Matthew Fuller
The Camera That Ate Itself[1]

The camera, for Vilém Flusser, is one of a class. An apparatus.

Does anyone know exactly who is originally culpable of the idea of the leisure society? This persistent whimsy that labor-saving technology will of itself release people into a helter-skelter world of self-determined fun is less of a theory than a sub-urban myth. One, perhaps, of its progenitors turns up a few pages below. It is a dreamscape already crashed into the ground by the prescience of science fiction's constant turning inside out of future perfect worlds. Nevertheless, Flusser's *Towards a Philosophy of Photography* insists we play along. Having been liberated from the necessity, if not from the compulsion, to work, people are available for play. Play is achieved through the use of simulations, extrapolations from, and extensions of body organs and senses. The user's role is to conjoin with this world of simple rules and infinite iterations of use, and to work through them. In this schema, "With every… photograph, the photographic program becomes poorer by one possibility while the photographic universe becomes richer by one realisation" (Flusser 2000: 26).[2] The force released by the camera is this drive to complete the program of all potential photographs. The camera is an example of a post-instrumental apparatus. It is no longer simply a tool but a domain in which the user, "controls the function of the apparatus thanks to the control of its exterior (the input and output) and is controlled by it thanks to the impenetrability of the interior." (Flusser 2000: 28) Further, "there are… two interweaving programs in the camera. One of them motivates the camera into taking pictures;

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[1] The present text is identical with chapter two of Matthew Fuller's *Media Ecologies. Materialist Energies in Art and Technoculture*, MIT Press, Cambridge 2005. We thank the author as well as MIT Press for having granted the permission to reprint the text. For more information compare the following link: http://mitpress.mit.edu/9780262562263/ .

[2] Flusser's suggestion that the apparatus of the camera compels the user to take photographs, and in a demented enclyopedism to attempt to exhaust the infinity of all possible images is perhaps best taken up by Bernd and Hiller Becher's cataloguing of building types - water towers or half-timbered houses; Ed Ruscha's, *Every Building on the Sunset Strip*, (1966); photographic documentation projects such as the *London's Found Riverscape* project; the cataloguing of people, types and individuals by the police initiated by Cesare Lombroso and Georges Bertillon (see, Peter Hamilton and Roger Hargreaves, *The Beautiful and the Damned, the creation of identity in Nineteenth Century photography*, Lund Humphries / National Portrait Gallery, London 2001; John Tagg, *The Burden of Representation, essays on photographies and histories*, Macmillan, Basingstoke, 1988; Armand Mattelart, *The Invention of Communication*; Marek Kohn, *The Race Gallery, the return of racial science*, Vintage, London, 1996); or by the compulsive second-order copying, or of attaining rights to copy of picture libraries. Such a drive or a codification of it can be seen also to compose recent photographic activity, as it veers into acknowledging and using its potential collapse - in the amassing of near non-photos by Hiromix for instance – and of the representational task supposedly left to it by painting. (Facial recognition software inverts this relationship. Every face is scanned, but only those that correspond to a certain 'meaning' by which they are correlated to another sector of the photographic universe count as 'successful' images.)

the other permits the photographer to play. Beyond these are further programs - that of the photographic industry that programmed the camera; that of the industrial complex that programmed the photographic industry; that of the socio-economic system that programmed the industrial complex; and so on." (Flusser 2000: 29)

What is of interest here is firstly, the notion that a technology is a bearer of forces and drives, is indeed made up of them. Secondly that it is composed by the mutual intermeshing of various other forces that might be technical, aesthetic, economic, chemical: that might have to do with capacities of human bodies as affordances, - and which pass between all such bodies and are composed through and amongst them.

Flusser's open-topped hierarchy of systems which meet and mutually compose the camera maintains a cumulative openness to the inevitability of the embrace of a next layer. Nevertheless, it makes possible a provisional definition of the term 'apparatus': "A complex plaything, so complex that those playing with it are not able to get to the bottom of it; its game consists of combinations of the symbols contained within its program; at the same time this program was installed by a metaprogram and the game results in further programs; whereas fully automated apparatuses can do without human intervention, many apparatuses require the human being as a player and functionary." (Flusser 2000: 31)

Here, iterations of multi-scalar relations of causality and interpenetration are compiled layer upon layer. Base and superstructure shot through a kaleidoscope. Programs and metaprograms are never clearly defined as distinct. The relation is simply one of scale, or of order. Words are wrapped round each other as a sequence of digestions. How to think them through as a dynamic, multi-material shape? There was an old woman who swallowed a fly. The orthographic space of writing needs to trick itself into growing a digestive, circulatory and immune system in order to cope with the complexity of the inter-relations Flusser begins to signpost. I don't know why she swallowed a fly. I guess she'll die. How to navigate a thousand stomachs and their attendant bodies all stretched round each other and sequentially digesting? The programs that interweave to synthesise the camera also sprawl outwards denying the possibility of a fundamental or originary procedure of knowing. The smallest speck of fly at the centre is compressed into a speck of pure inflammatory anti-digestive corpus at the centre. The shit-slurping bacteria clinging to its feet multiply and leak out across the red fissures of a thousand layers, erupting as an oracular pustule in the gut of the camel sent down the stomach of the old lady to rid herself of the problem of the yak. The human container of this zoo becomes simply a figment of an excuse for the mercilessly accumulative deployment of expeditionary force. Each beast piles in with the sole intent of devouring everything that has gone before it. To

stretch to the uttermost, to dislocate its jaw in proof of the capacity to swallow and contain all the flesh of every being beneath them. The hierarchies of place in the order of swallowing, or species, of size, the local switching order of bipolar animosity (cat and dog, or elephant and mouse) extend to infinity

Each body stretched around another marks the mastery of a domain. A feudally stuffed feast of bird corpses, starting with a wren, proceeding through a sparrow, a pigeon, a grouse, ending with an outer layer of swan is a display that material can be extracted from watery, hedge, wood and moorland habitats and an enactment of the rule that the princely eater is at the summit of them all.

The old woman beats her menagerie with a stick, there is no escape from her blows except for the plunge down her throat. An army of zookeepers and peasants, explorers and biologists threads their way up the stairwells and lifts, dragging animals, carrying boxes and cages. An industry of receptionists and secretaries, security guards and interpreters builds up around the scene of her swallowing. She is oblivious to them. The movements of her arms and face, the staggering of her legs as she manoeuvers the enormously distended and writhing stomach, are interpreted as instructions and relays of news. Inside the giant stomach, the ribs, skin and muscle of the flank of an animal burst under pressure. Its contents shoot out of the nostrils of the one sent to catch it, drawing with them further juices and part-digested flesh which flood out of the arse, the ears, the eyes, the nose the exploded urethra of the subsequent animal. There is a constriction or a collapse of certain sections of the strata. Muscle slimes and fat becomes runny amongst the acids. Hairs clot into indigestible clumps. Layers swill round each other. No one can find the fly any more. There is no trace of the spider inside her.

An apparatus is never necessarily taken as the composite or the sum of all the programs that compose it. Any one or any combination of these programs, themselves the result of others can be pursued as a compositional imperative. This problem is partly to do with the way media technologies are understood to form wholes rather than assemblages. In the last chapter the machinic phylum was presented as one model making a useful account of the interrelation of heterogeneous elements. Part of the work of all of these chapters is to extend the means by which such conjunctions, such compositions of elements and drives operating at multiple scales can be said to conjoin. Whilst it may have value in other contexts, (Chapter four will make *use* of such a search and the problems it throws up) here there is no particular need to look for an originary fly, an originary speck in order to form such a set of concepts. This section then, is itself a section, across certain of these layers of apparatuses. At first, of the camera, and then elsewhere.

The scanning device of the art catalogue is able to make certain sorts of paratextual statement about either of the class of objects it lists[3]: a work, an artist. Birth; study; scholarships; exhibitions, solo or group; monographs on, essays on, articles on; teaching positions; residential location; photograph; statement; death. Title; date; materials; dimensions; ownership. Information that registers its contact with other forms of apparatus, institution, citizenship, intentionality, authorship, discipline... As with the flat list of components of the pirate radio, each element in the list presents a multidimensionality of composition with its own economies and traits. That of the exhibition, *Live in Your Head*[4] I am reading as a photocopy. All the halftone images have been reduced to grey and white patches of toner. Detail has been lost through the filtering processes of the copier. On page 104, John Hilliard's work, *A Camera Recording its Own Condition (7 apertures, 10 speeds, 2 mirrors)*[5] is reproduced at a thirtieth of its size. The work however is still clear, as a procedure.

A camera is positioned in front of a mirror. The photographer works through every combination of settings for aperture and speed. Each time the combination of settings is changed, a picture is taken. The hands working the outside of the apparatus appear along with the camera. They also hold a smaller mirror, showing the settings on the top of the apparatus. At the upper left of the grid of prints resulting from this program of work, the emulsion is left utterly unstained. From the bottom right corner, up to a diagonal margin, and encompassing almost a third of the prints, the results are completely black.

Every size of aperture allowed by the camera is run through, correlated with a procedural workout of every shutter speed. As the various combinations are made, the two mirrors bounce the camera's own reflected light back to it and the film it contains is reorganised by a measured amount of exposure to light waves. The seventy negatives resulting from this procedure allow, through the prints derived from their transition from whiteness to blackness, the gradually appearing and disappearing image of the camera to be seen. The program of the image is both built and erased by the apparatus which composes it. In 'photography', the proper use of a camera, the degree of darkness or lightness of the image indicates the closeness to or distance from sources of diffuse or direct light of the object being photographed. Such use of the apparatus is here revealed as being precariously lodged between whiteout and blackout

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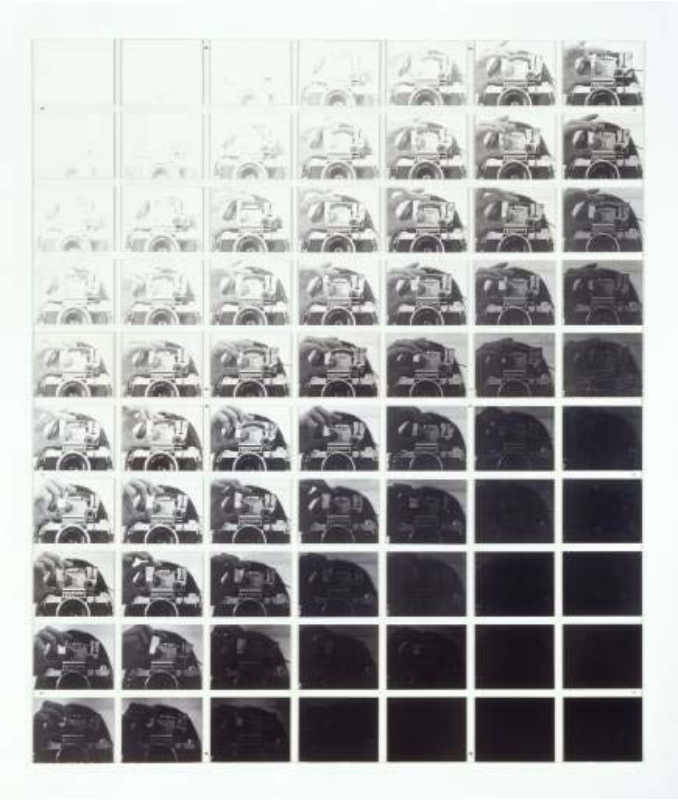
[3] See, the artist group Bank's section of commentary on art press-releases in, *Bank*, Black Dog Publishing, London, 2000

[4] Catherine Lambert, *Live in Your Head, concept and experiment in Britain 1965-1975*, Whitechapel Gallery, London, 2000. There is a better, full-page reproduction of *Camera Recording…* in, 'Three Pieces by John Hilliard', Studio International, April, 1972.

[5] See the picture on page 5.



John Hilliard, *A Camera Recording Its Own Condition (7 apertures, 10 speeds, 2 mirrors)*, 1971, Courtesy of John Hilliard and Tate Gallery London

Media Discourse

A substantial development of the concept of discourse is made by Friedrich Kittler. For Foucault, discursive practices are "characterised by the demarcation of a field of objects, by the definition of a legitimate perspective for a subject of knowledge, by the setting of norms for elaborating concepts and theories." (Foucault 1997: 11) Like Flusser's 'programs', the transformation of a discursive practice is "…Tied to a whole, often quite complex set of modifications which may occur either outside it (in the forms of production, in the social relations, in the political institutions), or within it (in the techniques for determining objects, in the refinement and adjustment of concepts, in the accumulation of data), or alongside it (in other discursive practices)." (Foucault 1997: 12) The processes of discourse-formation, how such compositions change, what they encompass, how they come to know

and to speak are traced by Foucault in a series of studies which move from one crucial locus to another, the hospital, prison, madness, sexuality… The rules for the definition of objects are not the same as "the rules of utilisation for words"; that of concepts, "not the laws of syntax"; and those governing the formation of theories are "neither deductive nor rhetorical rules." (Foucault 1989: 52) Here, 'archaeological' study of discourse, its variable detail and operation allows deep rules, those that are unspoken, to come to light. Crucially, discourse formation does not only determine what lies within it. There are also such rules which govern in terms of "of its system of exclusion, of rejection, of refusal, in terms of what it does not want, its limits, the way it is obliged to suppress a certain number of things, people, processes…" (Foucault 1989: 65) This aspect is crucial to Foucault's project and it is what allows it to be so readily taken up as a political tool. The variability and power that Foucault's approach in its various forms allows is recapitulated by Kittler, but with something of a sense in which this readily political aspect has itself been attenuated. Kittler's glee at the displacement of 'so-called man' from a universe which cradled him at its centre tends occasionally towards a relocation of Hegelian *Geist* from the human to the technical object. The political dimension that Foucault never lets go of is more implicit rather than specifically blocked in the notion of discourse that is developed by Kittler. At the same time, his richly researched operations moving from library stacks to computer circuits provide a compelling example of discourse on and through media. Taking up from where he suggests Foucault leaves off - according to Kittler, Foucault's work, being primarily concerned with textual material largely cuts out at the point where modern electronic media emerge, between 1860-1870 - his procedure for organising the recognition of discursive practices makes a substantial and profoundly useful expansion of what is understood to be constitutive of discourse. As such, the study on writing systems (*Aufschreibsysteme*)[6] ranges through the interrelationships of the invention of a class concerned precisely with writing as a function of the state – the civil service; the development over the period of the nineteenth century of various pedagogical approaches to reading and to the alphabet; the gendered and progressively industrialised economy of books. In works following this, he moves to explore how discursive practices become hardware, how discourse becomes subject to systems of storage, transmission, informatisation, processing, and how they can be said to become both constituted and operated upon by systems of logic incorporated 'ultimately' as "voltage differences". (Kittler 1997: 150)

[6] Friedrich Kittler, *Discourse Networks 1800/1900*. Although the potential for this development is certainly latent within Foucault's work Kittler's development of it is very significant. For example, 'Discursive practices are not purely and simply modes of manufacture of discourse. They take place in technical ensembles, in institutions, in behavioral schemes, in types of transmission and dissemination, in pedagogical forms that both impose and maintain them'. (Foucault 1997: 12)

Foucault did not simply work on documents and their dynamics of composition and arrangement, but also what they refer to and invoke, biopower,[7] and the 'apparatuses', 'instrumentalities', 'techniques', mechanisms', 'machineries' and so on by which it is wrought and made available.[8] There is a cycling between text and hardware, textual practices and those of the body, surfeits of namings and orderings. There is a pattern found amongst certain kinds of enunciation that is also found in certain arrangements of space. We can recognise for instance how Kittler takes these arrangements, these procedures and shows how they are made material. The split between representation and materiality posited by humanist scholars, whilst always untenable, is in this context felt as more keenly useless than elsewhere.

What is planned for here is to explore what is initiated by Kittler's extension of discourse – that is that systems other than books, papers, acts of government - media systems – also compose discourse, have rules of formation, generate processes, subject material to certain 'tests', allow access, impose filters, establish norms. How are these dynamics present within the 'technical ensembles' of what Flusser describes as media apparatuses, and in post-textual forms of "transmission and dissemination"? (Foucault 1997: 12)

The approach to this problem that will be taken is suggested in a description of a course run at the Collège de France (Foucault 1997: 11) Foucault makes the intriguing suggestion that operating through discursive practice there is 'anonymous and polymorphous will to knowledge' that girds, forms and drives discursive formations. For Nietzsche, 'Knowledge and wisdom in themselves have no value; no more than goodness: one must first be in the possession of the goal from which these qualities derive their value or non-value." (Nietzsche 1968: §244)That is to say that they are primarily interested and antagonistic, what Sharon Traweek, Donna Haraway, and other feminist writers on science have called 'situated',[9] that they operate as a mode of articulation of the will to power.

Given the reformulation of discourse put into play by Kittler, which situates it firmly within and as its domains of mediality, what are the ways in which the elements of media systems might operate as instantiations and bearers of 'will'?

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[7] Michel Foucault, *The Will to Knowledge, the history of sexuality vol.1*, trans. Robert Hurley, Penguin, London, 1998, p.140-144. See also Michael Hardt and Antonio Negri, *Empire*, Harvard University Press, Cambridge, 2000

[8] This partial list of terms derived from Foucault is that made by Michel de Certeau, in 'Foucault and Bourdieu', *The Practice of Everyday Life*, trans. Steven Rendall, University of California Press, Berkeley, 1988, p.45

[9] It should be noted that much of the insights to be gleaned from Kittler parallel in part developments in the study of science and technology over the past two decades, through for example, the current loosely termed Actor - Network Theory; and through related and proceeding tendencies. This useful set of currents is not comprehensively, mapped, referred to or mobilised here although it is referred to, but does provide a set of explicitly discursive interconnections which it is essential to flag. In a sense too, by their explicit and subtle development of the themes referred to, via Foucault in the *History of Sexuality*, as biopower, such work may well provide an advance on a good deal of the more 'media' specific work discussed here.

Will to power

As it is a common initial misreading of the scope of the will to power, it is necessary to separate this notion of will from that of intent. (Indeed, under cynical democracy we have necessarily learned to distrust the concept of will generally. That variant 'Free Will' being a legal category which is extended only sufficiently to allow the location of and registration as culpable of a person.[10]) There is some possible overlap of these terms when it comes to compositional design or use of materials on the basis of their affordances and predispositions, but this discussion should become apparent as the text progresses. It is necessary too, as for instance also in the discussion on memes in chapter four, to be clear that there is no reference to solely biological systems implied here either. "Intent" would, as derived from Nietzsche, only operate on the level of the subjectival apparatus formulated as "the little word 'I' " (Nietzsche 1968: §548), a mnemonic, an abbreviative formula that can be momentarily located at one scale as an entity, but that – through bad habits – is misconstrued as a cause.

Alphonso Lingis, writing of Nietzsche's array of formulations of the will to power expresses it as 'The chaos, the primal fund of the unformed – not matter but force beneath the cosmos, which precedes the forms and makes them possible as well as transitory.' (Lingis 1985: 38) The will to power exists before any of its alternations of mode and always subverts any attempt to find ultimate cause. Power is also the condition of life. In its molten form power curses the globe.[11] The sun pours an overabundance of energy onto the planet, dragging plants up from the ground by the sheer force of the interaction of their cells and system with heat and resources. The primal fund of the unformed is matter or energy that has escaped from one system into the domain of another. Nothing is innocented by its previous state. If such power cannot be accommodated, turned into fuel, into mutational drive, it is dislocated, moves on, finds another vector. This is the cataclysm of power, the superabundance of energy that courses through all matter to render it 'live' and that also ensures its destruction. The will to power is what moves things across thresholds but that cannot be defined by the states exemplified on either side of that threshold, it is what propels the fulfilment of what can momentarily be understood as a phase space but is not reducible to any steadiness of state.

For Nietzsche, the "body and physiology" are "the starting point"(Nietzsche 1968: §492) for knowledge. Such an understanding of intelligence is useful here in two ways. Firstly, that materiality and action ground perception, ordering, thought, knowledge. Secondly that there is no inherent hier-

[10] See for instance, s.68 'Will and Willingness', Friedrich Nietzsche, *The Gay Science*, trans. Walter Kaufmann, Vintage Books, New York, 1974.
[11] George Bataille, *The Accursed Share, an essay on general economy, vol.1* trans. Robert Hurley, Zone, New York, 1991.

archy in the organisation of this process. The 'subject' is merely a regent at the head of a 'communality' of processes all of which are in a continual state of agitation, in and outside of any named body, with relations between them fluctuating. The subject thus emerges from the sustained interactions of these 'subordinate' forms. Indeed, "the relative ignorance in which the regent is kept concerning individual activities and even disturbances within the communality is among the conditions under which rule can be exercised." (Nietzsche 1968: §492) The subject is a case of perspectival position rather than a categorical *a priori* to knowledge. The question therefore of the scale at which the subject - what constitutes something to be recognised, to be interrogated, that provides resources, evidence, that gains entry to discourse - is approached will of course form, in particularly detailed and various ways, a key mode of operation for Foucault to mobilise.[12]

In the notebooks compiled in one way under the title *The Will To Power*, 'thinking' appears in a number of forms. In the brief section, 'Biology of the Drive to Knowledge. Perspectivism' it incarnates as: the pre-organic "crystallisation of forms"(Nietzsche 1968: §499); as bounded by the extensivity necessary for the preservation of life (Nietzsche 1968: §494); as a process of "making equal" such as the "incorporation of appropriated material into the amoeba". (Nietzsche 1968: §501) Thought is no special category of activity. It echoes and reforms the processes which are described as characterising the goings on of other entities devoid of soul, spirit, or subjecthood, crystals, animals, accidents, errors. It is as if everything located its proper place in the encyclopedia jumps page, shuffles its function, finds its precursor, becomes its "intensive egg". (Deleuze / Guattari 1987: 153) All of these images of thought, of subjecthood, of thought as the activity proper to subjectivity, are subject to morphological shift. Jumps in causation occur ranging from chemical, evolutionary or topological function to those of scale: epochal, planetary, racial, cultural, ideological or cellular. At every point, "…all sense perceptions are permeated with value judgements." (Nietzsche 1968: §505)

Whilst, for various reasons, it is by no means possible to conflate their arguments or their special terminologies, it is possible to suggest at this point that for Nietzsche as for Flusser, various programs, compositional terms, drives, interweave to produce the apparatus. We settle for a time at a particular 'abbreviative formula', the camera for instance, knowing that naming it thus, just as with the invention of the subject, "makes a kind of perspective in seeing the cause of seeing". (Nietzsche 1968: §548) Nevertheless, we must operate on a multiplicity of scales, scales that have both onto-

[12] For a summary of this influence in relationship to the subject see, Keith Ansell-Pearson, 'The Significance of Michel Foucault's Reading of Nietzsche: Power, the Subject, and Political Theory, in Peter R. Sedgwick ed. *Nietzsche a critical reader*, Blackwell, Oxford, 1995.

genic[13] capacity and perspectival limitation. Just as Nietzsche hungered for the strands of philosophy that had not passed through the recursive sausage machine of monotheistic thought[14] but was compelled to write with and through concepts poisoned by it, what we understand as the apparatus has a history.

A specific part of such a history is of particular use here: that, "The entire apparatus of knowledge is an apparatus for abstraction and simplification – directed not at knowledge but at taking possession of things." (Nietzsche 1968: §503) Judgement, the pronouncement that something is thus and thus, is - by saying that one thing is both the same - the capacity to cross thresholds and obliterate them as well as to constitute them. If it were to remain only thus, being undisturbed by memory or by other forces, it would constitute simply the performance of re-ordering parts of a stable configuration. But will to power in the reactive form of the faculty of judgement also equalises and makes amenable to reification, transfer, exchange, replacement that which it names as concepts, objects, subjects. This aspect of judgement will be encountered further in Chapter Four, in the discussion of proposed units of cultural evolution.

Will, fixed

One form, conjunct with other economic and legal powers, of this power of naming and judging appears in Marx as "the appropriation of living labour by objectified labour" (Marx 1993: 693) Once work can be quantified, established as a procedure independent of the particular person carrying out the task, its abstraction and equalisation becomes possible. Once dealing with metal can be systematised, assigned numerical values, of temperatures, quantity, speed and pressure and subject to machine forming, stamping, rolling, pressing, without any need for the wastefulness of a polymorphous investment in a sensual understanding of the material's bifurcation points and capacities of flow, the sedentary people have no need for their uncomfortable pact with itinerants. The same act of capture and abstraction occurs on a mutating loop throughout history. The body as the starting point for knowledge has been scanned and disassembled to be rebuilt in a more perfect form. Material becomes a standard object in its apotheosis as a commodity. (This theme is discussed further in the following chapter.) At the same time, as numerous accounts of the factory system and its transmigra-

[13] Félix Guattari, 'Machinic Heterogenesis', in, *Chaosmosis. An ethico-aesthetic paradigm*, trans. Paul Baines and Julian Pefanis, Power Publications, Sydney, 1995.
[14] See for instance, David B. Allison, 'Nietzsche's Identity' in Keith Ansell-Pearson & Howard Caygill eds., *The Fate of the New Nietzsche*, Ashgate, Aldershot, 1993.

tions into other parts of life have shown, work too becomes subject to such processes along with the bodies made, mobilised and wrecked by it.

The following short discussion of technology as a political-economic entity partially locates media ecologies in relation to some of the wider historical and social developments of technology. A number of the projects discussed in these chapters have explicitly political as well as medial and aesthetic dimensions to them. Whilst the general approach here is to draw lessons from specific compositions as they mesh with a network of conceptual tools, it is also useful to flag some of the fundamental dynamics within cultures of media technology. Any advocacy of an opening up and experimentation with computational and medial reality-forming devices taps into wider political debates and combinations. There is danger here as well as the joyfulness of invention. A number of figures are used in this book to describe moments when elements and dynamics conjugate, producing new processes, living explosions, moments of becoming that are at once medial and unprecalculable. But these are not the only such explosions to occur with technology as a contributing factor. That collection of processes and entities known as capitalism is another.

What continues through from the industrial machine to the 'universal' machine[15] is "the monstrous disproportion" (Marx 1993: 705) achieved between the short time of labour expended on a product and its result. The mathematisation of the abstracted form of labour allows for it to be multiplied way beyond the scope of the simple extensions known as tools.[16] 'Reduced to a pure abstraction' what was once labour becomes open to algorithmic mutation, sorting, looping or making tirelessly repetitive, subject to an 'inhuman' increase of speed. In the *Grundrisse*, the machine tends to reach its "most adequate form" (Marx 1993: 692) the more it becomes automatic, that is, the more its relations are with other elements of a system of compatible machines. Capitalism motivates the extension of this system of sames by achieving a transubstantiation of bodies from living flesh. The many forms of intelligence, rhythmic and productive power carried by bodies are carried over, as in a sum, into another column, another material dimension which is orders of magnitude greater. Physiological and intellectual power is transmogrified into a form adequate to fixed capital and ultimately to circulating capital. (Marx 1993: 692) This system of sames is recursive. Such a form of production is also magnified and extended by the objects and processes that pour out of it. Once a particular mor-

[15] The Universal Machine is a name for the abstract, logical machine underlying, but not exclusive to, the digital computer. The name was coined by Alan Turing in his paper, 'On Computable Numbers, with an Application to the Entscheidungsproblem', in, *Proceedings of the London Mathematics Society*, second series, vol.42 p230-265. The description relies on the fact that the machine is able to simulate the operation of any other symbol-based-machine. A version of the paper is available online at: http://www.abelard.org/turpap2/tp2-ie.asp/ For an inspiring and comprehensive biography of Turing see, Andrew Hodges, *Alan Turing, the enigma of intelligence*, Unwin, London, 1985.

[16] Marx names tools as the "means of labour", whose purpose is to "transmit the worker's activity to the object" (Marx 1993: 692).

phology or technique, a particular protocol, a certain rumour of power gets on a roll it spreads. You need the bit that fits with that bit, that correlates to that set, that fits in there, that produces an output that can feed without loss into that port. As it spreads, it encourages conformity to its set of presets.[17] There is further discussion of such processes and effects in the following chapter's model of the standard object. Here it is useful simply to note that in Marx's account, this results in an organisation of the division of labour "which gradually transforms the workers' operations into more and more mechanical ones, so that at a certain point a mechanism can step into their places." (Marx 1993: 704) The worker as commodity becomes not merely subordinate to the machine as its "living appendage"(Marx 1990: 614) but, when profit or regulation[18] require it, superfluous precisely to a degree that is determined by capital.

This transposition of knowledges and skills, patterns of life and movements of the body was not simply from individual workers, nor was it simply from a statistically idealised aggregate of people engaged in a certain task. Every individual carrying out a task is networked into social arrangements - as we saw in the position of the itinerant metallurgist in the previous chapter. These positions are destabilised, reformulated or destroyed as their function is subsumed by technologies produced and networked into other systems and dynamics. At the same time, this is not a story wherein things always simply end. Forces and dynamics may mutate, reappear, separate into parts, find themselves embedded in new arrangements of elements.

There is a tendency in certain theorisations of technology - not in Marx , but prevalent in media environmentalism - that is ever searching backwards for the point at which life stopped. God stamps the passports of the trespassers in the garden of Eden: 'Citizenship revoked. Go directly to TV, to the book, electricity, agriculture, flint, fire, bipedality, the evacuation of the sea.' There will never be an end to cataloguing every single moment at which all was lost for ever. This hunger for pinpointing a final moment of defeat however will never be satiated - and this is one of the key lessons of the will to power - because there is no equilibrium and never was. 'Humanity', which in its very existence as such is flung out of the idealised ecology, is poisoned and driven by technology and the powers, innovations, curses and becomings that it engenders will never cease.

In his scrupulously suggestive readings of Marx in, *Marx Beyond Marx* and elsewhere, Antonio Negri reveals social and political class dimensions to this disequilibrium, but this fissuring, interweaving and invention of forces shows that there will always be more than any set or class can capture

[17] See for example, W. Brian Arthur, 'Competing Technologies and Economic Prediction' in, Donald Mackenzie and Judy Wacjman eds. *The Social Shaping of Technology*, 2nd Ed. Open University Press, Buckingham, 1999, P.106-112 and, *Increasing Returns And Path-Dependency in the Economy*, University of Michigan Press, Ann Arbor, 1994.

[18] See Marx's precise comments on the Factory Act in the chapter, 'Machinery and Large-Scale Industry', in *Capital,* vol.1.

within its terms. With this in mind, before returning to focus on media, it is worth exploring Negri's arguments on technology in order to clarify how what starts as an expropriation of the capacities of the body becomes an opening into a new realm of possibility. At precisely the point that the worker becomes subordinate to the machine-embodied relation to capital, it is suggested, the antagonism between the formation of such machines by capital and those from whose bodies the diagrams for such machines have been abstracted "takes on the form of working class subjectivity". (Negri 1991: 139) Such subjectivity - a perspectivalism which engenders new powers - opens, under the 'logic of separation', the potential for subversion.

In short, the perspective which Negri and others work through allows the production of a tantalising twist. This is it: "Capital seeks a continual reduction in necessary labour in order to expand the value of surplus value extracted, but the more it succeeds individually with workers taken one by one, the more necessary labour benefits the collectivity and is reappropriated by absorbing the great collective forces that capital would like to determine purely for its own account." (Negri 1991: 145).[19]

Here, the paradox of the society of leisure flagged by Flusser returns as tragedy. As capital succeeds in reducing each individual worker to the status of supernumerary[20] waste there is also an inherent reduction in the need for capital as a way of organising the means for life. The more capital succeeds, the more it achieves redundancy. Living labour is no longer subsumed under self-activating objectified labour, but becomes, "the expansion of necessary collective labour' that, 'constructs a 'social individual', capable not only of producing but of enjoying the wealth produced." (Negri 1991: 145) [21] As productivity increases, so does the pressure posed by the questioning of how much work is 'needed'. Work at once becomes a psycho-social relation as much as one of material sustainment.

Such an opportunity is also developed by the way in which the contradiction between workers and capital expressed in the wage relation becomes gradually surpassed by the "general state of science and the progress of technology." (Marx 1993: 408) This allows work to change into watching over and controlling productive processes, rather than being their main source of energy, and subse-

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[19] See also Marx 1993: 706.

[20] This telling term, indicating that the person has become surplus to requirements, is used a number of times in *Capital*, i.e., p.579

[21] The 'social individual' can be usefully understood as a point of synthesis for a network of relations between forces, of nature, of intelligence, emotion and skill, a node also in the network of social, cultural and productive composition. Howard Slater usefully summarises the stakes of this development: 'This is the danger of the vocational model of work. It brings the energy of desire, an energy between need and satisfaction, into the circuit of labour not as a sublimation and repression of activity, but as the hope for personal fulfilment and socialisation; as an investment of energy… If the factory is now a 'social factory' which has 'general social knowledge' as a force of production, then our very relation to expression as a foregrounding of desire, brings us into a combative relation to capitalism not only as that which reproduces itself through an extortion of surplus value beyond 'necessary labour', but as that which imposes its own space-time, its own institutional values, its own ontology' *Break/Flow Occasional Documents, Towards Situation*, July 2001, section 3.

quently, as a result of the way in which science takes leave of determination by capital, to allow the amount of time spent in even this labour to be incrementally or absolutely diminished.[22]

There are two ways in which this insight must be taken. On the one hand it still describes a potential that is latent within technology, the organisation of work and production, in technical and scientific work and its relationship to the mobilisation of skills, ideas and materials in general, (however much any of their particular instantiations may be politically, culturally, materially and otherwise inflected.) The abolition of work, 'labour-saving', is sublimated, but it still exists as a potential and a dream within the social and also as a drive within technology. The recognition of this potential provides, at the very least, a test against which all new sociotechnical elements and arrangements must be evaluated.[23]

As Paolo Virno notes, describing the way in which this possibility has unfolded, 'The specific contradiction that Marx tied to the advent of communism has become a stable component, if not in fact the stabilising component, of the existing modes of production.'[24] Firstly, the skills that are liberated from direct labour, of sociability, of culture, of thought, become productive motors that are explicitly contested by capital to be recouped as forces of value production. Their position as unofficial support structures for and relief from the activity of work appears as too valuable to waste. Gossip, for instance, becomes a marketing vector. (It is clear that much of this spread of value abstraction from areas of life that were considered to be 'non-work' was already anticipated and argued in advance by feminists and others who were not quite included in the masculine version of the modern which Marx's story tells.) Secondly, these forms of life - and note that they are substantially expanded from Marx's formulation of the general intellect as abstract or scientific knowledge to include affective labour, fashion, political activism, cultural activity and so on - have become forms of actual work or are so closely aligned to the activity of work that they can mutually feed into and supplement each other.[25] Thus, the potential for the theorisation of the absolute subsumption of life by capital, (which

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[22] It should be noted that this part of the theory makes no useful account of the growth in service work or other 'post-industrial' sectors.

[23] There is a rich vein of theoretical work arising from this kind of insight generated by the 'Italian' workerist and post-workerist autonomous movements as they articulate the layering and invention of forms of production. See, for English-language accounts, Steve Wright, *Storming Heaven*; Robert Lumley, *States of Emergency, cultures of revolt in Italy from 1968-1978*, Verso, London, 1990; Semiotext(e) vol.3 no.3, *Italy: Autonomia, post-political politics*, New York, 1980.

[24] Paolo Virno, 'The Ambivalence of Disenchantment' in Paolo Virno and Michael Hardt eds., *Radical Thought in Italy, a potential politics,* University of Minnesota Press, 1996.

[25] See also Raf 'Valvola' Scelsi, 'The Networking of Intellect, the work experience of Italian Post-Fordism', trans. Syd "I was a junkie stagehand" Migx, in Nettime, eds. *README! ascii culture and the revenge of knowledge*, Autonomedia, New York, 1999, p.201-207. This formulation is different to, but not immune from questions from, other Marxist and related approaches (i.e. Horkheimer and Adorno, Althusser, Debord, etc.) or those from cultural studies and feminism amongst others concerning the degree of autonomy of cultural and social production which is not primarily organised as work.

Negri proposes) but also for the suggestion that relations ultimately determined by profit are everywhere contested or contestable, even in the microscopic details of media.

A fundamental problem with this twist is that it anticipates a moment of ahistorical equilibrium, a nowhere to have its news from. The dialectical method which it benefits from, exceeds in clarity the fissiparous and moving nature of what it is dealing with. Now, instead of imagining a stable, even entropic, future 'communism', the challenge this insight poses is to find ways of developing, or forcing dynamic means by which this potential, the powers released by it, may in various ways actively subordinate the political project and effects of capitalisms.

What can we take from this in relation to the question of the composition and arrangement of drives, will to power, within media? Firstly, it is to recognise that there are substantial political stakes in any figuration of the processes of technical and medial invention. Meshes and orderings of bodies and capacities, forces and materials have the capacity to take part in the making of the world.

What industrialisation, and crucially - mathematisation - of such processes allows for is an unprecedented intensification and extension of scope of such combination. Elements of sociability have become like machines, have become part of machines, but now crucially are engendered and empowered by their arrangement within such assemblages until it is functionally impossible to distinguish them.[26] New forms of alliance and transmutation between the social and what has been abstracted - and this abstraction is to include givings, impositions, abductions and so on - from the social into the machined, (not simply extractions operating under a uniform capitalist order) establish the possibility of mutant compositions to cross from one category to the other and for hybrid forms to proliferate.

Before following this proliferation however we need to return to the point where "the general productive forces of the social brain" (Marx 1993: 694) undergo transduction into patterns of metal, silicon, code. Earlier there was an indication that media are not only of quintessential importance in the unfolding, maintenance and invention of discourses but that they can be understood to have an inherent medial will to power - this is the thread that we will now follow.

[26] The theory of Originary Technicity, prevalent in both cultural and evolutionary theory, that homo sapiens was always already technical, locates this particular acceleration and intensification in a far longer evolutionary time-scale, see, Keith Ansell-Pearson, *Viroid Life, perspectives on Nietzsche and the transhuman condition*, Routledge, London, 1997; see also, Adrian Mackenzie, *Transductions.*

Morphology of forces

If the romantic voice was, in Kittler's model of the discursive technology of early mass readership, located in the quivering of the open throat, Marx has it otherwise and borrows Dr. Frankenstein's own electrodes to declare that the machine "possesses skill and strength in place of the worker, is itself the virtuoso, with a soul of its own in the mechanical laws acting through it". (Marx 1993: 693)[27] This raising from the dead of the soul might perhaps work for Marx as a way of stocking up on precious alienation.[28] From Latour however we can derive that, 'Technological mechanisms are not anthropomorphs any more than humans are technomorphs. Humans and nonhumans take on form by redistributing the competences and performances of the multitude of actors that they hold on to and that hold on to them.' (Latour 1996: 225)[29] What was once understood to operate on one plane, that of the human subject, begins to appear elsewhere as technology and vice versa. There is no obligation to search for any originary human fly-speck. In translating this debate into a consideration of media, it is useful to return to Nietzsche's little word, "cause" (Nietzsche 1968: §551) by a leap down the throat of the old woman. Here she is as a young girl, playing with a snake, feeding it some tadpoles in *The Opoponax*:

"When you put the snake in the washbowl with the first tadpole, nothing happens it's no use putting the snake's mouth on the tadpole he acts as if he were blind. But he is excited though. The tadpole is excited too he tries to crawl up the smooth side of the washbowl, he falls back, he begins again, suddenly the snake notices the smell, he stiffens up to locate it, he slithers along making rings around the little animal with his body, the last, very narrow ring formed by the snake's head and neck catches the tadpole." (Wittig 1976: 115)

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[27] See also, on Frankenstein and new social body of industrial capitalism, Franco Moretti, 'Dialectic of Fear', trans. David Forgac, in *Signs Taken for Wonders, essays on the sociology of literary forms*, Verso, London, 1983.

[28] 'Alienation' is a key motor in the revolutionary arrangement which Marx envisages. It is stoked as much by the vision of a non-alienated community which he hints at, wherein no-one is amputated from the fulfillment of their potential, as by the recognition of the nature of capital. Alienation is always necessary to recognize the disjuncture between these two. In the terms of systems theory it is a second-order operation which allows self-recognition. Alienation is the anticipatory form of becoming.

[29] A notable precursor to this 'real technology story' which deploys theoretical, historical, and 'factional' approaches to constructing an account of technological development is Ilya Ehrenberg, *The Life of the Automobile*, trans. Joachim Neugroschel, Urizen Books, New York, 1976.

Artificial Life[30] models such movements, abstracts them, creates new machinic relations of forces out of their non-linear interaction. For example the behaviour of a 'flock' can be generated by imposing a set of three 'forces', that is to say, affordances of constraint and freedom. A gathering force that keeps the flock moving together. A predisposition to shared speed. A separation force that prevents collisions with other parts of the flock or with objects. This iteration of excitation, this transit of sensation from one animal to another produces its own schema, its own rules of war that network the affordances of the bowl and the water and the physical and sensorial capacities of the animals (and the vocabulary and style that Wittig deploys to create them). Outside of the water, the steepness of the side of the bowl provides no affordance of life for the tadpole. Yet the sensorium of the snake is also subject to effect by the tadpole: 'The snake struggles with the motion in his mouth, he swallows, you can see that the tadpole is wedged in his gullet, that he is still moving, that he is moving through the snake's body making a lump in it. The snake seems sleepy. This doesn't keep him from stiffening again when you give him a new tadpole.' The sensorium shutting down into sluggish rest for the moment of digestion? Surely we can recommend eating only in order to ensure a deeper, more absent sleep? What compels the snake to eat all the tadpoles? In what way does the tadpole sense the urgency of movement? Sets of capacities of movement, properties of strength and sensation mesh and wriggle and interlock.[31]

In corporeality, and here this may as well be that of a camera or a network as that of a snake or a tadpole or cascading sets of rules: "Every force is related to other forces, and it either obeys or commands… …Whether chemical, biological, social, or political, every relation of forces constitutes

[30] A useful anthology from the first three areas of the journal Artificial Life covers much of the formative territory in the area, Christopher G. Langton ed. *Artificial Life, an overview*, MIT Press, Cambridge, 1997.

[31] In his discussion of animals in the *Abecedaire* (Gilles Deleuze and Claire Parnet, *L'Abecedaire de Gilles Deleuze*, Editions Montparnasse, 1996) Deleuze describes the actions of animals, their lives, as being 'on the border of thought and non-thought'. However, what is interesting is not necessarily the attribution of such and such a characteristic (in which animals would doubtless get trapped in relation to an anthropomorphised version of thought - or rather, not animals, but their treatment by certain forms of human activity) but how in this tension between these two poles a space is created in which the will to power can be said to be forged. One of the ways such forces can be understood is by their abstraction, as in the procedures adopted in artificial life and complex adaptive systems modelling more generally. Artificial Life shows that, from simple rules followed many times in parallel, complex operations can emerge from the group behaviour of simple, algorithmically determinable elements. And that such determinability does not automatically equate to predictability. Robert Axelrod has also famously shown how a political body, a co-operative body can be formed by the sustained interaction of simple actions, see, Robert Axelrod, *The Evolution of Co-operation*, Basic Books, New York, 1984. See also, Mitchell Resnick, *Termites, Turtles and Traffic Jams, explorations in massively parallel microworlds*, MIT Press, Cambridge, 1994. See for continuing work on social modelling using computational models of complex adaptive systems, 'Journal of Artificial Societies and Social Simulation', at, http://jasss.soc.surrey.ac.uk/JASSS.html
For a simple performance script which uses a genetic algorithm based on John Conway's *Life* game, see Matthew Fuller, *Human Cellular Automata* (2000 – 2001) or for records of various and inspired 'generative psychogeographic' work by socialfiction.org at http://www.socialfiction.org/

a body." (Deleuze 2002: 40) The body that is constituted by these three rules of the flock is made by the battle and interplay between these rules as they cycle in modifying and setting each other off. That bodies are composed by forces that can be replicated (i.e. abstracted and transduced into machinery or computer models) and by forces that operate between and within them (to stay with Marx, let us say, 'value') is the passage between what is classified on one hand as the organic, and on the other as the technological. Let us be clear, these bodies have different kinds of consistency. They do not all pretend to or possess the same kinds of sensory or performative capacity. The human body is not the body that is referred to here any more than a body of water or of work, nor to deny that any of these are more than momentary figures of speech. There is no attempt here to construct a kind of limitless equivalence between bodies in order to reduce them solely to dematerialised patterns (along the lines of Hans Moravec[32] or other proponents of a reductive cybernetics) but rather to enrich a recognition of the ways that they are mutually involved and potentiated: that some dynamics cross bodies, are shared by them, that some drives only exist in the differentiation of bodies, that forces may outlast single bodies, that some bodies are multiple, and so on.

In the last chapter it was suggested that the roots of media are as contagions that, as agglomerations of forces, generate new organs. Rather than being mere 'extensions of man'[33] these organs can be discerned to possess a certain will to power. Remember first, via Nietzsche, that all philosophy must come first from matter, from physiology. Secondly, via Marx, that the sensate and intelligent dynamics of the body are proliferated into the technological. Thirdly, via Flusser, that the physiology we thus think through is composed by the multiple interactions of many multi-scalar actors.

Now it is time to turn to Nietzsche and 'the critique of the concept 'cause". (Nietzsche 1968: §551) The first part of this section echoes the critique of perspectivalism, of the 'I'. Here though it treats the categories of 'cause' and 'effect'. We search for causes because we hunger for the familiar, for the categories that, for instance, separate an arm muscle from its potentiality of movement, of power. Whilst 'linguistically we do not know how to rid ourselves of them', not every sequence of events is adequately described by simple stories of progression from one state to another. 'If I think of a muscle apart from its 'effects', I negate it.' The sensation of being involved with a relation of forces that included that of an arm, of 'strength, tension, resistance' is itself simply a momentary stage in a truly massive sequence of iterations. It is a muscular feeling, a sense of plasmatic coursing

[32] See Hans Moravec, *Mind Children: the future of robot and human intelligence*, Harvard University Press, Cambridge, Mass. 1988. A brief and telling commentary is provided in, Steven Pfohl, 'Theses on the Cyberotics of HIStory: Venus in Microsoft, remix' in, Joan Broadhurst Dixon and Eric J. Cassidy eds. *Virtual Futures, cyberotics, technology and post-human pragmatism*, Routledge, London,1998, p.11-29

[33] See Marshall McLuhan 1994.

through the potentiality of the dynamic combination of forces at one and more scales of perspective, of multiple incorporation. From this we are able to grasp the simple formulation that, "a thing is the sum of its effects, synthetically united by a concept, an image." (Nietzsche 1968: §551)

This may seem to be a fundamental break with the understanding we have of 'things'. But perhaps it is not. One example, related to the non-linear generation of behaviors by the multiple interrelation of elements and rules, can be derived from theorizations of the creation of constellations of planets by the interrelation of the force of motion which each planet posses and by the gravitational action of each planet on others. A constellation is a nameable 'thing', but it is not simply a 'cause'. It is also a process, of multiply interrelated movement through which emerges the apparently stable pattern by which we are able to understand it as a constellation – it must be understood as a process.[34]

Materialization

And this allows us to spiral back to the image that we almost began with, that of the camera in *A Camera Recording its Own Condition (7 apertures, 10 speeds, 2 mirrors)*. What is it that is fascinating about this project? Frankly, it is quite boring. There is nothing that we enjoy seeing in photographs, no landscapes' bits, no silly people nor rich ones, no riot police, no members of our beloved family, nor any red faces, spilled bodies, soft furnishings. Can the operator of this camera have taken Flusser's dictum about the camera being driven to photograph everything so much to heart that they have chosen to shoot more than several types of blackness, of whiteness? If we are to say, 'yes, it's quite clear that this played a part' what becomes astonishing is that he somehow resists adding another factor into his calculations. Why only aperture and speed? Would not a far more grand effect be achieved by adding other variables: depth of field, focus, the refractive capacity of the lense, types of film, various operations in the darkroom? Perhaps works of art are emptied by viewing, they become worn out if looked at too much. Perhaps, as a strategy of evasion, this set of pictures commits itself to its own exhaustion? And with nothing like we like to look at in it - the quicker the better…

To rescue ourselves from missing out on a trip through boredom out to its other side, *A Camera Recording...* can perhaps be understood best as a strategic reversal of a general principle which Kittler

[34] The interaction of the two forces described by Newton: how a mass accelerates given force; how strong gravity is between two bodies; is very simply accounted for when two bodies are involved. When a third enters the system, calculations become massively more complicated. See, for recent developments of this theory to model the interactions of multiple objects, David Appell, 'Celestial Swingers', *New Scientist*, Vol. 171, No.2302, 4 August 2001. P.36-39.

highlights, a good enough summary of his approach to media discourse. "The data processing of a given society can be reconstructed by analysing its artistic media. Being less formal that its systems of knowledge, those media display and propagate the elementary regulations that culturalise the natives of that society." (Kittler 1986: 159)

A Camera Recording... is put together at a time of a more general 'crisis of the object' within art. What does this mean? (And let us be clear that this list does not make recourse to a supposed historical hegemony of 'conceptual' or any other art movement.) Amongst other things:

- a current of work which has not stopped began to develop both outside of galleries, dealerships and salesrooms, and in a non-unilateral relationship with such structures
- lived practices (performances, events, happenings, behaviours, sociabilities, communicational acts) supplanted fixed objects as the primary instance of the work
- artwork developed that was rooted in the 'post-retinal'[35], that was 'conceptual', 'idea-art', distinct from previous currents which were seen to be decorative
- materials that were seen to be peripheral to art-systems such as documentation, press-releases and announcements,[36] became its primary means
- Art systems were abandoned as sites for production, but were understood and used as the site of political conflicts.[37]
- Communications systems such as postal art, video, radio, magazines, books, became the, often mass-producible, locus of the work.
- Work that dealt directly with the historification processes of art-systems.[38]
- Art methodologies were explicitly tied into the activity of political, cultural and social movements which were understood as being non-art.
- The languages used to describe art, the political, psychological, analytical became subject to programmatic use by artists.[39]

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[35] See, Pierre Cabanne, *Dialogues with Marcel Duchamp*, trans. Ron Padgett, Di Capo, New York, 1979.

[36] See, Eduardo Costa, Raul Escari, Roberto Jacoby, 'A Media Art (Manifesto)' in Alexander Alberro and Blake Stimson eds. *Conceptual Art: a critical anthology*, MIT Press, Cambridge, 1999, p.2-4. See chapter six for further discussion of this work.

[37] See, *GAAG: The Guerrilla Art Action Group, 1969-76*, Printed Matter, New York, 1976; the work of Henry Flynt in this period, (see the site maintained by John Berndt, http://www.henryflynt.org/).

[38] Such as Eduardo Costa's: *A Piece That is Essentially The Same As A Piece Made By Any Of The First Conceptual Artists, Dated Two Years Earlier Than The Original And Signed By Somebody Else*, of 1970 or the various and many direct actions by feminist and black artists for inclusion, reformulation or self-determination.

[39] The various stages of Art and Language being the obvious example.

- Other 'non-art' categories such as music[40], destruction[41], food,[42] non-human 'cultural' practices[43], 'information', domestic work[44], etc. were mobilised 'as art' or as gateways to a relationship with other forms of life.[45]
- Self-generative or combinatorial forms, of text, geometrical or more representational images, often produced by computer, were initiated and made public.[46]

A *Camera Recording...* could perhaps be replaced here by certain aspects of Jan Dibbets' *White Wall. 12 numbered photographs taken at different shutter speeds*[47] - a series of square snaps of the numbers one to twelve appearing in gradually decreasing contrast against its ground - or any of his shutter speed pieces which adopt this kind of routine, often meshing it with the use of windows as the object of the picture. This work reinflects the problem photography posed to painting - a crisis that, as is familiar, allowed for the invention of new modes of painting - back onto the over-stabilised position of the camera. Another work by Hilliard, from 1970, *60 Seconds of Light* in which a camera takes twelve shots of a darkroom timer using exposures of between five and sixty seconds could also stand in to some extent. *A Camera Recording...* has, for this text the advantage of being explicitly reflexive of its apparatus. That is, it feeds the camera back through itself. It should be noticed that within the same period, work directly on the materiality of video also parallels what is discussed here.

One should also note a certain cod-scientific quality in the air at the time.[48] Here, in Hilliard's work, the numbering, or the timer device act to signify an 'objective' nature to the work. This is echoed in the literal description of the work in the title of *A Camera Recording...*, but the way in which the work is staged as a making account of itself, its mechanisms of operation, (which should not by the way be taken for 'self-sufficiency') is severe enough to avoid cod-science cuteness.

Dibbets has generated a large corpus of material through the intersection of the material properties of the camera with geometrically derived regimes for constructing shots and collaging the result-

[40] i.e., the activities of Fluxus.
[41] i.e., Destruction In Art Symposium.
[42] i.e. the café, Food, run by Caroline Goodden, Tina Girouard, Suzanne Harris, Rachel Lew and Gordon Matta-Clark and others, documented in Pamela M. Lee, *Object to be Destroyed, the work of Gordon Matta-Clark*, MIT Press, Cambridge, 2000.
[43] i.e. Jan Dibbets', 1:1 scale mappings of bird territories in 'Robin Redbreast's Territory', sculpture, (1969) and work by Douglas Huebler of the same period using territorial birdcalls to determine the direction of a walk.
[44] i.e. the 'maintenance' work of Mierle Laderman Ukeles
[45] Such as the initiatives made by the Artists Placement Group.
[46] See, Jasia Reichardt ed., *Cybernetic Serendipity, the computer and the arts*, Studio International, London, 1968.
[47] Reproduced in Lucy Lippard, *Six Years: the dematerialisation of the art object from 1966 to 1972*, University of California Press, 1997, p.210.
[48] Lucy Lippard comments on this fashion for the adoption of 'austere', 'systemic', 'positivist' language in, '*Six Years…*', p. xv-xvi See also the citation from Jeff Wall in Peter Osbourne, 'Philosophy and Conceptual Art', in, Michael Newman and John Bird eds., *Rewriting Conceptual Art*, Reaktion Books, London, 2000.

ing images in order to generate novel scopic processes. When it gets locked into canvasism from 1979 onwards, a spread hand of big old architectural snippets caked round with properly 'careless' brush-strokes in colours the same as you'd find for distressed furniture at the posh end of the seaside or its representative boutique inland, the work falls into glum academic routine. At other times, it is the purposiveness of routine, say in the landscape photographs[49] of the first half of the seventies, that the work engenders a truly alien retina.

Exploring the material limits of an apparatus also provided a productive regime exploited by Emilio Prini over the same period. In one process he took thousands of shots with the same camera, until it wore out. This took a number of years. In a similar operation he set a cassette player to record the sound of its own mechanism until it broke up. Within the wider context listed above though, the slice that *A Camera Recording its Own Condition (7 apertures, 10 speeds, 2 mirrors)* makes through the discursive apparatus of the camera comes at a time when photography was increasingly being incorporated into the object-world of art systems as a means to document material, sculpture, event, process, installation, performance, happening, this was a timely assay of the means of discourse.[50] The 'truth' of the camera is produced as a problem.

Writing on how non-linear behaviors can be mapped and generated by algorithmic models and the rapid intensification of speed and complexity which computers make available to such processes, Manuel De Landa describes a key perceptual tool in cybernetics – phase space. (The underlying idea, if not the specific term, arises earlier in the work of Poincaré and Hamilton amongst others.) The 'phase-portrait' is a schema by which the phase space can be mapped:

"The first step in creating a phase portrait is to identify the relevant aspects of the physical system to be modeled. It is impossible for example, to model an oven by considering each and every atom of which it is composed, but one can considers the single aspect of the oven that matters: its temperature. Similarly, in modeling the behavior of a pendulum only its velocity and position are important. In technical terms, the oven has one degree of freedom, its change in temperature; the pendulum in turn has two degrees of freedom. A bicycle, on the other hand – taking into account the co-

[49] *Jan Dibbets*, (essays by R.H. Fuchs, M.M.M. Vos, with an introduction by Martin Friedman) Walker Art Centre, Minneapolis, (cat.) Rizzoli, New York, 1987. In these photographs a set of geometric conditions, incrementally changing angles of incidence, for positioning the camera are established. A landscape is shot in a Panoramic series following this routine, and then reassembled with notation that marks its construction. The land is extraordinarily and sensually reconfigured as a series of interlocked judders, or as waves.

[50] See John Roberts ed., *The Impossible Document: Photography and Conceptual Art in Britain 1966-1976*, Cameraworks, London 1997.

ordinated motion of its different parts (handlebars, front and back wheels, right and left pedals) – is a system with approximately ten degrees of freedom." (De Landa 1992: 136)[51]

What is achieved in *A Camera Recording...* is a recording of the phase space of two programs within the photographic apparatus: speed and aperture. These are the parameters whose variation is mapped from one part of the work to the next. Clearly, this portrait is of only two of the large number of variables conjoined in the body of a camera. Whilst this is interesting as an illustration of the material capacities of the machine it would stay at the level of benchtests of computers - in which fixed possible combinations of operations are run simultaneously in order to ascertain the processing capacity of the machine - were it not for the way in which it links the degrees of freedom available within this phase space to further programs composing the camera. These can be said to be some of those forming the embedded culture of the apparatus in the same way that an operating system or other software can be embedded in a chip. In this way, it is inconsequential that there are only two parameters to *A Camera Recording...* Each apparatus is also an ensemble of other apparatuses, other systems that have become subsumed within it. The camera for instance also includes a notion of time as extensive or quantative - that duration, continuity, can be dissected into fractions of seconds. Certainly too it would be possible to specify a particular set of moments in photographic history that the work recapitulates. Which version or other of fancied- up pinholed box the work diagrams is not of too much use here, although such an approach would provide a route out to tracing particular moments of inter-relations of the camera's programs and the programs which form them within the history of photography.

More substantially, how does it allow us such a route into the drives which compose the camera? By mobilising two sets of interconnected and antagonistic relations of force, a sample of those that compose its body. Firstly, it presents the problematic of the camera working on the condition of being a camera, on the production of a machine reflexivity. Secondly it mobilises the constraints and freedoms generated by the co-relation of the intensive and extensive qualities embedded within the camera.[52]

Art, as much as science, often attempts to put an enclosure round a sequence, a process, in order to isolate it as material to be inspected in a certain way, as distinct. Name a system, exhaust its

[51] The phase space as a way of mapping interrelated fields of freedom and constraint is explained in, amongst other sources, William Ross Ashby, *An Introduction to Cybernetics*, Chapman Hall, London, 1964, p.131.

[52] See, Manuel De Landa, *Intensive Science and Virtual Philosophy*, Continuum, London, 2002, and Gilles Deleuze, *Difference and Repetition*, trans. Paul Patton, Athlone Press, London, 1994. Alfred North Whitehead's discussion of related dynamics of perception of qualities to space-time and perspective, (i.e. in *Science and the Modern World*, Free Association Books, London, 1985, p.83 onwards. Hereafter, SMW.) also makes a useful contribution to this debate.

permutations. A certain current of modernism followed a strategy of defining a representational or procedural parameter, a particular operation of materiality, and putting it to manufacture. There are versions of this approach which explicitly demand a reduction of an apparatus (for instance, the canvas/paint assemblage) to an exploration of a subset of its functions which no other such combination can duplicate,[53] a division of labour within the art supplies shop. Minimalism by contrast proposed an ostensibly simplified presentation of matter which veered between the precisely off-hand, the dead-pan, and the po-faced. To read this set of images through the codification procedures of minimalism, as a fantasy of equilibrium, of procedurally induced and universalisable identity, marked out and walled up, would however require an act of stubborn perceptual amputation. What is demarcated is not 'prima materia' - steel, straw, plywood, rough marble - but another compositional dynamic. Perhaps working through all possible combinations of the choices that are made by the programs of speed and aperture allows the user to gain release from having to think them? Do the results of the exploration of the phase space surprise you? No. What is the surprise is the lack of it - that a photograph disowns its pretension to fascination.

As well as teaching itself its own typology, marking out its body, it measures out its collapse - its capacity as a machine to produce acres of monochrome, irredeemable as 'pictures'. Hundreds of thousands of such choices, to avoid the collapse into white-out faintness or black unreadability, are being made at this moment by photographers, darkroom operators, automatic cameras, the computational matrices of digital cameras, and film and chemical companies based upon what they assess to be an ideal, acceptable or useable image quality.[54] Whilst the work ostensibly presents a horizon of knowledge about the boundaries of performativity of the media system of the camera it can also be said to present all the images that are untaken. Untaken because (where thinking – as the code of judgement - is taking) they are unthinkable. Like the novelty seaside postcard of the black cat, with its eyes closed, down a coal-mine, at midnight, there's never an excess of impossibles.

The question remains as to whether the periodicity of the grid used by Hilliard actually allowed, amongst all its variants, for an 'ideal' photograph of the external features of the camera to be taken. As Flusser makes clear, such a question is irrelevant to the drives unleashed by the camera. Just as a muscle cannot be described without its exercise, pictures must simply be taken. *A Camera Recording...* can be understood as the result of a particular cross-section through a material instance of the mania

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[53] i.e. in Clement Greenberg, 'Modernist Painting' in, Gregory Battcock ed., *The New Art*, Dutton, New York, 1966, p.100-110.

[54] See for instance, Richard Dyer, 'Making 'White' People White' in, *White*, Routledge, London, 1997, or Brian Winston, 'A Whole Technology of Dyeing: a note on ideology and the apparatus of the chromatic moving image', *Daedalus,* vol.114 no.4, 1985, p.105-23.

of numericalisation. What Lev Manovich describes as "The logic of a computer… …to produce endless variations of elements and act as a filter, transforming its input to yield a new output," that, "becomes the logic of culture at large" (Manovich 2001: 236) has its roots far earlier. One of these roots is that both the computer and the camera are perpetuations and deformations of the logic of calculus.[55] Both are rooted in extensive - numerically organised - means to describe intensive qualities based upon the interaction of a limited set of variables. For cameras, the determinate is what is set into the mechanism: measurements of time and of aperture in the case of *A Camera Recording*.... The intensive component, that which drives the operation of the apparatus is reflected light. The machine interacts with it in the way it attempts to track, compensate for and accommodate its rates of change. In the case of Turing's dreamed machine, the computer is 'first of all' an instantiation of a deterministic method to trace the counters of the indeterminate, the edge of computability as posed by Hilbert, or the rational production of the irrational.

Such a simple story of origins is already as deeply fictional as talking about the 'contemporary'.

But the power of numericalisation and the other that it makes, this mania that is epitomised - though not founded - in calculus and its explosive invention with Leibniz and Newton, carries clearly over to the problematic of the interactions of the determinate and indeterminate and to others that we will encounter later in relation to other media ecologies and their contexts.

What does numericalisation allow? If we return to the problem of mechanisation as discussed by Marx, (applied in Taylorism and becoming itself almost primally productive in software and hardware engineering) it allows for the process of transduction of labour from the worker to the machine. Physical work is described by a symbolic language, numbers, derived from measurements and sequentialisations, made of the work carried out. Information in this formal state can then be incorporated into a machine. Calculus provides the mechanism by which the monstrous disproportion can be achieved, by which a variable can be multiplied in matter to an extent far beyond human capacity. Digital abundance - that 'infinite' variability, customisation, and upgrading offered by 'the computer' - is predated by that of industry. At this point, where profit, or what Marx and Negri call communism, becomes possible. Capitalism is founded on burning up as fuel what could make something else, this is part of its violence, the colonising of possibility as it liberates potential. (Remember that the fruits of mathematical reasoning were pure acid to the established hierarchies of the societies that bore

[55] J. David Bolter, *Turing's Man, western culture in the computer age*, Penguin, London, 1986; William Asprey ed. *Computing Before Computers*, Iowa State University Press, Ames, 1990; Carl B. Boyer, Revised by Uta C. Merzbach, *A History of Mathematics*, second edition, John Wiley and Sons Inc. New York, 1991.

them: five decades before they attempted to ban Spinoza's work[56], the States General of the United Provinces were failing to constrain the introduction of the ribbon-loom.) [57]

Communism is one way of mapping and making this potential and there are others, but it is this crux identified in Negri's reading of Marx that is important here rather than its particular mode. Capitalism establishes a particular generative pattern in the mix of labour, capital and machines. It is founded on and feeds off of, the monstrous spawn of this mating. This too is part of the machinic phyla. But what it represses, or revisits as myth, is what is grasped in Negri's twist, communism, the abolition of work, is pushed down into the unconscious of the machine until it remains only as a cursed promise of the ease of labour or greater efficiency.[58]

The release from domination over productive life is here conjoined with the computer's founding purpose, in Turing's search for the answer to the *Entscheidungsproblem*. In this paper, one of its originary descriptions, the computer came into being as a machine to trace the contours of the irrational. The universal machine's purpose was to delineate what was beyond its capacity to grasp hold of in the axiomatic of logic and numbers, to map what was calculable and therefore find the edges of the incalculable. It is an immense numerical and combinatorial surging forth in search of the face of the unknown that we are still not done with.

Parts of this volatile torrent of intensity coupling with extensity is described in the sober photographic sequences of Hilliard and Dibbets. But it is in the moments that this rigorous hunger for the irrational also fuses with the machine's repressed capacity for the abolition of work that the truly productive capacities of the machinic, of the computer, of networks, are revealed.[59]

A Camera Recording... and related works, are predicated on paradox. What the work does is to stage the collapse of one of the great tenets of classical modernism in the mode of Reinhardt.[60] Under this regime, the work of art achieves autonomy by virtue of its self-referentiality. *A Camera Recording...* however, achieves self-referentiality, but in the process, disembowels its 'self'. Such autonomy is a

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[56] See, Jonathan I. Israel, *Radical Enlightenment, philosophy and the making of modernity 1650-1750*, Oxford University Press, Oxford, 2001.

[57] See Marx 1990: 554, n.14.

[58] Note that release from work is not inherent to the machine itself, but rather its social combination, i.e. '…under the rule of capital, the application of machinery does not shorten labour; but rather prolongs it', *Grundrisse*, p.825. This is also the finding in numerous places in *Capital*. Andrew Ross in *No Collar* notes, for instance, that the higher strata of digital worker, those whose creativity is invested in the machine, are always eager for faster processors: not in order to spend less time working, but in order to get more realised.

[59] This productive capacity for the monstrous is what makes collectivity so threatening to capitalism, and the rich so comparatively pathetic in their stupefying insistence on remaining so utterly normal despite the mutational power of wealth. If you're going to be a rich bastard, at least have the decency to be a correspondingly spectacular freak.

[60] Ad Reinhardt, *Art as Art, the selected writings of Ad Reinhardt*, Barbara Rose, ed. University of California Press, Berkeley, 1991.

suicidal utopia, and this work makes use of such a drive to reveal, not only that, but, the way in which its body is composed. This spilling of guts allows access not only to the work as a closely defined apparatus, (the mirrors, the speeds and apertures) but the medial system of art and a number of the programs that compose it. The paradox that it presents then, can be understood to be itself the result of the application of doxa, of a meta-compositional rule. Here we need to distinguish rules or modes of composition from hylomorphism or ideal form and it can be done by a return to the exploration of the will to knowledge. Nietzsche saw this already in his recurrent attacks on the self-satisfaction of rational knowledge. Foucault took this thread from Nietzsche and used it to propel as Nietzsche did, a more 'comprehensive' but always more precarious knowledge. We can see *A Camera Recording...* as performing a medial instantiation of such a problematic, one of the programs that composes it.

How can a thing know itself as a thing, its extent, how can it recognise its own rhythms and characteristics? This is a question which, were philosophy ever to generate a fully satisfactory - that is to say, functional - answer, would see missiles being read Plato's *Timaeus* in their sleep in order to improve their targeting capacity. Instead of following this fatal trajectory however, we need simply to note two of the glitches it encounters. One of the problematics that arranges the camera, constituting it as an embedded program, is composed by two formulations of thought.

In one of his last interviews, Michel Foucault famously gives a summary of a particular strand in his work, the related problems of thought and knowledge. "Thought is freedom in relation to what one does, the motion by which one detaches oneself from it, establishes it as an object, and reflects on it as a problem."[61] This is also an excellent description of one of the powers of art. The capacities for reflexivity introduced in different ways by a series of practices - which, as was suggested above, in the historical context of Hilliard's work here, were taken down an isolatory route by Ad Reinhardt, Clement Greenberg et al. - also allow for a thinking and sensing through of the thickness of connection, of inter-relation and of constitutional heterogeneity of cultural practices. This is one of the fundamental operational powers of art , one by means of which is possible to shift to many other domains.

The necessary caution to be tendered towards the devices - such as 'object', 'self' and 'one' - named by Foucault, is provided by Nietzsche in writing on "a critique of the faculty of knowledge" (Nietzsche 1968: §486) that also works as well for the camera: "'How should a tool be able to criticise itself when it can only use itself for the critique? It cannot even define itself!" (Nietzsche 1968:

[61] Michel Foucault, 'Polemics, Politics and Problematisation', interview conducted by Paul Rabinow in, Paul Rabinow ed. *Michel Foucault, the essential works vol. 1. Ethics,* p. 117.

§486) These statements conjoin to establish thought as a dynamic rather than ideal process, one that establishes another dimensionality to a problematic rather than separate from it. At the same time, it is not locked down, pacing the walls within an eternal territory. Thought is a freedom which is also found in *The Uses of Pleasure*. It enables the possibility "to get free of oneself" (Foucault 1992: 8).

The problem of the camera would seem to be more resolved. This is a technical object with known, standardised physical properties, after all. It is isolatable and analysable as performing specific functions, some of the results of which are set out so straightforwardly by Hilliard and Dibbets.

Taking a rule, a logic, a procedure and turning it over upon itself, or applying it in another domain, is one of the revelatory and productive procedures to be developed further here. Within the context of writing on media the transfer of one regime or modality is often encountered in uses of McLuhan's notion of the rear-view mirror, in which the first wave of every new media develops following the norms of the media which preceded it. For McLuhan this was understood as, "The bias and blindness induced in any society by its pre-existent technology". McLuhan 1994: 304) That media technologies copy, recompose, or perform a recension[62] of already existing media is a useful insight. Yet McLuhan's characterisation of this inter-mediality is hampered in two ways. Firstly, that it occurs only in a linear model of time, with progress towards a certain end -state of media implicitly built in to his model. Secondly, it suggests that media are whole forms rather than apparatuses composed of multiple parts, drives and compositional terms. The power of Flusser's concept of the apparatus is that it allows us to more adequately disentangle the various programs which aggregate to form any particular apparatus, and to allow a wider range of elements, drives and dynamics to be understood as part of this composition. These programs may, for instance, operate as medial forms, but may also be the problematics that underlie their formation. It allows us, in Deleuze and Guattari's term, to understand the apparatus also as an assemblage, an, "Increase in the dimensions of multiplicity that necessarily changes as it expands its connections." (Deleuze / Guattari 1987: 8) This question, which underlies much of the writing here will be further developed in the following chapters.

But beforehand, a note of caution. What is proposed is not to lose every thing to an adifferentiable flux: amongst what has spilled out of the camera there are rules, procedures and what from certain perspectival scales look like or can be treated with certain effects as objects. In the case of *A Camera Recording...* those that are pertinent include those that compose its particular phase space. We

[62] Raqs Media Collective, *A Concise Lexicon of / for the Digital Commons*, at http://www.sarai.net/.

may say that these are those composing the granularity, or the sample rate, of the mechanism: the regimes of speed and of aperture within the camera.

A phase-space model is a diagram of every possible combination of the degrees of freedom possessed by an apparatus such as an oven or a bicycle or a camera. It allows every possible combination of the extensive qualities of a mechanism to be made. As De Landa illustrates in his example of the oven, it may not provide an adequate method for measurement of the intensive qualities of such a mechanism: for instance, its capacity to heat its content to specific temperatures. An intensive quality, such as temperature, remains constant regardless of the quantity of the material. In the case of the oven, it is clear that its extension would of course have an effect on the given temperature of the air. Extensity and intensity are differentiable but not separable qualities. (Deleuze 1994: 223) Their mutual interrelation condemns the camera to be always out of whack, always on the look-out. This being out of kilter with itself is a drive, one of the programs, that can be said to form a medial will to power embedded in the camera. This will is produced by the disjunctive aggregation of the extensive, measured mechanisms of the camera and the variable intensity of light as it enters the camera, as the camera comes into conjunction with the world - that infinite reservoir of all possible patterns of light that forms its outside. This is the camera, its hunger, and what compels the user, as Flusser suggests, to bring it into alliance with their own: a new, medial appetite.

Differences of intensity are productive – they provide the basic mechanism for engines, mills, coffee-makers, hot-air balloons and refrigerators: mechanisms of thermo-dynamic energy transfer based on eventual entropy. However, there is a fundamental paradox at the root of this productivity "Difference is the sufficient reason of change only to the extent that the change tends to negate difference." (Deleuze 1994: 223) Entropy, a flattening cold equality amongst parts is what Nietzsche saw as the drive in the protoplasm amassing materials to itself. (Nietzsche 1968: §510) The drive to devour and consolidate sameness. The old woman attempting equilibrium, a stable state, *comprehension*.

Combinations of active and reactive processes, their mutual interference, form bodies, form drives, new stabilities and new compositions. Can entropic drives to sameness that work against differentiation also function in such a way? This will be one of the questions implicit in the discussion of the standard object in the following chapter. Here though, we can say that in the zones of purity, those of black and of white made in *A Camera Recording*… entropy is an attractor, an attractor put into place by difference, but one that, depending upon combination, may however incongruously also generate movement, further turbulence.

As we have seen above, one history of mathematisations and of machines that may be observed is that of systems grappling with their outside, their virtualities coming into composition with and forging new 'figures of truth'. Every permutational exploration of the phase space composed by the problematics they respectively generate produces a cumulative capture (of a likeness), collapse and spillage as a result of their coming into combination with their many outsides. What is staged therefore in *A Camera Recording...* is a particular set of the programs (speed and aperture) embedded within the camera, coming into combination with the outside, an outside that it is predicated upon - that which is required to take pictures of. As is noted in the development of mathematical techniques to diagram natural phenomena, "between the behaviour we observe and the laws which produce it is a crevasse, which the human mind can only bridge with calculations." (Stewart 1996: 64) Stewart hits on something, but perhaps there are no such 'laws' only modelisations of forces. If we can take 'laws' in Stewart's terms to be forces rather than modelisations of them, this crevasse is productive in that it forms an outside of a different intensity. The crevasse itself, difference, not simply what is different, is a force - and it provides the opportunity to make two last observations on the medial will to power of the camera.

Firstly, in *A Camera Recording...,* in this thick map of the camera, we can read its relation to its outside, the way in which thresholds of visibility and disappearance are built into it. These are thresholds precisely of material capacity. But, let us not forget, they are also immediately material instantiations of aesthetic acceptability, of cultural, familial, juridical, journalistic, erotic and other formulations of reference, representation, memory-making and so on.

Secondly, it is not a question of establishing a static understanding of an apparatus. Understanding the multiple programs, the medial drives built into it is also a question of mobilising it. Amongst the granularity of iterations formed by the intermeshing of rates of speed and aperture of *A Camera Recording...* there is also a picture of a camera, a set of them. Photographs of the photographer taking a picture of themselves or of their shadow are a commonplace. What is productive about this set of images is that it articulates the camera as the possessor of compositional drive - form is generated by the material qualities of the camera, light, mirror, film, apparatus and the programs which compose them. The chasm between form and formlessness, between occurrence and calculation, between a system and its outside, is exploited at that moment the work becomes cybernetic. This occurs at the point when the camera focuses upon itself. The asymmetry of forces embedded in the multiple layers of program within the apparatus of the camera are set to work on mapping their own asymmetry. Feedback in music is sound produced by bringing a microphone, guitar, or other element of sound input into such a relation of proximity with its output - a speaker - that the sound of the speaker it-

self becomes input, begins to vibrate the diaphragm of the mic for instance. The system becomes cyclical and positive - it begins to amplify its own amplifications. In *A Camera Recording...* we can view one iteration of that process occurring in visual terms. The presence of difference can be read in Hilliard's flat assembly of visual data, but it provides no access to it as an ongoing process. Mobilising that potential of disturbance of and within the nested and antagonistic programs of media now comes sliding into opportunity.

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