

Title: Headstone to Hard Drive

Author: Martin Westwood

Abstract:

This paper presents the context and outcomes of the research project *Headstone to Hard Drive*. The project was initiated by the author in the role of Frank Martin Research Fellow in Sculpture at Central Saint Martins between October 2013 and September 2016. Whilst the project included many small events the main focus was the discursive platform of three symposium events held at Central Saint Martins and British School at Rome in 2014-15. This text addresses the aims of the project drawing from the contributions to the three symposia that are presented in this publication.

Keywords: Technology, trans-disciplinarity, apparatus, temporality, spolia

Email: m.westwood@csm.arts.ac.uk

Headstone to Hard Drive

The contributions collected over this double issue of *Journal of Visual Art Practice* were presented in three public events organized under the research umbrella *Headstone to Hard Drive (H2HD)* at Central Saint Martins, London and British School Rome over 2014 and 2015. *H2HD* aimed to explore the consequence of historical and contemporary technologies for, in this Journal eponymously, the visual arts.

H2HD's discussion, hinted at in its title, proposed technology as existing prior to the question of progress *and* in advance of contemporary reflections. It did not aim to talk of technology solely figured through industrial legacies, or long-tails, of either analog or digital time-based media production *or* of the contemporary character of internet performativity. Though *H2HD* incorporated some current developments in technology, it did not consider development's currency existing in a chronological sequence (a progressive isolation of each sequential unit), rather *H2HD* figured the present as consisting, in part, of retrospective agents; reconstruction, vestiges and anachronism working alongside a vernacular and ubiquitous electronic-digital paradigm. Technology is figured as moving backwards as much as forwards, inclusive of the stone monument as much as the microprocessor or financial trading algorithm. That the question lacked a single historical context or temporal ideology (for art practices the current moniker of 'the contemporary' suffices to obscure a political and economic project of temporality)¹ opened the forum to both historical and calculative fields.

Not only is the non-biological, non-subjectively experienced past known through the survival of artifacts as a legacy for adoption constituting the human's past (technical prosthesis: "inorganic organized beings" (Stiegler 1998, 17), the link between technology and time, less plitudinously, also constitutes lived temporal experience: perception and anticipation. Technology gains calculative and prospective agency, not through a teleological end-point or prediction but in the 'purchase' of and 'loan' to the future, paradigmatically evident in financial derivatives trading. Calculation is a temporal question because it is anticipation; it involves expectation.

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The hard-copy print version of the journal arranges the contributions so as to distribute the idea of technicity through three manifestations broadly and provisionally articulating *technicity as the transportation of matter in method*: 'Technical Movement', 'Technical Matter' and 'Technical Method'. These section headings, provided as an orientation through a disciplinarily disparate collection, run the risk of being taken as absolute distinctions and of dividing at a point that instead requires resistance and complexity. In dividing the assembled material the section headings are more strategically than philosophically deployed. My philosophical approach to this compositional decision entertains inversion and reversal across these terms as most contributions could easily be placed in two or all three sections. At any rate, these compositional questions presuppose a reader addressing the complete collection of texts and is a factor not to be taken for granted. Online access allows each of these texts to be read independently: a technical disparity of readership conditions between hard-copy and online PDF that could itself provide the ground for reversing and inverting the articulation of *technicity as the transportation of matter by method*.

The *H2HD* project takes method as an active and fluid matter (literally and metaphysically). Method as matter arising within motion provides an invitation for a reader to perform a role in the

interdisciplinary project and in the (de)compositional arrangement of discourse. The cogency of the whole is set in motion as an interdisciplinary field by the reader's production as a context. A reader who coheres the multiplicity of articles from varying fields transcodes formal knowledge, throwing into doubt knowledge and research themselves, art's relationship to these categories, and art's own particular performances of knowledge and research. The question for art in proximity to knowledge production is 'what qualities/protocols could art possess that address the conventional witnessing of knowledge performance?', taking art's debate towards method as matter within an interdisciplinary field, rejecting underlying factors restraining art within aesthetics and research itself as a mode of objective knowledge. For artistic research the task that replaces 'what is the research question?' is *to indicate how such-and-such a question can be raised?*; how can art provide an *instant* of any particular question?; how can art *produce the context* for a question? To this end confabulating motion, matter and method aims to avoid the idealist imprinting of hylomorphism and aims to separate the idea of media from the idea of the technical.

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Gilbert Simondon made the claim that art is fundamentally a mode of mediation between different forms of thought and practice or is, in Simondon's phrase, "the ecumenicism of thought" (Mitchell 2012). Robert Mitchell translates Simondon's conception of art as "reconstituting in the interior of each mode of thought a reticulation which coincides with the reticulation of other modes of thought: the aesthetic tendency is the ecumenicism of thought". This "mode of mediation" (Mitchell 2012) is a place in which art is figured as a channel of calibration, such a channel whilst lacking form has the privileges of hearing and articulating the noise *between* fields and providing a place for their convergence. The syncretic combination of contradictory beliefs, art's ecumenicism, is a perspective afforded an art that has vacated canonical and ontological centres (whether of form, territory, authorship or method) and peripatetically searches its and others borders. The three *H2HD* events were inter-disciplinary and trans-disciplinary bringing together researchers and practitioners of Art practice, Art History, Art Theory, Archaeology, Philosophy and Financial services.ⁱⁱ One might claim that trans-disciplinarity, a place in which disciplinary overlap becomes art's medium, is more fundamental than any artistic vision of autonomy.

Asking 'what sort of time are we living in? What is now?' is less a question concerning historical epochs than a techno-neurological shadow stimulating and antagonizing the category of art for over one hundred and fifty years.ⁱⁱⁱ Whilst digital databases are acting as a simultaneous storage, circulation and calculation technology, magnifying the familiar dialogue between authorship and automation, the techno-legal and techno-cultural antagonism produced is evident to the visual arts in the histories of photography and the readymade. Both these historic 'techniques' drove strategic wedges into the framework of aesthetic experience: communication, authorship and production/spectatorship. This shadow within art, appearing alongside and persistently challenging the Romantic vision, irritated manual and artisanal production with the photographer employing mechanical, proletarian, a non-genius (lacking authorial origin) status that confronted technical, stylistic and formal processes underpinning aesthetic transaction. Duchamp's decisive and cheeky strategy of the readymade troubled epistemological and aesthetic certainty concerning art. An arch advance within knowledge and formal taxonomies, resulting in a knowledge (perhaps even a non-knowledge) quite describable as "eternally variable" (Perniola 2012, 82).

Where photography through its technical support dared the aesthetic account to accept the machine's authorship, the effect of the documentary index and the blurred boundary between quotidian experience and art, that is advanced questions at the level of the document and labour relations, the readymade's tactic dared the aesthetic account at a communicative level, shrinking the media channel between artist and spectator into a decisive snapshot: reverse-engineering reading and writing, spectatorship and production, recognition and imagination. As the photographer leapfrogged the mechanical and arrived as a legal entity with the rights of an author,^{iv} Duchamp played out a complicated aesthetic business of mechanical optics, physiologic short-circuits and legal ownership, encapsulated in the presentation of his mechanico-optic *Roto-reliefs* at the 1935 Paris Concours Lepine trade fair and his plans to copyright the cardboard prints (Witham 2013, 162).

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Often in the papers collected here the position arises that to consider the technical and methodological requires considering the materiality of political ecologies and markets. The ecumenical perspective afforded art (proposed by Simondon) is supplied with a critical start, and a matter, in a theoretical term for a heterogenous technical assemblage. A political and epistemological operation (and its effects) exists in the technical conjunction of social, legal, linguistic, and (almost any) other units: Foucault's "dispositif".^v Giorgio Agamben provides an expanded definition of Foucault's use of 'apparatus' ("dispositif") in the 2006 essay 'What Is an Apparatus?' ('Che cos'è un dispositivo?') (Agamben 2009, 1–13). Agamben describes the apparatus as an assemblage, definable as a network of dissimilar elements that distributes its considered effects of knowledge and action, producing subjects in the urgent marshaling of a "heterogenous set" (Agamben 2009, 2).

Mick Finch's essay *The Technical Apparatus of the Warburg Haus* employs Foucault and Agamben's motif seeing Aby Warburg's *Kulturwissenschaftliche Bibliothek Warburg* (KBW) as a predominantly architectural infrastructure that in part (and the question is how big a part does this technical assemblage play?) produces Warburg's *Mnemosyne Atlas*. Finch also presents the apparatus as reproducible, being as Agamben makes clear in his appeal to a common French dictionary "[...] the part of a judgment that contains the decision separate from the opinion" (Agamben 2009, 7). Warburg's methodology: building a photographic iconology within an architectural, technical, even bureaucratic, infrastructure is seen to develop into a photographic iconology within the political and technical infrastructure of mass-media in the post-war projects of Kenneth Clarke's *Civilisation* and John Berger's *Ways of Seeing*.

With quite different tact **Susan Trangmar** obliquely addresses the apparatus through her phrase "a relational assemblage of material circumstances". This notion allows the apparatus to assume two expanded aspects. Firstly the apparatus, or "relational assemblage", includes biologic material and as a result the question of inhabiting the apparatus arises. Trangmar's essay is performative, both providing a retrospective description of encounter within theoretical detours whilst self reflexively marshaling this material to consider the essay's own conditions of inhabitation. A place or an image is produced that is the result of existing within a relational assemblage including the author. An expansive apparatus of techno-biologic material emerges: bone, word, image, sensor sampling, architecture and geography. Through considering primitive biology the essay performs the possibility of a diachronically understood apparatus existing within

archaeological, biological, autobiographical, philosophical and astronomical time scales: a chaotic pre, and present, history from which the essay's order (and eventually any apparatus) arises.

The apparatus produces its subjects. In an aesthetic register this is perhaps best figured as a question of lived and un-lived temporalities. *Felicity Colman's* article explores this question through the artistic methodology of Robert Smithson. Colman describes Smithson's practice as consisting in a system of "speculative apparatus" that exist within a larger political ecology staging a tension between the determination of the political ecology and the speculative creativity afforded. In a reversal of Trangmar's evolutionary account of duration Smithson's "speculative apparatus" are figured as future oriented, materialising a 'not-yet-happened' within a technological *gestell* or "*dispositif* of duration". Colman's approach locates the apparatus within the language of information theory bypassing hylomorphic models of form and content and avoiding any separation between matter and the political. She names as a "data politic" the technological vernaculars available to any generation (Smithson's 60's generation notably employed vernacular materials) and her phrase "the data politics of time" is an apt articulation in miniature for the *H2HD* project as a whole.

Elie Ayache describes the derivatives market as the technology of the future. Categorically this technology of the future is not articulate in statistical probability or the stochastic process but is the process by which the market for trading the derivative itself translates future time into current matter. Ayache's claim is that the technology of the derivatives market provides new metaphysical frameworks for considering matter. Ayache's synchronic view of the matter of futurity compacted into endless current market series of derivatives written on derivatives that "[...]transplant[s] from time into place, from the metric of probability space into the topology of the event...from light and the whole idea of vision into matter [...]" echoes with Smithson, quoted by Colman: "Rather than saying, 'What time is it?' we should say 'Where is the time?'" Smithson's 'non-site' can be thought of as exactly the kind of derivative written on an underlying asset, the 'site', that Ayache metaphysically speculates as the compounding of future time into present matter. Smithson's place of "other dimensions" has parallel with Ayache's "*alternative* reality to statistics" found in the options market. Though Ayache carves out a specific, and hermetic, technical problem (with obvious terminological difficulties for the uninitiated) his project is concerned with creative force, with "a new kind of genesis", with "exercising craft rather than knowledge, producing work rather than dwelling in a state".

The question of the relevancy of Ayache's work to critical art practices remains open in this collection but underscores one of the critical aims of the *H2HD* project as a whole. Certainly there are many artists and thinkers, included here, looking at the technologies of finance and the reality of the market to provide critical tools (operational, parodic and ontologic). What seems indubitable is that financial technologies cannot be ignored for figuring paradigms of temporality, topology and decision making.

Ayache's text is a response to *Roman Vasseur*. The questions Vasseur asks Ayache are partly guided by Carl Schmitt's theory of Romanticist decision making. Schmitt identified that the moment of decision making for the politically Romantic sensibility occurred as the experience of affectivity. For the Romantic there is no possibility of decisiveness outside of affective, subjective experience. This echoes as an inverted image, or a residue of Agamben's notion of the apparatus as drawn from the French dictionary (and quoted here earlier) as "[...] the part of a judgment that contains the decision separate from the opinion" (Agamben 2009, 7). Just such an oscillation,

between the apparatus as a tool of knowledge and power relations, and the task of locating affectivity that Vasseur historically pinpoints with Schmitt's legal "decision" are echoed in several papers of this collection. It is a pertinent and central dynamic, for it underpins, and often troubles and complicates, the general question of art-based research.

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From its initiation one of the aims of the *H2HD* project was to begin considering, and in doing so producing a germinal model of, *Bernard Stiegler's Technics and Time, I* as a relevant theoretical matter for arts practices generally and not solely for media arts practice (where Stiegler's subsequent two volumes have understandably found root outside of the circle of philosophy) (Stiegler 1998). Almost twenty years on from the English translation of *Technics and Time, I* Stiegler's contribution here continues the politically active questions he has pursued since that book's 1994 French publication. Stiegler's concern is less questions of authorship than of attention's abduction by consumerism and building new theoretical and practical conditions for creative ownership. In the essay here he outlines the current stage of proletarianisation (the stripping of a knowledge by new technical formations), after the proletarianisation of manual skills (industrialization) and the proletarianisation of desire (consumerism) Stiegler states that the new digital apparatus proletarianises theory and knowledge itself (hyper-industrialisation). To escape the condition of dis-integration this engenders Stiegler proposes art as *Ars*, a condition in which the apparatus' control, its pharmacological poison, is routed through Deleuze's "art of control" and invented as remedy.^{vi} Continuing the biopolitics of the apparatus' assemblage "[...] *between all these automatisms: technological, social, psychic and biological [...]*", "art [...] would need to invent *along with all other forms of knowledge [...]* this requires organological invention."

The apparatus is a montage, literally an *organ-ization*. Elsewhere Stiegler has written of the perceptive organs bulging outside of themselves (Stiegler 2011), biological organs montaging with artificial organs and social organs producing what Stiegler will term a "general organology" (Stiegler 2006). Exteriorization is a montage, the articulation of bodily, artificial and social organs become noetic in external supports, a rewiring and decimation of autonomous biology as, for example, the hand, eye and ear become stitched together in the violins fret board that in turn articulates and co-ordinates these organs outside of themselves. Stiegler's "tongue of the eye" is a techno-mnemonic and physiologic interception of the apparatus.^{vii}

Through the *H2HD* events technological media's own agency was considered as, at the least, a co-author of content. Such an approach imbued media with an inherent semiotic and physiologic import by considering the effects and affects upon critical and artistic practices of the "liberation of memory" performed by technical prosthesis (Leroi Gourhan quoted in Derrida 1977, 84; requoted in Stiegler 1998, 149; and requoted in Kittler 1999, 10). Aesthetic theory's ability to consider technological development appears weak. The red herring of media studies: whether technics are viewed as extensions or as appropriations of human physiology is replaced by the question of whether any aesthetics based in anthropocentric bias and organic analogy could accommodate inorganic memory: the technical? How could any aesthetics account for an affectivity distributed in a network, as an apparatus simultaneously sentient and auxiliary? At once biologic, social and technical?

This question of virtual-physiology and the phantom organ is broached towards the end of the discussion with *Sarah Jones* where the dialogue turns to her interest in the English riddle. The discussion considers the effect of the technique of writing upon the human experience of one of its biological organs: the ear. The focus essentially replaces aesthetic thought with a materialist and physiological montage of the biological, technical and virtual.

The virtual ear discussed here could line up with Van Gogh's own and Gaston F's severed finger that provide the motifs for *Annabel Frearson's* discussion of Bataille and figures for her metonymic operation/condition of *Datocracy*: a term for the circulation of data within political economies. Frearson offers some genealogical pointers towards an aesthetic, physiologic and perceptual political theory in her list of "male B's": Bakhtin, Bataille, Burroughs and Benjamin in which "authorship and perception, then, are forms of governance".

The approach informs *Clunie Reid's* contribution of stills from her video *The Given That Keeps on Givin'*, shown at the first *H2HD* event. The video presented a strobing approach to video editing in which an overload of information was constantly figured as incomplete and metonymic resulting in a physiological assault formulated from within a semiotic strategy of appropriation. Condensing the video's frames into the stills presented here is a literal slowing of the fast editing tempo to account for the change in media. The work, both video and stills, raises questions concerning any meaning that can be extracted from the physiological noise instead pointing a viewer towards an infantilised and pornographic consumerism which fails to disentangle the eye from the genital, as the work states in characteristically broken language: "(revers_ble vec_or betwee_eye and gen_tal)".

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Stiegler talks of "net blues" in the aftermath of "the digital turn of 1993". This could be placed alongside several historical moments of dashed social hopes concerning technology's power of liberation. From 1920's Productivist optimism wedding cultural producers to the techno-industrial apparatus jack-knifing in a matter of years into its cultural and political nemesis of the official Social Realism^{viii} to the current ambivalent historical curiosity towards Telematic arts and the cybernetic generation.^{ix} A familiar story of the pioneering coming to provoke nostalgia for avant-garde positivity concerning technology. The retrospectively allotted naivety comes to define nostalgia itself. The only route with capital, and not liberation-politics, figured as a primary actor is for the artist to produce alternate apparatus appropriating the futurity occupied by technological tools. This approach appears as a framework for thought at the end of Colman's essay when she explicitly identifies the arrangements, the vernacular apparatus of matter as ecologies in which thought occurs, and these as she indicates are open to change.

The topology of financial trading underpins *Ami Clarke's* essay *Low Animal Spirits*. Clarke presents the current technologies of online news alongside the technological, material and legal history of high frequency trading providing both method and content for an artwork of the same title as the essay (co-authored with Richard Cochrane) in order to speculate on the symbiosis of these technologies. The work is a performative speculation of what occurs if separation between the technologies of social communication and of techno-financial governance collapse. In such a scenario Clarke proposes that affectivity's role in economy refigures aesthetic space as instrumental.

Louisa Minkin presents a practice existing at the intersection of archaeology, art-history and art practice. Her essay describes a practice absorbing and re-routing technologies employed in archaeology to gather data. Minkin's question primarily concerns the interface between the political liberation of information and the presentation of information's materiality when protocols (formal, technical and political) are no longer adhered to. Her project searches out salient and valid points of interference in which information's freedom consists in its failure to become instrumentalised as knowledge production. At its base is a question concerning both the autonomy and corruption of knowledge within digital political ecologies. Reflecting this dialogue between discrete stand-alone information and porously corrupt and/or vulnerable data Minkin's essay moves between visceral, affective bodily language and detached pedagogic instruction or outline where the subject is simultaneously prey to construction and disintegration. What ontologies of digital objects are ascribable within a digital epistemology? The method employed is a misapplication of normative procedures: a methodological détournment presenting a topology of the taphonomic.

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A further aim of *H2HD* was to situate the term *spolia* within arts practices. This was given explicit form in the third event (held at British School Rome) carrying the subtitle 'Spolia, Relic, Data' engaging a term little used in arts practice but common to art-history and archaeology. Spolia is a figure for the violent seizure, removal, movement and re-use of objects. Spolia exists at the intersection of financial and cultural capital. Reuse can occur for economic reasons; for example as recycling, or for cultural reasons; in the relocation of symbols. In the visual arts, the practice of spoliation is common in the methods of collage and appropriation. The use of the term here may not suit many an archaeologist or historian - I don't apologise but see this as the peril and pleasure of *inter-disciplinary* speculation or an attempt to find a figure for Simondon's reticulation. One or another may be dissatisfied but the search to locate and communicate the third is the *inter-disciplinary* channel's purpose and need constantly flirt with mis-application and assume the risks of analogical thinking. At the least this re-use of the term spolia would be a recursive (and performative) re-emergence at a methodological level of the spoliation paradigm.

Spolia is an apt term for digital appropriation, where the question of theft is almost wholly transposed to intellectual property rights and the monetization of honour (Brilliant and Kinney 2011, 6). The figure of spolia allowed both the question of ownership and the question of technical transmission to be simultaneously addressed. As a term it is distant from the post-modern strategy of appropriation, as it conceives, not of the constant and synchronic present of structural linguistics but rather a material present conceived as motion and diachrony. Where appropriation never looks backwards (unless legally threatened to do so) spolia is tethered to the origins it produces as mobile. The post-modern visual arts immediately slipped the tethered condition of spolia into the erasing operation of appropriation as they reached into and found articulation in the art market. Where the commodity has no notion of time, spolia sustains itself upon its motion and finds succor in the violence that gives birth to it.

The other consequence of spolia is that the work comes to be seen as a production consisting in its re-performance; a reproduction at least to the extent that artwork may not exist without a capacity for re-mediation whether conceived as technical or social communication.^x This theme of the biography of the object, data de-situated by technologies which circulate as they store as they calculate and the terminological adoption of spolia illustrates a further aim of *H2HD* : to rework

what has become the total critical bluntness and ubiquity of ‘appropriation’ in visual art practices into the ancient violations and expropriations of spolia. Certainly there was a polemical aim in this, one sharing a rhetorical genealogy with Marx’s choice of Charles de Brosse’s ethnographic term *fetish* for the capitalist commodity. A similar desire to describe through retrogression marked the pairing of the microprocessor with the grave in *Headstone to Hard Drive*’s title.

H2HD considered mechanical, analogue and digital media as non-biologic temporal supports: alphabets; financial trading software; extra-terrestrial architecture; phonography; photography; 3D data capture; heritage industries; archives: actual and virtual mnemo-techniques and technologies. Consequently the title *Headstone to Hard Drive* was intended to convey, through exaggerated difference, both physical and virtual memory and provide a motif that erased, flattened or inverted the distinction between material supports and content. Erasing, flattening or inverting this bipolarity motivated the events in which one pole, occupied by the material hardware of memory and a second pole concerning the retentive capacity of technologies were conflated.

The trajectory is taken up in my own discussion of the topographic site and its dispersal into heritage site and un-sited data. The essay stitches together a technology of financial derivatives, perceptual retention and the hardware of artifacts to test a limit of its own inter-disciplinary method, to loosen the gap between the actual artifact and virtualized data and propose, echoing Ayache, that in a temporality considered as place the derivative underwrites the site: the essay’s aim is to begin speculation upon the technical, interpretive and phenomenological market of cultural heritage semantics.

The fragmentation and de-situation characteristic of spolia runs through many of the papers here that do not explicitly address spolia as a theme: Clunie Reid’s appropriation of online material, Sarah Jones’ re-scripting, Frearson’s sacrificed datocratic organ (digit(al) and aural), Minkin’s digital epistemology, Clarke’s linguistic spoliation of journalism and *Paul O Kane’s* speculations upon waste. O’ Kane’s asks whether the figure of spolia produces a border between value, waste and reuse in economic circulation and how this may be semiotically and politically relevant. An invertible border of value existing between violence and survival is stabilized in the notion of spolia. For O’ Kane spoliation leads to a situation in which materiality supplants semiotics.

Spolia is historically addressed in *Johannes Von Muller’s* discussion of porphyry sarcophagi in the Mediterranean and the purple stone’s symbolic import within Roman Imperial political apparatus. Spolia is data in transmission. Von Muller describes the hard rock as a “data carrier”, “nothing less than Rome [...] had been inscribed into the rock.” The stone contains information that is simultaneously purely symbolic (it adheres to the stone itself regardless of that particular stone’s past) and purely historical (Diocletian declared the rock as the emperor’s colour). The symbolic solidification of the rock moving through an ideological political apparatus echoes its post-larval igneous formation. Von Muller provides an account of how data and import are locked within inanimate materials and how economic, symbological and cultural factors produce memory as a mobile place of encounter. The historical framework Von Muller elucidates shares much with Trangmar’s “relational assemblage”.

Mick Finch’s consideration of Aby Warburg’s method sees that method as substantially built upon the de-situated data of the mobile photographic document. The essay *Dead and Alive* looks at Aby Warburg’s methodological tools of anachronism, montage, photography, cataloguing, layout and parataxis. Central to Finch’s argument is the recursive re-emergence of Warburg’s narrative of transmission at the centre of his method through the employment, perhaps even the necessity to encounter in a figural register, the pinnacle for his generation of transmissive mediums:

photography. Photography's loosening of the locale and site of information turns that information mobile and desituates knowledge giving rise to the methodological chaos of parataxis. A condition giving rise to the "logics [...] of montage and collage", a method that, rather than present the qualities of any medium directed at and privileging any single discrete organ, reveals the historicism of a heterogenous organology or apparatus.

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In an extensive overview of the inter/trans-disciplinary relation between art, archaeology, wider currents of historical thought, politics and the recent turn to materialism **Christopher Smith** questions archaeology's self-calibration, its critical self-consciousness. Smith is clear that in the play between knowledge, power, science, art, philosophy, finance, and stewardship, archaeology whilst aspiring to reflection on its own circumstance is also, and inevitably, a reflection of hegemonic discourses. Smith's essay enumerates the scale of social forces and organs (government, scientific research academies, museums, even the military-industrial complex in the case of the impact of aerial photography on archaeological knowledge) constituting an apparatus that produces archaeology. Archaeology's self-critical awareness is both how it chooses to position itself in relation to these factors (technologic, financial, scientific, political: archaeology's associated milieu^{xi}) and how it relates to a cross-disciplinary field in which art practice figures a continuing importance. The import of the relationship between art practices and archaeology in an environment in which knowledge production has a weakened claim of objectivity, could be as Smith indicates, that they both arrive at a materiality of practice from different departure points. As each of these fields finds reflection in its neighbour's image and over-identifies across the mirror of material practices, each understands the other's position "within competitive disciplinary discourses of authenticity". This affords disciplines a heuristic process in which trans, cross, inter or multi disciplinarity may produce alternative apparatus, a montaging of fields, not already given or determinate within the hegemonic discourses Smith identifies.

In *Animal Spirits: Speculations on the Genealogy of Risk* **Richard Cochrane** pursues the historic relationship between knowledge and power in speculative thought and practice. Cochrane, through tracing speculative thought's origins, reveals its methodological paradox in relations between mathematical calculability and genius as a chiasmic point of modern knowledge. A chiasmic point locating the movement from observation to governing law visible as heroic gestures in science, politics, finance and art. Cochrane's own speculation concerning the Romantic vision of autonomous action finding its mirrored articulation in financial speculation presents an oscillation between the technically calculable and the physiologically vital in which knowledge and its production move from observation to staged performance of the possible. The background to speculation is likely familiar to anyone who has spent any time around art practice and the Baroque strategy Cochrane outlines of "[...] reproduction adopted as a productive strategy [...]" is one familiar to spectators of contemporary art.

Sequence continues in **Hans Christian Hönes** discussion of George Kubler's "prime objects". Kubler has interest for the discussion here not only for his attempt to articulate the idea of sequence and transmission in art history but for his attempt to replace the biological metaphors that attached themselves to an art history of style (blooming and decay) with a metaphor derived from physical sciences such as electrodynamics. Such a position allows Kubler to develop theories of rupture and of human agents as intermediaries (and this brings to mind the proletarianised operator of

machinery) both attitudes consistent with a technologically determinate position that on one hand challenges Platonic idealism and on the other will fall back upon it in a Romantic and biological model of the mutant gene. As Hönes essay constantly acknowledges Kubler's attempts to ground his thesis is consistently betraying anxieties about the reproductive and purely mechanical nature of replication.

Methodology is pursued in a pedagogic context in *Elizabeth Wright's* mapping of Leroi Gourhan's Chaîne Opératoire onto the 'A' Course of St Martin's Sculpture Department (1969-73). Her essay articulates the ongoing re-production of an apparatus that connects instructions and rules to materials, tool-use and site across an ideologically ruptured context of post-war British art education. Wright articulates the persistence of observation and obedience within systems of pedagogic governance. The displacement of mimetic memory from observation studies to replicating the system of governance is presented as genealogically informing the 'A' Course structure, its transmission and development in student hands. The course both figures aspects of Leroi Gourhan's operational sequence in the directing of tool use and process, and is a part of a mimetic primary memory.

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Finally, to turn back to the question of disciplinarity in this Journal of *Visual Art Practice*, post-de-materialist art practices rightly ask 'What purchase does the term *Visual* retain even for image based art practices?' What of the invisible in art practices or those components of an assemblage of production that are not immediate in any visibility? Exactly the space of the mediate, the channel and the network of circulation and distribution. Such thoughts upset subjective phenomenology and the idea of visible experience.

The question of the invisible in photography is taken up by *Daniel Rubinstein's* essay in which *invisibility* is taken as primary for a media that historically has been tethered to its visual affects. Agamben's essay on the apparatus quotes Foucault: "[T]he said as much as the unsaid" (Agamben 2009, 2); perhaps we could add the visible as much as the invisible. For Rubinstein the digital framework reveals a critical illusion that photography theory labored under for too long as it valorized photography's visual effect, an illusion become unavoidably apparent in the digital paradigm. The digital paradigm reveals the multiplicity of apparatus as the technical supports for any image as more ontologically primary in a way that every image becomes, in Heidegger's terms, a standing reserve and in a state of permanent bifurcation. Rubinstein describes "[...] the immense and unimaginable forces that operate behind the surface of the screen" as an apparatus utilizing a latent data set with unimaginable algorithmic permutations way beyond the relatively strict operational protocol of darkroom photography. The digital provides a material paradigm backing up a history of the critique of representation and subjectivity. Rubinstein's position finds echo with many of the essays and articles here: in Trangmar's "invisible in the visible" and Ayache's "from light and the whole idea of vision into matter".

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Simondon's ecumenicism or reticulation of modes of thought, can be seen as a transdisciplinary apparatus producing subjectivities (perhaps not what he had in mind): not of the sender and not in the message but in the arrangement of means. Under such conditions knowledge

itself is placed under duress, fragmentation, invisibility, analogy but can gain the possibility of articulating points of reticular registration between separated fields and the distant possibility of reforming knowledge.

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ⁱ The tricky temporality of ‘post’ as designated in post-modernism is replaced with an innocuous but nonetheless ideological sleight-of-hand: ‘contemporary’. A situation Clare Bishop describes as ‘present-ism’: when the current moment is presented as the pinnacle of our understanding ‘now’ becomes the horizon and destination of thought (Bishop 2013).

ⁱⁱ “Crossdisciplinary: viewing one discipline from the perspective of another [...] Transdisciplinary: creating a unity of intellectual frameworks beyond the disciplinary perspectives.” (Jensenius 2016)

ⁱⁱⁱ My use of the term shadow here is indebted to Mario Perniola’s ‘Art and its Shadow’ (Perniola 2004). It also appears as a significant and frequent cipher in Agamben’s discussion in ‘The Man Without Content’ (Agamben 1999). Agamben’s first use of ‘shadow’ is a quote from Nietzsche’s ‘Twilight of the Idols’: “Having reached the furthest limit of its destiny in the "hour of the shortest shadow," art leaves behind the neutral horizon of the aesthetic and recognizes itself in the "golden ball" of the will to power.”(Agamben 1999, 2)

^{iv} Bernard Edelman’s study of the acceptance of the photographer as a legal owner with copyright in France in the late nineteenth and early twentieth century is key to understanding the development of photographic copyright. (Edelman 1979)

^v The usual translation of Foucault’s ‘dispositif’ as ‘apparatus’ is adhered to here.

^{vi} *Ars* is defined as: “skill/craft/art; trick| wile; science| knowledge; method| way; character (pl.)” in the JM Latin English Dictionary <http://www.latin-dictionary.org/ars> [Accessed 18th May 2016]

^{vii} This organological montage forms the basis for Stiegler’s essay ‘The Tongue of the Eye’ (Stiegler 2011)

^{viii} See Christina Kiaer’s *Imagine No Possessions* (Kiaer 2008)

^{ix} See Roy Ascott’s *Behaviourist Art and the Cybernetic Vision* (Ascott 2008, 109-156)

^x See Bruno Latour’s discussion of the restaging of artworks in *The Migration of the Aura* (Latour 2010)

^{xi} I am using Gilbert Simondon’s term here. The associated milieu is the energy exchange between an individual and its environment. I am suggesting that archaeology, or any other field, in exchanging energy with bordering fields individuates itself through the heterogeneity of the set.