglement is a natural by-product.” “The surprise is interference because it allows these different realities to overlap and collaborate.”

Intermedial dynamics, the way patterns of imaging change in time, and their non-linear collaboration in other worlds are important factors within this process of affection.

**Response to Processing Novelty II**

I x M is the juice that solves the binding problem i.e. what it is that holds things together. The dynamic agency of the intermedium entangles variable mediums of becoming in its processes. Interactants, through gesture and expression, make visible the event-related potential of the human mind. In parallel time, they participate in, and transform, the novelty that generated their initial response; sustaining the becoming-world of the equation.

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208 Brown, p. 37
Conclusion

In a world where thought and art practice hang in the balance we need to make capital out of our innate readiness potential to sense, consider, and detect what is still unknown.

Martin Heidegger’s philosophical text, Was heisst Denken?, is translated in English editions as What is called Thinking? 209

If, instead of the noun, we place the emphasis on the verb, the question might also be interpreted to mean: What calls thinking (into existence)? How does thinking come about? The answer lies in a turning towards what is happening now; a holding of attention where what is already known participates in the unknown and becomes transformed.

In my theory and art practice, Action Script, or the script for action, has become a turning towards what is of concern; Abraham Moses’ advocacy of interference in the channels of communication has become the notion of interference at the quantum level of parallel universes; expanded consciousness is transformed into the plane of immanence; and the chemistry of affection turns into the entanglement of haecceities, life itself.

Haecceities, as presencings, have in-formed the intermedial affections in my experimental practice and images of thought. They refer to an atmosphere, or milieu, medium; charged with energy.

In Latin, haec is the feminine and plural version of the demonstrative pronoun, hic: ‘this’. 210 Ecce is an adverb for ‘behold !, lo!, see!’ 211 In the overlapping of how these uncertain yet specific things are to be regarded, haecceities can be interpreted as ‘making these (presences) felt’.

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211 Ibid. p.185
My dissertation has sought that power that will generate sensations in the body and give muscle to thought. Putting art in collision with philosophical concepts and scientific principles such as the intermedial Coleridge/Higgins affair, Deleuze's noosigns, Friedman's processing of novelty, Damasio's feeling of what happens, and Tauber's elusive synthesis, brings about such affects.

I've often had this feeling, of a confrontation between something that was already there and something that was about to take its place. I'm in the middle, and I seize the mass that's already there. ... It's almost a question of muscles, of physical dexterity. 212

Marguerite Duras' thoughts on writing resonate with mine regarding the autonomy of affect between my art and theory when the “the non-writing part of you, which is always up there on the plane of thought”, 213 becomes embodied in the text.

On the other hand, the art part of my practice, the 'non-writing' part, interfaces with my writing program. Its potential autonomically increases as it overlaps the margins, and cedes its own particular intermedial self through that plane of immanence, the electronic screen.

213 Ibid.
Notes
Underlined date indicates website
1. Tauber, 1996.
2. Inter Éditeur, 1999, 5.
3. Ibid., 5.
4. Friedman, K. 1998
6. Ibid., 24.
10. Raysor, 3 and 28, n.1; 32, n.4.
13. Ibid., 95.
15. Friedman, K.
16. Inter Éditeur, 13.
20. Sampson, xxxviii–xxxix
22. Inter Éditeur, 5.
23. Milne, 106.
24. Ibid., 105.
25. Sampson, 91.
27. Higgins, 1978, 12-16
28. Ibid., 16.
29. Sampson, 93.
30. Collins, 25
32. Ibid., 88 and McKusick, 1986, 113-118.
35. Knight, 1995, 76.
37. Shawcross, 1907, 220-221.
40. Moren, 3, and K. Friedman.
41. Raysor, 32, n.4.
42. Ibid., 32-33
43. Ibid., 33.
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51. Youngblood, 41.
52. Oosterling, 2003, 43.
53. Ibid., 44.
55. Sumich, 2005, Chapter 5.
56. Deleuze, 1985, 277-278.
57. Ibid., 335.
58. Antonioni, 1975
60. Deleuze, & Guattari, 1987. xvi.
64. Deleuze, 1985, 179 – 181.
67. Ibid.
69. Deleuze, 1985, 270-279.
70. Ibid., 278.
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76. Flaxman, 367.
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80. Collins, 37.
83. Leonardo, (e-mail), 2003.
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89. Wright, 2004. [Video-recording]
90. Wright, 2000, 155.
92. Damasio, 2000, 107-130.
95. Kaufmann & Heller, 16.
96. Sumich, 22. 8. 05.
98. Cooper, 2005, 328.
99. Ibid., 336-338.
100. Bogue, 2003, 166.
105. Deleuze, 1985, 243-246.
106. Damasio, 128.
108. Deleuze & Guattari, 378.
110. Ibid., 203: n.19.
111. Ibid., 21.
113. Kaufmann & Heller, 16.
114. Deleuze, 1985, 211: n.31 and n.32.
115. Ibid., 203
117. Deleuze & Guattari, xiii.
118. Ibid., 482.
120. Deleuze & Guattari, xii – xiii.
121. Massumi, 227.
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