National Library of Canada
Acquisitions and Bibliographic Services Branch
395 Wellington Street
Ottawa, Ontario
K1A 0N4

Bibliothèque nationale du Canada
Direction des acquisitions et des services bibliographiques
395, rue Wellington
Ottawa (Ontario)
K1A 0N4

Your file Votre référence

Our file Notre référence

NOTICE

The quality of this microform is heavily dependent upon the quality of the original thesis submitted for microfilming. Every effort has been made to ensure the highest quality of reproduction possible.

If pages are missing, contact the university which granted the degree.

Some pages may have indistinct print especially if the original pages were typed with a poor typewriter ribbon or if the university sent us an inferior photocopy.

AVIS

La qualité de cette microforme dépend grandement de la qualité de la thèse soumise au microfilmage. Nous avons tout fait pour assurer une qualité supérieure de reproduction.

S'il manque des pages, veuillez communiquer avec l'université qui a conféré le grade.

La qualité d'impression de certaines pages peut laisser à désirer, surtout si les pages originales ont été dactylographiées à l'aide d'un ruban usé ou si l'université nous a fait parvenir une photocopie de qualité inférieure.

Canada

Unnatural Couplings:

Monstrous Investigations into the Ontology of Technology

Gordon Thompson

A Thesis

in

The Department

of

Communication Studies

Presented in Partial Fulfilment of the Requirements
for the Degree of Master of Arts at
Concordia University
Montreal, Quebec, Canada

September 1993

ISBN 0-315-97696-9

Canada

Abstract

Unnatural Couplings: Monstrous Investigations into the Ontology of Technology

Gordon Thompson

This thesis investigates the ontological presuppositions which have given a coherent focus to a variety of technological discourses. It is argued that a "classic schema" or "dominant image" within technological discourses can be identified and I suggest that we might call this classic schema the "organic extension thesis". Two tasks follow immediately from this claim. Firstly, I attempt to clarify the claim itself: what does it mean to say that there is a classic schema of technology? what constitutes a classic schema? what are its functions? and thus what is at stake? Secondly, I pursue the more specific task of substantiating the implicit role of the organic extension thesis throughout the whole of technological discourse. In the course of these tasks, my use of this term is distinguished from more popular uses of the notion of organic extension (for example, in the work of McLuhan) through an investigation of the notion's broader and more general status as a classic schema.

The thesis is deeply indebted to the theoretical work of Gilles Deleuze and Félix Guattari, and also of Donna Haraway. Thus the thesis is also an investigation of the contributions which in my view their writings have to make towards a new philosophy of technology.

Acknowledgements

I would like to thank my thesis adviser, Kim Sawchuk, for her interest, support, and especially her patience. Thanks are also due my committee members Jody Berland and Bill Buxton for their time and energy, and to Nadya Burton for her numerous contributions. I would also like to acknowledge the indispensable support I found at McGill in the Deleuze study group: thanks to Aden Evens, Mani Haghighi, Stacy Johnson, Brian Massumi, and Karen Ocaña.

Table of Contents

PART ONE

Introduction

0.1	**The Classic Schema of Technology**	**1**
0.2	**Organs of Power and State Apparatuses**	**4**
0.3	**The Role of the Classic Schema**	**9**
0.4	**A Final Introductory Remark**	**17**

Chapter I

1.1	**Ontology and Politics**	**19**
1.2	**Monstrosity and Becoming**	**26**

Chapter II

2.1	**The Question of Technology as False Problem**	**33**
2.2	**Problematizing the Question of Technology**	**40**
2.3	**The Ontology of Mastery and the Sad Passions**	**49**

Chapter III

3.1	**The History of Organic Extensions**	**77**
3.2	**Origin Stories of the Organic Extensions Thesis**	**79**
3.3	**Vitalism and Organic Extension**	**85**
3.4	**Habermas and the Closed Body**	**92**
3.5	**Corporeal or Corporate Extensions?**	**98**

Intermezzo **100**

PART TWO

Chapter IV

4.1	Artifactualism is not Productionism	104
4.2	Productionism in Marxist Ontology	111
4.3	Baudrillard's critique of D&G's production	116
4.4	Let it Be (or the Suppression of Becoming)	122

Chapter V

5.1	Projection and Civilization	130
5.2	Partial Objects and Unnatural Couplings	140
5.3	Concluding Remarks and Avenues for Further Research	147

Bibliography 154

PART ONE

Introduction

0.1 The Classic Schema of Technology

Twenty years ago, Gilles Deleuze and Félix Guattari penned an intense little passage which I try to unpack over the course of this thesis. In fact, the passage can stand as an approximate outline to the entire project and so I will cite it immediately:

> There is a classic schema [of the machine] that is inspired by the tool the tool as the extension and the projection of the living being, the operation by means of which man progressively emerges, the evolution from the tool to the machine, the reversal in which the machine grows more and more independent of man... But this schema has many drawbacks. It does not offer us any means to apprehend the reality of desiring-machines, and their presence throughout this circuit. It is a biological and evolutive schema, which determines the machine as an event occurring at a given moment in the mechanical lineage that begins with the tool. It is humanistic and abstract, isolating the productive forces from the social conditions of their exercise, involving a man-nature dimension common to all the social forms, to which are thus lent relations of evolution. It is imaginary, phantasmal, and solipsistic, even when it is applied to real tools, to real machines, since it rests entirely on the hypothesis of projection (Roheim for example, who adopts this schema, shows the analogy between the physical projection of tools and the psychic projection of phantasies) (D&G,1977b:118).

In my view, it is difficult to overstate the importance of this passage.[1] Here Deleuze and Guattari (D&G) have laid out the whole range of modernist investments, out of which has emerged this classic schema. All the "Doctors of Modernity"[2] are

---

[1] It is unfortunate that this essay, which was included as an appendix to the second French edition of *L'Anti-Oedipe*, is not included in the English translation. However, the translation has been published separately in *Semiotext(e)*.

[2] R.F. Baum adopts this phrase to designate the trinity of modernism's founding fathers: Darwin, Marx, and Freud. See Doctors of Modernity: Darwin, Marx, and

implicated in turn: Darwin (through the critique of the evolutionary lineage), Marx (through the critique of the humanist abstraction of productive forces from the social conditions of their exercise), and Freud (through the critique of projective phantasies).

I am struck by a number of things in this passage; firstly, by the description of the schema itself. Two familiar and opposed positions - technology as an *extension* of the organism, and technology as independent of its maker or *autonomous* - are presented as successive moments within an evolutionary narrative. Typically, the point of focus within this narrative is the "reversal." This point is endowed with tremendous significance because it is understood to constitute a rupture or a break point at which the old schema of the tool (instrumentalism) ceases to be properly descriptive of an increasingly complex world of technology, and a new (non-instrumentalist) schema of the machine emerges. Sometimes the movement from industrial to post-industrial technologies, from cumbersome mechanical technologies to electric and cybernetic ones, is considered to be decisive to this reversal, although it should be noted that this is not always the case. Authors such as Ralph Waldo Emerson were already insisting in the middle of nineteenth century industrialism that: "Things are in the saddle and ride mankind" (quoted in Kuhns:1).

But what is immediately intriguing about D&G's depiction of the schema is that it doesn't place a disjunctive emphasis on the "reversal," but insists instead that the entire evolutionary narrative reflects a *single classic schema* which, from

---

Freud.

beginning to end, continues to give expression to the same modernist investments, that is, to the same ontological presuppositions. Establishing that this is indeed the case, that these opposing positions are circumscribed within the same schema, will be the principle task of Chapter 2.

In an attempt to further clarify the nature of what D&G call the "classic schema," I will suggest the use of what I hope is a more appropriately descriptive title: the *organic extension* (or organic projection) thesis. The metaphor of technology as an extension of the body's organs or senses has, of course, enjoyed and continues to enjoy wide popularity and acceptance. It is extremely important, therefore, to distinguish my use of the term from the ways in which it is generally used.

While typically, organic extension is associated only with the instrumentalist argument, my use of the term must be understood to subsume, like D&G's classic schema, both instrumentalist and "non-instrumentalist" or "autonomous" notions of technology. Expanding the standard applicability of the organic extension thesis first entails expanding our notion of what constitutes an organ; of what it is, in fact, that an organic extension is supposed to extend.

0.2 Organs of Power and State Apparatuses

> People ask, So what is this BwO [body without organs]? -- But you're already on it, scurrying like a vermin, groping like a blind person, or running like a lunatic: desert traveller and nomad of the steppes. On it we sleep, live our waking lives, fight -- fight and are fought -- seek our place, experience untold happiness and fabulous defeats; on it we penetrate and are penetrated; on it we love (D&G,1987:150).

Here we will follow D&G who have been at pains to show that the organs are not the simple and natural constituent elements of the biological body. Rather, they are agents in the flow and circulation of power. Far from making up the body, they are in fact its enemies: "organisms are enemies of the body" (Artaud,1977:59). They are limitative structures legislating the body; the body's own portable "state apparatus."

It was Antonin Artaud who insisted most forcefully that: "The body is the body, alone it stands and in no need of organs" (Artaud,1977:59). We meet here, of course, the notorious notion of the body without organs (BwO) (but, we are reminded, it is "not at all a notion or a concept but a practice, a set of practices" (D&G,1987:149-150)). The deterritorialized body, freed from all limitative and functional structures. The BwO is not the body destroyed or the body dismembered, it is the body restored to itself; the body in all its *fullness*.[3]

Dismantling the organism has never meant killing yourself, but rather

---

[3] As D&G emphasize, particularly in A Thousand Plateaus, being a practice, the BwO is easily botched (they give many examples. See D&G,1987:149-152). The BwO is botched when nothing is made to pass on it; when it is emptied rather than filled. What the BwO is empty or full of its *affective potential.*

> opening the body to connections that presuppose an entire assemblage, circuits, conjunctions, levels and thresholds, passages and distributions of intensity, and territories and deterritorializations measured with the craft of a surveyor. Actually, dismantling the organism is no more difficult than dismantling the other two strata, signifiance and subjectification. Signifiance clings to the soul just as the organism clings to the body, and it is not easy to get rid of either. And how can we unhook ourselves from the points of subjectification that secure us, nail us down to a dominant reality? Tearing the conscious away from the subject in order to make it a means of exploration, tearing the unconscious away from signification and interpretation in order to make it a veritable production: this is assuredly no more or less difficult than tearing the body away from the organism. Caution is the art common to all three[...] (D&G,1987:160).

The organs do not belong to the body. They are not the body's immanent structures. They arrive from elsewhere and attach themselves to the body.[4] They are laws passed on the BwO. For Artaud, to shake off the oppressive structure of his organs meant not to dismember his body, but to free it from an organic state apparatus which strangles it and subordinates it to an external authority; which attacks it like a hungry parasite and delivers its strength over to another. "Organs are parasites always, covering parasitic functions designed to make a being live who shouldn't be" (Artaud,1977:59). To be rid of the organs would be, in Artaud's

---

[4] "The beating of the heart is an acquired, not an innate mode of activity" (Weiss:152). While Weiss' discussion lacks a sense of the immanent dimension of the BwO, he is instructive as regards the generation of organs as limitative structures in relation to *habit* as a limitative principle which defines organs as well as techniques: "Techniques are unities of habits acquired slowly, and usually with difficulty" (Weiss:160). The phenomenon of habit is an important topic which I have not been able to directly address in this thesis. For a discussion of habit in relation to D&G, see Massumi,1992:47-92.

telling phrase, "To have done with the Judgements of God" (Artaud,1988:553-571).[5]

We must understand organs as Artaud does: as administrative or bureaucratic structures, as state apparatuses. Thus when I speak of organs and organic extensions, I am not speaking simply of the various parts that make up an organism, of the natural elements that constitute life and the artificial elements that extend it. I am concerned more particularly with the system of organization which distributes and legislates functions.

An organism is a system of centralized power. Even biology defines an organ as "a structural and functional unit" (Dictionary of Biology:203) which relates it to the overall organization of the whole. William Burroughs, on the other hand, knows that "no organ is constant as regards either function or position,...sex organs sprout anywhere,...rectums open, defecate and close,...the entire organism changes color and consistency in split-second adjustments" (Burroughs quoted in D&G,1987:153). This brings up an important point that must be clarified:

> We come to the gradual realization that the BwO is not [...] opposed to the organs; rather, the BwO and its "true organs," which must be composed and positioned, are opposed to the organism, the organic organization of the organs. The *judgement of God*, the system of the judgement of God, the theological system, is precisely the operation of He who makes an organism, an organization of organs called the organism, because He cannot bear the BwO, because He pursues it and rips it apart so He can be first, and have the organism be first. The organism is already that, the judgment of God, from which medical doctors benefit and on which they base their power. The organism is

---

[5] "To Have Done with the Judgement of God" is the name of a radio play by Artaud, written in 1947, in which the term "body without organs" appears: "When you have made him a body without organs, then you will have delivered him from all his automatic reactions and restored him to his true freedom" (Artaud,1988:571).

> not at all the body, the BwO; rather, it is a stratum on the BwO, in other words, a phenomenon of accumulation, coagulation, and sedimentation that, in order to extract useful labor from the BwO, imposes upon it forms, functions, bonds, dominant and hierarchized organizations, organized transcendences (D&G,1987:158-159).

To speak of an organic "state apparatus" is in no way gratuitous when we understand the organism as something quite distinct from the body (distinct formally, but never in practice: "You never reach the Body without Organs, you can't reach it, you are forever attaining it, it is a limit" (D&G,1987:150)). The body will always struggle to a greater or lesser degree under the power of the organism. It will never escape that power altogether because, as D&G insist, politics precedes Being (Deleuze and Parnet:17). The organism is the body's political inscription.

In speaking of the organic state apparatus, I hope to highlight the homology between the organism and the state: the organism is a mini-state, the state is a super-organism. What constitutes the homology between the two is that they are both symbols of centralized unity and the forces of interiority.[6] According to D&G, "the State[...]is defined by the perpetuation or conservation of organs of power.[...] The State is sovereignty. But sovereignty only reigns over what it is capable of internalizing" (D&G,1987:357-360). Dean and Massumi have suggested that the organic model is "evoked directly or indirectly by every image of State unity" (Dean and Massumi,1992:157). Anthony Giddens has provided a case in point in a fairly recent attempt to clarify the concept of the state:

---

[6] On the despotic production of an homology between body, family, and state, see Massumi,1988:423-440, and Massumi,1990/91:21-31.

> Thus I shall speak of 'the state apparatus' when I mean the administrative organs of government [...].
>
> All forms of state apparatus consist of a plurality of organizations in the sense in which I have outlined that term above, but for many purposes, it is also worth treating that apparatus as a single organization. This is indeed the first characteristic I wish to single out as definitive of the state in general. *All states involve the reflexive monitoring of aspects of the reproduction of the social systems subject to their rule*[7] (Giddens:17).

With this in mind, we are perhaps better prepared to understand how the principle of organic extension can remain functional in the wake of the non-instrumentalist reversal of autonomous technology. The notion of autonomous technology is premised on an emergent independence or self-sufficiency within machines themselves or systems of machines. Implicit within this supposition is the postulation of some sort of emergent technological "self". Technology effectively evolves a subjectivity, its own ghost in the machine.[8] The Golem is regularly invoked as the most ancient analogy to the sentient and autonomous machine. In becoming autonomous, technology follows phylogenetically, the ontogenetic process through which we secure our own subjectivity and autonomy.[9] It invents its own interiority. A "self" begins to separate from what comes to be perceived as the "non-self". It is *subjectifying*. It is becoming *autonomous*. In other words, it is

---

[7] See also Giddens' discussion of the circulation of power in relation to Durkheim's interpretation of the state as an "organ" of society: "[Durkheim] treats modern democratic state forms too much as a simple *extension* of state power in general and he also underestimates how far the state apparatus can become a source of power independent of the rest of society" (Giddens:18; emphasis added).

[8] These points will be discussed at greater length in Chapter 2.

[9] On the relationship between ontogenetic and phylogenetic development, see Chapter 5.

being *organ-ized.*[10]

0.3 The Role of the Classic Schema

The concern might be raised that, in postulating the organic extension thesis as a classic schema and arguing that its logic subtends the spectrum of what are normally taken to be diverse positions within technological discourse, the effect is to unify technological discourse; to gloss over the specificity and subtlety of a wide range of very different positions in order to make sweeping generalizations. But it must be strongly emphasized that the point of identifying a classic schema is not to ignore, deny, or dismiss these differences. I'm not arguing that the discourse on technology is unified, rather I am trying to map some of the unifying tendencies that run through this discourse. This distinction is anything but trivial. A discourse like any other kind of body does not *exist* as a unity,[11] but it is nonetheless striated by forces of unification. Unification is a process; unity is a limit, never an achieved state (much like the BwO). Unity is the ideology of what D&G call the "absolute state" or the "*Urstaat*". This is not an abstract model of the state form. It is more like an

---

[10] For a discussion of the *organ*-ization and subjectification of the infant or the progressive limitative structuring (or stratification) of a nonlimitative BwO, see Brian Massumi's discussion in "Burp" (Massumi,1992:68-80). This description should be contrasted with the various psychoanalytic narratives of subjectification and oedipalization.

[11] "The heterogeneous terms that a substance of unity homogenizes always retains their heterogeneity on another level" (Massumi,1990/91:30).

"attractor state" (Massumi,1992:191) or virtual threshold of despotic desire.[12]

> The absolute state is an impossibility, a virtual point of synthesis that is never attained. The absolute state is an idea. The idea is a desire. It is the despotic desire to be one in order to dominate the other, to infuse in order to transcend all outside limitations. Or is it to dominate the other in order to be one, and to transcend in order to infuse? It amounts to the same thing.
>
> Either way, despotism overlooks the fact that for there to be one through domination there must be an other to be dominated. That makes two. Once the second is subjugated, another other must come for the unification to continue: three. Oneness reposes on multiplicity (Dean and Massumi,1990/91:16).

A classic schema, in the sense in which D&G have used the term, refers to a particular discourse's *dominant image*. But *dominant image* implies not only that the image is the most common and widely proliferated. The dominant image is also, and more importantly, an *image of domination*. It operate, in Massumi's terminology, as a "substance of unity."[13]

I can clarify this point by referring to a more fundamental instance in Deleuze's philosophy where he has identified what, for my purposes, I will call

---

[12] In D&G, despotism or fascism is fundamentally a question of desire: "Fascism, like desire, is scattered everywhere, in separate bits and pieces, within the whole social realm; it crystallizes in one place or another, depending on the relationship of force. It can be said of fascism that it is all-powerful and, at the same time, ridiculously weak. And whether it is the former or the latter depends on the capacity of collective arrangements, subject-groups, to connect the social libido, on every level, with the whole range of revolutionary machines of desire" (Guattari,1977:98). As Dean and Massumi have insisted, "Wherever the ideology of unity is, there is fascism, in one form or another" (Dean and Massumi,1990/91:16). This is also the manner in which Foucault interpreted fascism when he suggested that Anti-Oedipus might be read as an "*Introduction to the Non-Fascist Life*" (Foucault,1977b:xiii).

[13] On the "substance of unity" or "common substance," see Massumi,1990/91:21-31.

another "classic schema," this time of Western philosophy or Western thought as a whole. Deleuze has identified a consistent and hegemonic force within Western thought which he refers to as "State Philosophy" or "representational thought". As Brian Massumi describes:

> "State philosophy" is another name for the representational thinking that has dominated Western metaphysics since Plato, but has suffered an at least momentary setback during the last quarter century at the hands of Jacques Derrida, Michel Foucault and poststructuralist theory generally. As described by Deleuze, State philosophy is grounded in a double identity: of the thinking subject, and of the concepts it creates and to which it lends its own presumed attributes of sameness and constancy. The subject, its concepts, and the "external" objects to which the concepts are applied have a shared, internal essence: the self-resemblance at the basis of identity. Representational thought is analogical; its concern is to establish a correspondence between these symmetrically structured domains. The faculty of judgment serves as the police force of analogy, assuring that each of the three terms is honestly itself, and that the proper correspondences obtain. In thought its end is truth, in action justice. [...] The modus operandi is negation: x = x not y. Identity, resemblance, truth, justice, and negation. The rational foundation for order (Massumi,1992:4).

We should start to wonder if technology's classic schema marks anything other than the saturation of technological discourse by representational thought. Certainly it is difficult to think of any rhetorical or conceptual device more adept at producing dazzling analogies that the organic extension thesis: for every organ and function, its prosthetic analogue. Bodies and machines coupled like to like, united by a single concept of function.

But to return to the issue of representational thought as a classic schema, we can note that Massumi (following Deleuze) has identified State philosophy as a dominating force within Western thought since Plato. Should we object to such

statements as spurious generalizations that mystify more than they reveal? Indeed, Michael Hardt has objected to Massumi's characterization of representational thought along these lines. In his book, Gilles Deleuze: An Apprenticeship in Philosophy, Hardt writes,

> Massumi is certainly correct to insist on Deleuze's opposition to "State philosophy." However, Massumi (and admittedly Deleuze too at times) tends to exaggerate the centrality and hegemony of "State philosophy" in the history of Western thought[...]. Western metaphysics should not be characterized in such a univocal manner; the philosophical tradition contains radical alternatives within it. As a result of this simplification, we also find the tendency to exaggerate the marginality of the opposing tradition that is dear to Deleuze; in other words, even if Lucretius, Duns Scotus, Spinoza, et al. form a "minority" in the sense that they are partially eclipsed by the contemporary political-academic hegemony of "State philosophy" (Plato, Hegel, etc.), nonetheless this "minority" constitutes some of the highest and most central moments of Western metaphysics, My point is that we should not minimize the coherence and the enormous power of this alternative tradition. In any case, Deleuze's opposition to "State philosophy" should not be conceived as an opposition to Western philosophy *tout court*, but rather as an affirmation of its most powerful and most lucid elements (Hardt,1993:124).

From a certain perspective, Hardt's concerns perhaps sound reasonable enough, but I would argue that he has fundamentally missed the point of Massumi's assertion, and it is important in terms of my own claims to show how this is so.

Hardt is disturbed by what he recognizes as a tendency to read Deleuze "unphilosophically". Such readings, he fears, threaten to debase the logical and philosophical rigour of Deleuze's theorizing. "*Read Deleuze philosophically*" (Hardt,1993:xix) Hardt petitions with regards to methodological principles. I would be inclined to agree with such a vaguely defined principle if, in practice, Hardt did not betray the fact that he takes this principle to imply that we might ignore with

impunity all the literary and other interests that make up such a significant portion of Deleuze's corpus. As Hardt notes,

> One can certainly recognize, even in his early works, a desire to move away from philosophy, to depart from his training and branch out into other fields: biology, psychology, art, mathematics, politics, literature. Many read Deleuze's work as a rejection of Western philosophical thought and hence the proposition of a postphilosophical or postmodern discourse.[...] However, when we look closely at his arguments, we find that not only is his thought saturated with the Western philosophical tradition, but even when his examples seem "unphilosophical" the coherence of his positions and the mode of explanation that supports them remain on the highest logical and ontological planes[14] (Hardt,1993:xviii).

There is no question that Deleuze is first and foremost a philosopher: "Philosophy, nothing but philosophy," he has affirmed in an interview with Catherine Clément (quoted in Massumi,1987b:ix). But he has also done much to

---

[14] Below the preceding passage, Hardt includes the following end note: "After Deleuze's presentation entitled [...] "The method of dramatization" before the *Société français de philosophie*, Deleuze's respected professor Ferdinand Alquié charged that by exclusively drawing on examples from biology, psychology, and other fields Deleuze had lost the understanding of the specificity of properly philosophical discourse. Deleuze was noticeably hurt by this accusation and he gave an emotional, affectionate response: "Your other reproach touches me even more. Because I believe entirely in the specificity of philosophy and I owe this conviction to you yourself". What Alquié seemed to misunderstand is that although Deleuze's exemplification may be "unphilosophical," his reasoning and explanation are purely philosophical in the strictest sense" (Hardt,1993:124). I would add that what Hardt seems to misunderstand is that these references are not mere "examples" or illustrations drawn from "outside" philosophy. Philosophy itself is *outside* on all terrains upon which Deleuze moves. Hardt's notion of what is "unphilosophical" seems to oscillate between the unrigorous and the incoherent on the one hand and what is the legitimate property of another discipline (ie. biology or literature) on the other. Neither of these notions have anything to do with Deleuze's "escape" from philosophy (that is, his making of philosophy into a line of escape). On Deleuze's notion of "counter-philosophy," see "Nomad Thought," Deleuze,1985:142-149. It is precisely as Massumi describes it: the struggle against representational thought, the struggle against "the whole tragedy of interiority" (Deleuze,1985:147).

transform what doing philosophy means.[15] Hardt, however, seems to insist that reading Deleuze philosophically entails situating him properly within the history of philosophy, or what he calls, "philosophical tradition."

> We cannot read Deleuze's work as thought "outside" or "beyond" the philosophical tradition, or even as an effective line of flight from that block; rather we must see it as the affirmation of a (discontinuous, but coherent) line of thought that has remained suppressed and dormant, but nonetheless deeply embedded within that same tradition (Hardt,1993:xviii-xix).

But in all of this Hardt is conflating philosophy as a creative process with the history of philosophy which, Deleuze insists, "has always been the agent of power in philosophy, and even in thought. It has played the repressive role [...]" (Deleuze and Parnet:13). We will indeed insist that Deleuze is "outside" philosophical tradition; that he draws a line of escape from this tradition to the extent that his philosophy is a sustained effort to think the *outside*.[16] This is what attracts him, for example, to Nietzsche:

> opening one of Nietzsche's books at random, you have the almost novel experience of *not* continuing on by way of an interiority, whether this be called the inner soul of consciousness, or the inner essence or concept -- that is, what has always served as the guiding principle of philosophy. It is characteristic of philosophical writing that relations with an exterior are always mediated and dissolved by an interior, and

---

[15] For example, Deleuze writes: "In barren times, philosophy retreats to reflecting "on" things. If it doesn't itself create anything what can it do but reflect on something? So it reflects on the eternal or the historical, but can itself no longer produce movement. What we must do, in fact, is take away from philosophers the right to reflect "on" things. The philosopher creates, he doesn't reflect" (Deleuze,1992c:282).

[16] "Now, to hang thought on the outside is what philosophers have literally never done, even when they spoke about, for example, politics; even when they treated such subjects as walking or fresh air" (Deleuze,1985:145).

> this process always takes place within some given interiority. Nietzsche, on the contrary, grounds his thought, his writing, on an immediate relation with the outside, the exterior (Deleuze,1985:144).

It is simply a mistake to make, as Hardt does, Deleuze's favourite thinkers into a minor "tradition". They are rather,

> an orphan line of thinkers who were tied by no direct descendance but were untied in their opposition to the State philosophy that would nevertheless accord them minor positions in its canon. Between Lucretius, Hume, Spinoza, Nietzsche, and Bergson there exists a "secret link constituted by the critique of negativity, the cultivation of joy, the hatred of interiority, the exteriority of forces and relations, the denunciation of power" (Massumi,1987b:x).

All of these attributes militate against the cultivation of a tradition. Tradition is not the inevitable fate of philosophy. There is a *within* to philosophical tradition only to the extent that one is constructed by "State philosophy" with its "ministers of the Interior" who chart the history of philosophy through a filial line of descent. Deleuze's bastard philosophers are not "minor" because, within the history of philosophy, they are "partially eclipsed by the contemporary political-academic hegemony of "State philosophy" (Plato, Hegel, etc)" (Hardt,1993:124), rather they are "minor" because they resist this interiorization, this disciplining. As Deleuze explains,

> I like writers who seemed to be part of the history of philosophy, but who escaped from it in one respect, or altogether [...]. It is easy credit Spinoza with the place of honour in the Cartesian succession; except that he bulges out of that place in all directions, there is no living corpse who raises the lid of his coffin so powerfully, crying so loudly 'I'm not one of yours.' (Deleuze and Parnet:14-15).

Hardt's book is admirable on many levels, but it is completely lacking the

monstrous dimension[17] of Massumi's book, or rather, Hardt works against his own monstrosity, attempting to produce a disciplined text, whereas Massumi embraces and celebrates monstrosity and tries to carry it further. If anything, Hardt's attempt to situate Deleuze within philosophical tradition to the exclusion of all other lines of escape (his literary influences, etc.) from tradition seem at times like an attempt to "normalize" Deleuze.

To sum up and bring us back to the point, there is a very precise way in which we may say that philosophical tradition *contains* only State philosophers. In order to speak this way, we must recognize that State philosophy is itself a force of *containment*. It is at once thought's dominant image and an image for the domination of thought. It is "born out of the imperial state" and it remains "in a strict relation with the despot (or at least within the shadow of despotism), with imperialism), with the administration of things and people" (Deleuze,1985:148).

The notion of an inside or outside of philosophy should be given up as senseless in favour of the more constructive distinction between a philosophy of the inside, a *philosophy of interiority*, and a philosophy of the outside, *philosophy of exteriority*. The purpose of identifying a classic schema of philosophy or of technology is to map these forces of interiorization, to identify this image of thought in order to struggle against it, to struggle towards a *thought without Image* (TwI).[18]

In arguing for the recognition of a classic schema, we are not saying that

---

[17] See Chapter 1.2 on the monstrous dimension of theory.

[18] On the image of thought and thought without image, see Deleuze,1968:169-217.

philosophic or technological discourse is univocal or self-consistent. As Deleuze acknowledges in relation to philosophy's classic schema:

> It certainly has variant forms: "rationalists" and "empiricists" do not presume its construction in the same fashion. Moreover,[...] philosophers often have second thoughts and do not accept this implicit image without adding further traits drawn from explicit reflection on conceptual thought which react against it and tend to overturn it. In the realm of the implicit, it nevertheless holds fast, even if the philosopher specifies that, after all, truth is not "an easy thing to achieve and within reach of all". For this reason, we do not speak of this or that image of thought, variable according to the philosophy in question, but of a single Image in general which constitutes the subjective presupposition of philosophy as a whole (Deleuze, 1968:172)[19].

For the same reason we will speak of a single classic schema of technology: the organic extension thesis.

0.4 A Final Introductory Remark

This thesis is about connections, about cartography, about tracking heterogeneous lineages that weave their way through the entire social fabric of a culture. We will be led into many "non-technological" terrains, into areas such as evolutionary theory and psychoanalysis, not in search of "exotic examples" or for a show of "interdisciplinarity," but because these areas are co-implicated with the discourse of technology. "Disciplines" do not evolve as isolated individual discourses, but rather they flow in and out of each other, they infect each other like viruses; they "involute" through heterogeneous connections; they form "unnatural

---

[19] All translations of *Différence et répétion* are taken from the manuscript of Paul Patton's forthcoming translation. Pagination, however, refers to the original French text.

couplings''. This is an infectious process, a process of *monstrosity*.

In tracking these connections and searching for these points of co-implication my route is often circuitous. I take a long time to make points that are perhaps obvious to others and could no doubt have been better and more simply made. I have had to grapple with many issues over the course of researching and writing this thesis, and I hope that the awkward progression of some of the points will be understood to be like growth rings on a tree -- they tell the story of a development. Throughout this difficult and sometimes frustrating process, I have taken both inspiration and solace in the following confession (affirmation):

> How else can one write but of those things which one doesn't know, or knows badly? It is precisely there that we imagine having something to say. We write only at the frontiers of our knowledge, at the border which separates our knowledge and our ignorance and which transforms the one into the other. Only in this manner are we resolved to write. To satisfy ignorance is to put off writing until tomorrow, or rather, make it impossible (Deleuze,1968:4).

Chapter 1

1.1 Ontology and Politics

> By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs. The cyborg is our ontology; it gives us our politics (Haraway, 1991a:150).

While D&G have provided the principle theoretical force shaping this thesis, the work of Donna Haraway has been only marginally less formative. This project was initially conceived out of a desire to read Haraway and D&G together, and while certain changes in focus have made this effort less central, the task of forging a relationship between them continues to haunt the shadows of most of what I have written. Between them, I have felt, there is the potential for a "good encounter."[20] Each would bear gifts for the other, and each would perpetrate secret thefts upon the other. [21] Furthermore, each calls out for such encounters: it is a politic; an ethic.[22] For each is "wary of holism, but needy for connection" (Haraway, 1991:151).

They seek encounters not only with other theoreticians, but with all sorts of

---

[20] On good and bad encounters, see Deleuze, 1988b:22-25.

[21] "To encounter is to find, to capture, to steal, but there is no method for finding other than a long preparation. Stealing is the opposite of plagiarizing, copying, imitating, or doing like. Capture is always a double-capture, theft a double-theft, and it is that which creates not something mutual, but an asymmetrical block, an a-parallel evolution, nuptials, always 'outside' and 'between'. So this is what it would be, a conversation" (Deleuze and Parnet:7). For Deleuze, a conversation or a communication is always an unnatural coupling, an a-parallel evolution, a becoming. Communication proliferates difference, not sameness or consensus.

[22] On the ethics of the good encounter, see below.

other social forces. Without such encounters, there is nothing. They understand that,

> an individual statement has no bearing except to the extent that it can enter into conjunction with collective set-ups which already function effectively: for example, which are already engaged in real social struggles. If this doesn't happen, then who are you speaking to? To a universal interlocutor? To someone who already knows the codes, the meanings and all their possible combinations? The individuated enunciation is the prisoner of the dominant meanings. Only a subject-group can manipulate semiotic flows, shatter meanings, open language to other desires and forge other realities!" (Guattari,1977:91).

In the passage quoted at the top of this section, Haraway notes the important fact that ontology gives us our politics. We can take this to imply that the way we understand the world to *be*,[23] conditions the way we act within and towards the world. In giving us our politics, ontology forms our practice. But, in relation to Haraway and D&G, it is even more important to see how the reverse is also true, that is, how *practice gives us ontology*. This is to say that, for Haraway and D&G, ontology is

---

[23] While formally distinguishable, the entangled use of *ontology* (theories of being) and *epistemology* (theories of knowledge) is a common philosophical practice. Gregory Bateson, who wrote in numerous places about the entanglements of epistemology and ontology, fell into the practice of using *epistemology* to encompass the scope of both terms (see for example Bateson:314). I, on the other hand, prefer here to use *ontology* in the same way. I'm not making claims about how I know, but about "how I understand the world to be". The latter, it seems to me, is more appropriately a question of ontology even though it is implicated in the problem of understanding. As Bateson understood, epistemology and ontology should not be opposed in the traditional manner of the idealism vs. realism debate - the way things 'seem' in knowledge (ideation) as opposed to how they 'are' in reality. Both ontology and epistemology must be freed from this opposition. My position is thus in no way *opposed* to Bateson. I have simply decided that ontology is a more appropriate term to express what I am talking about. Ontology, as I understand it, presents an "image" in the Bergsonian sense "which is more than that which the idealist calls a *representation*, but less than that which the realist calls a *thing*" (Bergson,1988:9).

founded on a "constitutive theory of practice," to borrow Michael Hardt's phrase.[24] For me, the phrase captures very nicely the shared character between D&G's *desiring-production* and Haraway's *artifactualism* and the related *apparatus of bodily production.*[25] In both cases, ontology is profoundly dynamic and materialist. They are ontologies of a world that does not pre-exist, but is *produced*; a world that *is* a *process of production.* "Production as a constitutive ontology" (Negri,1991:224). This is the essential positivity of artifactualism and desiring-production. As Antonio Negri has emphasized, "constitutive ontology recognizes production within the structure of being. It is not possible to say being, except in terms of production. The critique of being is the critique of production" (Negri,1991:224).

A constitutive ontology tells a very different story from the Marxist narratives of productionism starring Man-the-producer, with history and the world in general appearing as his products. Distinguishing artifactual production from humanist productionism will be one of the main tasks of Chapter 4. But we might here anticipate a fundamental aspect of that distinction if we first take note of a related distinction which we must make in order to clarify the meaning of constitutive practice. In Spinoza this is the distinction between *potentia* (power) which denotes

---

[24] See the introduction to Hardt's Gilles Deleuze: An Apprenticeship in Philosophy as well as the first chapter on "Bergsonian Ontology." Hardt borrows the term "constitutive theory" from Antonio Negri's discussion of Spinoza in The Savage Anomaly (of which Hardt is the English translator). Many of Negri's terms readily lend themselves to a discussion of Deleuzian themes. As he has, himself, acknowledged: "My book on Spinoza [...] is from a certain perspective a thoroughly Deleuzian work" (Negri,1987:88).

[25] See D&G,1977a:1-50 and Haraway,1992a:295-337.

"the local, immediate, actual force of constitution" (Hardt,1991:xiii), and *potestas* (Power[26]) which denotes "the centralized, mediating, transcendental force of command" (Hardt,1991:xiii).

In D&G this distinction runs through their use of the term *puissance* and *pouvoir*. The first term denotes "a capacity for existence, a capacity to affect or to be affected, a capacity to multiply connections that may be realized by a given "body" to varying degrees in different situations" (Massumi, 1987b:xvii). The latter term is used by D&G in a sense very close to Foucault's use of *pouvoir*: "as an instituted and reproducible relation of force, a selective concretization of potential" (Massumi, 1987b:xvii). Finally, the terms are distinguished in that *"puissance* pertains to the virtual (the plane of consistency), *pouvoir* to the actual (the plane of organization)[27]" (Massumi,1987b:xvii).

We emphasize that in D&G the virtual is differentiated from the actual and not from the real. This is for the absolutely essential reason that the virtual is fully real (it manifests affective capacities) but not actual. It possesses *extra-being* rather than what we normally take to be *being*. It does not so much *exist* as it does *subsist* or *insist*.[28] The virtual is immanent to the actual.

---

[26] Note that in Hardt's translation, he distinguishes the two through capitalization.

[27] In relation to what we have already seen, we may say that a body is defined in terms of *potentia* or *puissance*, whereas in the case of an organism we can only speak of *potestas* or *pouvoir*. The logical distinction between body and organism is founded on the distinction of these forces which are different in nature.

[28] On the virtual as real but not actual, and also on the virtual as distinguished from the possible see Deleuze, 1968:269-276. See also Massumi, 1992:34-46.

We must also understand that the virtual and the actual are in a relation of mutual presupposition. That is to say they are co-existent/subsistent. We should not think that a thing was virtual only before it existed, and now that it exists it is no longer virtual. Virtuality and actuality are rather two sides or dimensions of the same entity (for example, the BwO is the virtual dimension of our actual organism).

Massumi has suggested that virtuality is "probably the most pivotal, and is certainly the least understood, concept in Deleuze and Guattari's philosophical vocabulary" (Massumi,1992:34). To understand what is meant by a constitutive ontology, or a constitutive theory of practice, we need to have a sense of the virtual. Constitutive practice refers precisely to the dynamism of the virtual actualizing itself.

Ontology is itself a dynamism: being is *becoming*. Without this sense of the virtual we are left with a notion of the real that is merely "actual". The real is a *fait accompli*. There is no dynamism. Being either is or is not constituted, whereas in the presence of the virtual being becomes the process of constitution itself.

> Each time we pose the question [of existence] in terms of possible and real [that is, without the virtual] we are forced to conceive of existence as a brute eruption, a pure act or leap which always occurs behind our backs and which is subject to a law of all or nothing. What difference can there be between the existent and the non-existent if the non-existent is already possible, already included in the concept and having all the characteristics that the concept confers upon it as a possibility? Existence is *the same* as but outside the concept. Existence is therefore supposed to occur in space and time, but these are understood as indifferent milieux instead of the production of existence occurring in a characteristic space and time. Difference can no longer be anything but the negative determined by the concept: either the limitation imposed by possibles upon each other in order to be realized, or the opposition of the possible to the reality of the real. The virtual, by contrast, is the characteristic state of Ideas: it is on the basis of its reality that existence is produced, in accordance with a time and a space immanent in the

Idea[29] (Deleuze,1968:273).

It is significant that at precisely the point at which Haraway develops her theory of artifactualism most fully as a constitutive ontology, she lights upon the seed of a very similar notion of the virtual. She writes:

> For them [late twentieth-century "postmoderns"], the virtual is precisely *not* the real; that's why "postmoderns" *like* "virtual reality." It seems transgressive. Yet, I can't forget that an obsolete meaning of "virtual" was having virtue. ie., the inherent power to produce effects. "Virtu," after all, is excellence or merit, and it is still a common meaning of virtue to refer to having efficacy. The "virtue" of something is its "capacity." The virtue of (some) food is that it nourishes the body. Virtual space *seems* to be the negation of real space; the domains of SF *seem* the negation of earthly regions. But perhaps this negation is the real illusion (Haraway,1992a:325).

The virtual is *virtue*: "a capacity to act: *POTENCY*" (Webster's Dictionary:1317) a capacity to actualize. Virtue is nourishment: the good encounter of body-AND-food.[30] It is marvellous the way Haraway can, with this insight, bring us back to Spinoza, and back to that greatest of *virtues* of a constitutive ontology: the confluence of ethical and ontological propositions.[31]

---

[29] "Ideas" in this sense are not personal concepts. Ideas are "suprapersonal" (Massumi,1992:186). As Ronald Bogue explains: "Deleuze argues for the existence of ideas, not in the Platonic sense of simple essences, but in the Kantian sense of 'problems without solutions'. Deleuze's main inspiration in the interpretation of ideas as problems, however, is not Kant, but the mathematician and philosopher Albert Lautman" (Bogue,1989:59). See Deleuze,1968:218-221.

[30] "The good is when a body directly compounds its relation with ours, and, with all or part of its power, increases ours. *A food, for example*. For us, the bad is when a body decomposes our body's relations, although it still combines with our parts, but in ways that do not correspond to our essence, as when a poison breaks down the blood" (Deleuze,1988b:22; *emphasis added*).

[31] See Deleuze,1988b:22-25; 122-130.

> Spinoza's ethics has nothing to do with a morality; he conceives it as an ethology[32], that is, as a composition of fast and slow speeds, of capacities for affecting and being affected on this plane of immanence. That is why Spinoza calls out to us in the way he does: you do not know beforehand what a body or a mind can do, in a given encounter, a given arrangement, a given combination (Deleuze,1988b:125).

Bodies with their affective capacities capable of good or bad encounters; capable of entering into relations of composition or decomposition. These are the sources of virtue; these are the resources of the virtual. A truly materialist ethics, Spinoza's Ethics is simultaneously "the great book of the BwO. The attributes are types of genuses of BwO's, substances, powers, zero intensities as matrices of production. The modes are everything that come to pass" (D&G,1987:153).

---

[32] On ethology: "Long after Spinoza, biologists and naturalists will try to describe animal worlds defined by affects and capacities for affecting and being affected. For example, J. von Uexküll will do this for the tick, an animal that sucks the blood of mammals. He will define this animal by three affects: the first has to do with light (climb to the top of a branch); the second is olfactive (let yourself fall onto the mammal that passes beneath the branch); and the third is thermal (seek the area without fur, the warmest spot). A world with only three affects, in the midst of all that goes on in the immense forest. An optimal threshold and a pessimal threshold in the capacity for being affected: the gorged tick that will die, and the tick capable of fasting for a very long time. Such studies as this, which define bodies, animals, or humans by the affects they are capable of, founded what is today called *ethology*. The approach is no less valid for us, for human beings, than for animals, because no one knows ahead of time the affects one is capable of; it is a long affair of experimentation, requiring a lasting prudence, a Spinozian wisdom that implies the construction of a plane of immanence or consistency [a BwO]" (Deleuze,1988b:124/25).

1.2 Monstrosity and Becoming

> To become is never to imitate, nor to 'do like', nor to conform to a model, whether it's of justice or of truth. There is no terminus from which you set out, none which you arrive at or which you ought to arrive at. Nor are there two terms which are exchanged. The question 'What are you becoming?' is particularly stupid. For as someone becomes, what he is becoming changes as much as he does himself. Becomings are not phenomena of imitation or assimilation, but of a double capture, of non-parallel evolution, of nuptials between two reigns. Nuptials are always against nature.[...] This could be what a conversation is - simply the outline of a becoming (Deleuze and Parnet:2).

It should be apparent that, in relating the ontological propositions of Haraway to those of D&G, my goal is not to draw a simple analogy between the two. It would be thoroughly (and literally) unproductive to isolate the various ways in which their positions are the "same" in an effort to establish an identity between them. However, points of contact or resonance are important for forging connections. They establish concrete[33] relations and open lines of communication. Michael Ryan clearly appreciated the importance of this distinction when he characterized his attempt to forge an alliance between Marx and Derrida as a "critical articulation."[34]

> A "critical articulation" neither makes similarities into identities nor rigorously maintains distinctions. It is more akin to the weaving

---

[33] Concrete is distinguished from the abstract relation of generalization that is constructed on the basis of resemblance.

[34] Ryan's differential notion of articulation follows the Derridean definition: "Articulation is difference.... The relationship...is one of seriality without paradigm" (Derrida quoted in Ryan:vii). This can be contrasted with Lawrence Grossberg's recent use of the term which moves in the opposite direction (ie. towards identity): "Articulation is the production of identity on top of difference, of unities out of fragments..." (Grossberg:54).

> together of heterogeneous threads into a new product than to the scholarly and disinterested comparison of homogeneous masses whose distinction is respected. This book might be called an alloy, rather than a comparative study. The alloying of the two distinct entities into a new compound requires an account of the materials used, but merely to enable the location of common properties that facilitate the making of the alloy (Ryan:xiii).

My attempt to fabricate a new compound privileges a biological rather than a metallurgical example: the *chimera*. As a character of Greek mythology, a chimera is "a fire-breathing she-monster...having a lion's head, a goat's body, and a serpent's tail" (Webster's Dictionary:233). As a character of modern biology, a chimera is an "organism whose tissues are of two or more genetically different kinds...[whether occurring] as a result of mutation or abnormal distribution of chromosomes,...or as a result of natural or artificial grafting of two different plants or animals, whose cells become associated, producing mixing of characters" (Dictionary of Biology:57). Finally, as a character of theoretical discourse, a chimera is a truly heterogeneous text; a substantive multiplicity emanating from diverse genetic/theoretic sources; a rhizome.

For my purposes a *chimera* provides a more suitable figure than Ryan's *alloy*. In the first place, the alloy example strikes me as being too close to the technological model that I will be trying to criticize: the author as metallurgist, in full possession of the means of production, in control of the smelting process, domesticating the raw materials to achieve a new integrity; the author as technologist imposing the law of

instrumental reason on what appear, from the perspective of human[35] needs, as the idiosyncrasies of nature. The *chimera* will admit none of these connotations of domestication or integrity. There is nothing "civilized" or "lawful" about it (although it doubtless invents its own laws). It is a *monster*; an enemy equally of *nature and culture* and therefore a character well placed to express the false dichotomy between the two.

Monsters[36] appear as a motif in the work of Haraway and D&G at many levels (potentially at *any* level at which a connection is established; where one body -

---

[35] Throughout this thesis, "human" should be read within quotation marks (whether they are actually there or not). The "human" occupies a very troubled position in what follows. On the one hand, I have preferred to use it in place of the pseudo-generic "man" (eg. man vs. nature, etc). Yet I don't want to leave the impression that I take this term to be any more neutral or generic. We must certainly, as Donna Haraway reminds us, recognize the "human" as nothing more than "Man's" "euphemistically named surrogate" (Haraway,1992d:67). (For Haraway's first steps towards theorizing a post-human and post-humanist notion of the "human" see Haraway,1992b:86-100). Placing the "human" in quotations is intended to mark it as a non-innocent creature and to align it with that historical formation Deleuze describes as the "Man-form" (Deleuze,1988a:127-129); with that figure whom Foucault imagined (or hoped) was nearing its end.

[36] In this thesis the terms *monsters* and *chimera*, are used interchangeably. The *chimera* is the quintessential *monster* according to the sense that Haraway and D&G give it (see the definitions of *chimera* given above). Haraway uses both terms with frequency. While D&G refer only to *monsters* in their writings, it is significant that they chose the title of *Chimeres* for a periodical under their direction which was still in existence at the time of Guattari's death last year. The *chimera* is also privileged among monsters because of its important place within biological theory, not only within the technical domain of hybrid science and genetic engineering, but as well within the speculative domain in the work of scientists like Lynn Margulis and her son and co-author Dorion Sagan. See in particular Sagan's essay "Metametazoa: Biology and Multiplicity," in which he relates the *chimera* to a theory of multiplicity, connects it to the poststructuralist critique of the subject, and suggests it as a new model to replace the traditional biological understanding of an individual (Sagan,1992:364-370).

broadly defined - engages another). As cultural theorists they are very concerned with the monstrosity of theorizing - with those "theoretical monsters" which are all too real.

In this thesis the *chimera* necessarily undermines my own *authority*, that is my position as *author* and as *legislator*. Monsters are marked first of all by their illegitimacy. They embody a terrible excess which undermines the Law of the Father. They "are often exceedingly unfaithful to their origins" (Haraway,1991a:151).

But Haraway has shown how this "unfaithfulness" characteristic of monsters might just as well be seen as *another kind* of "faithfulness": "faithfulness as blasphemy is faithful, [rather] than as reverent worship and identification" (Haraway, 1991a:149). There is no oxymoron in this notion of "faithful unfaithfulness". This is not *legislated betrayal*, as patricide is circumscribed within the law of the oedipus complex, or as Judas' betrayal of Jesus fulfils a divine purpose. "*Blasphemy is not apostasy*" (Haraway,1991a:149, emphasis added). Blasphemy has nothing to do with killing the father[37]...Monsters are more likely to respond...*daddy who?*..."Their fathers, after all, are inessential" (Haraway,1991a:151).

In his recent book A User's Guide to Capitalism and Schizophrenia Brian Massumi expresses his "faithfulness" through a series of "deviations from Deleuze

---

[37] In relation to Deleuze's book on Foucault, Rosi Braidotti writes: "I want to emphasize that Deleuze, author of *Anti-Oedipus*, has been able to produce a textual account of his friend and master where no Oedipal rivalry is allowed to interfere with the working of philosophy. With the Foucault-Deleuze connection philosophy becomes creative, affirmative, critical work" (Braidotti,1991:67).

and Guattari.''[38] Deleuze's own comments about his monstrous engagement with philosophy are famous, but they bear repeating here.

> ...[I conceived] of the history of philosophy as a kind of ass-fuck, or, what amounts to the same thing, an immaculate conception. I imagined myself approaching an author from behind and giving him a child that would indeed be his but would nonetheless be monstrous. That the child would be his was very important because the author had to say, in effect, everything I made him say. But that the child should be monstrous was also a requisite because it was necessary to go through all kinds of decenterings, slips, break ins, secret emissions which gave me great pleasure (Deleuze, 1977:111-112, *translation modified*).

It is extremely important that we don't interpret Deleuze's colourful description as a masculinist phantasy of appropriation. The image is not one of sexual conquest or of marking one's territory. It is not about remodelling another's ideas in your image. It is not a question of overcoming another and committing them to your cause. Rather, the image is of an ''unnatural coupling'' in which there *is* an ''overcoming'' but not of one partner by the other. Both partners are swept up in a block of becoming, in an assemblage which overcomes *itself* (or *it's self*) in a becoming-other, a becoming monstrous.[39] We will cite Massumi at some length because of his clarity on the strategic significance of monstrosity and unnatural

---

[38] ''Deviations from Deleuze and Guattari'' is the subtitle to A User's Guide to Capitalism and Schizophrenia. Taken together the full title can be read to express the fact that faithful unfaithfulness (that is, monstrosity) is not simply an homage paid to a beloved teacher, it is the necessary condition of creation.

[39] On ''blocks of becoming'' see (D&G,1987:294). Becoming-other illustrates Deleuze's non-personal and pre-individual interpretation of the Nietzschean Overman and of the Will to Power. The Overman does not seek to overcome all else according to an appropriative Will to Power, but rather is itself overcome, overcoming its own interiority through an affirmation of the Will to Power.

couplings in the face of "State-philosophy" which has marked Western thought at large with the indelible stamp of identity and representation. Massumi insists that Deleuze's image of approaching an author from behind, like all images of unnatural coupling,[40] is:

> *antiphallic* in spite of its manifest content: it expresses a desire, on the part of a physioligical male, to wrest writing away from the State-form of phallogocentric identity. The aim is not to impose one's Self on the "object" of one's attention (the sadism of patriarchal judgment). Nor is it to re-produce an author's identity as one's own, in the expectation that newcomers will re-reproduce it as their own (the boring Oedipal normality of discipleship as sequential adoptive parentage: becoming the mentor's son in order to have sons by him; the male mothering of metaphysical brotherhood). The approach is antigenerational and anti-male bonding. The idea is to avoid the officially approved face-to-face of the intellectual missionary position in favor of an encounter between primary and secondary author in which both disappear as identified individuals--and as an academic species. The goal is to abolish One and Two, One and the Other - the form of identity itself - in a process of mutual mutation. It is [...] an attempt, by bodies sexed masculine, to cut the *pro* off male *creation*, to destroy the centrality of the phallus. The phallus can no longer fulfil its "natural" function of guarantor of male identity if, when men meet, they beget monstrosity (Massumi,1992:145).

Monstrosity is an ontology: the world as an infinity of conversations; as a proliferation of monsters. But it is also a *procedure* (I prefer this to "method"), a practice, an art even....

In speaking of his own critical encounter with D&G, Brian Massumi writes hopefully: "perhaps (I flatter myself) it will have created a monster" (Massumi,1992:9). And indeed the monster is very promising. While I am less

---

[40] For historical discussions of belief systems identifying "aberrant sexuality" and other "crimes against Nature" as the direct or indirect cause of monsters, see for example Park and Datson (1981), Davidson (1991), and Huet (1993).

confident as to the promise of my own attempt, I will nonetheless insist that it too has created a monster, at least in that sense of which Foucault spoke, where all criticism becomes monstrous:

> I hope that one day the old divisions will be abolished. The vague moral criterion will no longer be used which opposes the "honest" and "dishonest" criticism--the "good" criticism which respects the texts of which it speaks, and the "bad" criticism which deforms them. All criticism will appear as transformations, proximate or far-ranging transformations, but which all have their principles and their laws. And these *petits textes* with the sloping brow, the crooked legs, and the veering eye, that one commonly despises, will enter in the dance where they will execute movements neither more nor less honorable than the others. One will no longer seek to reply to them nor to silence their din, but rather to find the reason for the misshapenness, their lameness, their sightless eyes, their long ears. (Foucault,1971:58).

Chapter II

2.1 The Question of Technology as False Problem

> Hamm:I love the old questions.
> (with fervour.)
> Ah the old questions, the old answers,
> there's nothing like them!
> *Endgame*
> (Quoted in Sontag:1)

> Innis [technological realism], McLuhan [technological humanism] and Grant [technological dependency]...[:] *taken together*, these viewpoints represent the major positions which might be adopted today on the question of technology (Kroker,1987:18).

> We are wrong to believe that the true and the false can only be brought to bear on solutions, that they only begin with solutions. This prejudice is social (for society, and the language that transmits its order-words [*mots d'ordre*], "set up" [*donnent*] ready-made problems, as if they were drawn out of "the city's administrative filing cabinets," and force us to "solve" them [...]). Moreover, this prejudice goes back to childhood, to the classroom: It is the school teacher who "poses" the problems; the pupil's task is to discover the solutions. In this way we are kept in a kind of slavery. True freedom lies in a power to decide, to constitute problems themselves (Deleuze,1991a:15).

> The aim is not to answer questions, it's to get out, to get out of it. Many people think that it is only by going back over the question that it's possible to get out of it.... It's very trying. They won't stop returning to the question in order to get out of it. But getting out never happens like that. Movement always happens behind the thinker's back, or in the moment when he blinks. Getting out is already achieved, or else it never will be (Deleuze and Parnet:1).

For centuries, people have returned to the same question: Does technology represent our greatest freedom or our most profound enslavement? This question more than any other has directed the Western ontological understanding of

technology. It has, in other words, operated as legislator over the discourse of technology, administering its *mots d'ordre*[41] in accordance with an agenda set by civil authority. A more contemporary formulation of the same question might be: Does the massive proliferation of technological capability bespeak the depth of our freedom of will or the global extent of our determinacy by it? Does technology aid us in our struggle against a hostile environment or has it not in fact supplanted nature to fabricate an even more threatening and hostile environment? "Man rushes first to be saved by technology, then to be saved from it" (Gerald Sykes, quoted in Kuhns:1).

Today, a clear solution in favour of one side or the other of this old problem has become increasingly indefensible. It is more and more commonly acknowledged that to this *either/or* question the *realistic* answer must be *both*. For example, Arthur Kroker writes,

> The modern century is fully ambiguous, charged with opposing tendencies towards domination and freedom, radical pessimism and wild optimism.
>
> Under the pressure of rapid technological change, the centre may no longer hold but this just means that everything now lies in the balance between catastrophe *or* creation as possible human destinies. Indeed, central to the human situation in the twentieth-century is the profound *paradox* of modern technology as simultaneously a prison-house and a pleasure-palace. We now live with the great secret and equally great anxiety, that the technological experience is both Orwellian and hopelessly utopian (Kroker,1984:125).

To many, a paradoxical solution is appealing. It seems perfectly suited to an age which is trying to learn to live with ambiguity; to recognize that a tolerance of

---

[41] On *mots d'ordre* or order-words, see D&G,1987:75-110.

ambiguity corresponds to a non-reductive acceptance of the real complexity of the world. To an increasing number of contemporary theorists, especially within the movement of Cultural Studies, it has become obvious that debates on the question of technology have long been crippled by simplistic and reductive squabbles from the extremes of hyper-optimism and hyper-pessimism, that is, by an apparent failure to reconcile themselves with "the paradox of technology."

And so (to generalize Arthur Kroker's typology[42]) between the pessimism of "technological dependency" (technology as *degradation*) and the naivety of "technological humanism" (technology as *freedom*) we discover a noble and sophisticated "technological realism" (technology as an ambiguous mix of emancipation and domination) embodying the ideal of objective journalism and vigilantly struggling to balance both sides to get at the *real* story,[43] that is, as Kroker

---

[42] Many other authors have proposed what is essentially the same typology, using different labels but drawing the same distinctions. For example Andrew Feenberg (following Albert Borgman who takes his terms from Marcuse) distinguishes between *instrumental* and *substantive* theories of technology (which correspond respectively with Kroker's *humanism* and *dependency*) and then goes on to argue for a third, middle way; a "*critical theory* of technology, which charts a difficult course between resignation and utopia" (Feenberg:13) (Kroker's *realism*). I prefer Kroker's labels because they more coherently reflect the ontological framework at the root of these distinctions, as we shall see in what follows.

[43] "Grant may write a tragic "lament" and McLuhan might privilege the "utopian" possibilities of technology, but Innis' ideal was always of attaining "balance and proportion" between the competing claims of empire (power) and culture (history)" (Kroker, 1987:15). It is important to emphasize that when Innis expressed his ideal of "balance and proportion" (between *space and time*) he was not in fact reflecting his opinion on the question of technology's tendencies towards freedom or domination. In Innis' view, the biases of technology were not reflective of a generalizable technological essence or tendency, but rather of very specific political wills. For Innis, "there would be no transformation of the great society into the great community by way of

puts it, to get technology to spill its "great secret".

We might, however, have reservations about the "greatness" of this "secret". Was there really ever a time when the "paradox of technology" was not readily apparent; when technology hid its true nature like a "secret"? Or is it not rather the case, as William Leiss has suggested, that:

> Societies are usually ambivalent about technical innovations, whether the novelties are steel axe-heads among New Guinea hill tribes or electronic transfers of funds in advanced industrialized societies today. The main reason for the ambivalence is that in most cases the advantages and disadvantages are inseparable: on introduction of innovations, some individuals or cultural practices will flourish and others will not (Leiss,1972:ix).

Arnold Gehlen argued a similar point from a somewhat different perspective when he wrote that "the roughest wedge hewn of flint embodies the same ambiguity which today attaches to nuclear energy: it is a useful tool, and at the same time a deadly weapon" (Gehlen,1988:2).

On the one hand, Leiss and Gehlen seem to corroborate Kroker's contention that ambiguity is essential to (if not the very essence of) technology. But on the other hand, the same authors appear to argue against the secretive nature of the paradox. This may appear to be a trivial point, but in fact it becomes quite important when we identify the essential rhetorical function that the secret serves in Kroker's typology.

---

disinterested technology but only in terms of the ways in which knowledge and culture were monopolized by particular groups" (Carey:152). Thus the argument that follows is not directed against the work of Innis *per se* (or that of McLuhan and Grant for that matter), but rather against the ontological assumptions which underpin Kroker's typology, a typology which is, as I have suggested above, representative of the most common and historically persistent attitudes towards technology.

In effect, the secret attempts to enable Kroker to found a new politics on an old ontological opposition. It turns a three-termed typology into an operational dialectic. The secret indicates a depth model of truth; a depth which only the third synthetic term is capable of penetrating. The secret is that concrete level of truth (reality) which remains hidden and inaccessible to abstract general concepts like freedom and dependency.

Kroker quite rightly presents his typology as an "*ontological* thesis" (Kroker and Kroker,1986:61). In his view, it is on the basis of this typology that the Canadian imagination assumes a central (in the double sense of preeminent and middle) position in the international discourse on technology. We Canadians are, it would seem, the quintessence of *in-betweenness* and *ambiguity*.

> The essence of the Canadian intellectual condition is this: it is our fate by virtue of historical circumstance and geographical accident to be forever marginal to the "present-mindedness" of American culture...; and to be incapable of being more than ambivalent on the cultural legacy of our European past. At work in the Canadian is, in fact, a great and dynamic polarity between technology and culture, between economy and landscape. And this dialectical movement between the power of American empire and our bitter historical knowledge that the crisis has its origins much deeper in European culture is the gamble of the Canadian discourse on technology. The Canadian mind may be one of the main sites in modern times for working-out the meaning of technological experience (Kroker,1987:7-8).

Kroker would have us believe that, as Canadians, we are in a strange sense both the physical and the intellectual embodiment of the dialectic.[44] For this reason,

---

[44] "Innis' thought is perfectly styled to the historical specificity of Canada's political economy and culture because it is a constant reflection on the great tension between centre/periphery in Canada's historical formation" (Kroker,1987:18).

the Canadian discourse on technology is a privileged one; it is paradigmatic of the range of modern responses which might be made to the question of technology while it simultaneously exhibits a cultural predisposition to the realist synthesis which gets us to the heart of the modern technological paradox. "The "Canadian" mind is simply a harbinger of the global mind" (Aronowitz:132), as Stanley Aronowitz has concurred in his admiring review of Technology and the Canadian Mind. Thus Grant and McLuhan stand as bi-polar opposites, marking the limits of the ontological field, while Innis emerges as the Canadian intellectual *par excellence*.

> In Innis' perspective, the truth of technological experience was never to be discovered in the extremes of dependency or humanism, but in their recombination into a dynamic, new third term. Consequently, Innis was the thinker who...always insisted on keeping the tension alive between the opposing tendencies to domination and emancipation in technological society. Innis was a technological realist in this sense: he wished to create an enduring and dynamic synthesis in the Canadian mind between the warring impulses of technology and civilization (Kroker,1987:16).

The essential bias of Kroker's dialectic is revealed by the status of "realism" attributed to the synthesis. There are many important objections that have been made by numerous authors to this kind of dialectic.[45] Perhaps most important of these is a principal derived from Bergson which "refuses a dialectics of contradiction the power of real synthesis: The "combining" and "joining" of abstract terms cannot have a *real, concrete result*" (Hardt,1993:12, italics mine). As Deleuze explains, Bergson criticized the dialectical method because it,

---

[45] On the Deleuzian critique of the dialectic, see for example, Deleuze,1983:147-194; Descombes,1980:156-167.

> begins with concepts that, like baggy clothes, are much too big[...]. In such cases the real is recomposed with abstracts; but of what use is a dialectic that believes itself to be reunited with the real when it compensates for the inadequacy of a concept that is too broad or too general by invoking the opposite concept, which is no less broad and general? The concrete will never be attained by combining the inadequacy of one concept with the inadequacy of its opposite. The singular will never be attained by correcting a generality with another generality[...]. Bergson criticizes the dialectic for being a *false movement*, that is, a movement of the abstract concept, which goes from one opposite to the other only by means of imprecision (Deleuze,1991a:44).

Donna Haraway has called the dialectic "a dream language, longing to resolve contradiction" (Haraway,1991a:173). But of equal significance is the dialectical proclivity towards the production of abstract dualisms in the first place.[46] Opposition represents a purely negative notion of difference - one constitutive of White Western Male Identity - and it is thus one of the crowning moments of representational thought, or State philosophy: "It is only in relation to the identical, as a function of the identical, that contradiction is the *greatest* difference"[47] (Deleuze,1968:338).

Kroker postulates the paradox of technology as a "great secret" because he

---

[46] Nancy Hartsock argues that abstract dualisms are the calling card of "abstract masculinity". "Dualism, along with the dominance of one side of the dichotomy over the other, marks phallocentric society and social theory" (Hartsock:241).

[47] Deleuze actually recognizes two crowning moments of representational thought marked by Hegel (the infinitely large of the dialectical opposition) and Leibnitz (the infinitely small of the differential): "The greatest effort of philosophy was perhaps directed at rendering representation infinite (orgiastic). It is a question of extending representation as far as the too large and the too small of difference[...]. With Leibnitz and Hegel, this effort found two culminating moments." (Deleuze,1968:555). See also Deleuze,1968:111-128;554-559.

imagines that only by embracing the paradox can we hope to be reunited with the real. Kroker wants to plunge "ever deeper into the constituent elements of technological society in the hope that he [can] come out the other side" (Aronowitz:132). But there is no "other side" to come out on[48]. Representational thought traps us in a hall of mirrors. We can regress *ad infinitum* into the "depth" of its images (concepts) but we will not thereby discover the other side of identity. "Getting out is already achieved, or else it never will be"... (Deleuze and Parnet:1).

2.2 Problematizing the Question of Technology

We will never "get out of it" by returning to the old question; by delving ever deeper into the old problem, because it is precisely the old question or the old problem that keeps us "in it"; that fills us with a sense of the "very real exhaustion of political alternatives" (Kroker,1987:19). Questions/problems[49] are "problematic" and to get out of it one must first realize that the real political struggle takes place at the level of problems, not of solutions. Heather Menzies, for example, has clearly understood this point and she therefore places a heavy emphasis on the

---

[48] Baudrillard argued essentially the same way against sexuality (although his argument is based on the questionable assumption that sexuality is *essentially* phallic): "There is no use dreaming of some non-phallic, unlocked, unmarked sexuality. There is no use seeking, from within this structure, to have the feminine pass through to the other side[...]" (Baudrillard,1990a:6).

[49] In *Différence et répétition* Deleuze makes a very technical distinction between a "question" and a "problem" (see Deleuze,1968:251-258). In Bergsonism however, the terms seem to be used interchangeably (see Deleuze,1991a:17-18 on 'badly stated' questions and problems) both approximating the technical meaning of "problem" as defined in *Différence et répétition*. I am using the terms interchangeably.

political significance of "reclaiming the power of naming".[50] If we accept problems as they are generally posited, we are, as Bergson reminds us,

> condemned in advance to receive a ready-made solution or, at best, simply to choose between the two or three only possible solutions, which are co-eternal to this positing of the problem.... But the truth is that in philosophy and even elsewhere it is a question of *finding* the problem and consequently of *positing* it, even more than of solving it. For a speculative problem is solved as soon as it is properly stated. By that I mean that its solution exists then, although it may remain hidden and, so to speak, covered up: the only thing left to do is to *un*cover it. But stating the problem is not simply uncovering, it is inventing (Bergson,1992:50-51).

This is not to say that the problem is everything and the solution counts for nothing: "On the contrary, it is the solution that counts, but the problem always has the solution it deserves, in terms of the way in which it is stated" (Deleuze,1991a:16). Thus while paradoxical ambiguity may present itself as the most "realistic" answer to the question of whether technology is emancipatory or enslaving, this does not mean that we have discovered the *real*. In fact we have not distanced ourselves at all from the ontological abstraction that this *false problem*[51] generates in the moment it is posed. That we may imagine ourselves faced with the very real exhaustion of political alternatives, as Kroker says, should not lead us to believe that this is a material effect of our co-existence with an ambiguous technology. Rather, such a perception should be immediately recognized as an index of the insufficiency of the ontological question from which it follows.

---

[50] See Menzies:xvi-xix; 236-242.

[51] On distinguishing true from false problems as the principle task of philosophy, see Deleuze,1991a:13-35; and Bergson,1992:30-90.

As long as we accept Kroker's ontological thesis which allows the question of freedom versus enslavement to delineate the limits of technological discourse, we are destined to choose between technological humanism, dependency, or some form of realist compromise. While these positions appear to represent the greatest possible diversity of perspectives on the question of technology, this is an illusion as I will try to demonstrate in what follows. The fact of the matter is that the extremes of technological humanism and dependency are opposites only in the way in which, when we encounter our image in the mirror, our left hand becomes the right and vice versa Cornelius Castoriadis, in a very helpful essay, has expressed a similar exasperation at these sham alternatives.

> The illusion of the 'neutrality', the pure instrumentality, of technique has been vigorously denounced (especially by Jacques Ellul), and attention has been emphatically drawn to the quasi-irreversible autonomisation of the process of contemporary technology. We are entitled, nonetheless, to ask whether, at the deepest level, this perspective does anything more than reverse the plus sign of the Marxist account, while leaving intact the same essence of technique (Castoriadis:238).

The question that begs to be asked is thus: what is this "essence of technique" which ties the "instrumentalism" of technological humanism to the "non-instrumentalism" of the technological dependency theorists? What is this "essence of technique" which lends pertinence to the question of whether technology embodies freedom or enslavement? I will argue that this is the "essence" produced by what we could call an "ontology of mastery" or equally well, a "discourse of domination."

According to the instrumentalist interpretation, technology is thought of as an enormous system of instruments produced by humans, placed at their disposal, and

functioning according to their purposes. In its most naive form, technological humanism denies any reversal of the ancient instrumentalist relation. "In this account," as Grant has written,

> the novelness [of modern technological society] lies in the fact that in our civilisation the activity of inventing instruments reaches new levels of effectiveness because it has been systematically related to our science, and our science has at last discovered the sure path of a methodology which has allowed it progress in objective discovery (Grant:19).

In Grant's opinion, however, instrumentalist explanations are no longer able to cut to the heart of technological reality. Instead they keep us blind to the novelty of modern technology's non-instrumentalist dimensions, the rise of which mark the "reversal" in the final stage of D&G's classic schema. In the instrumentalist view, technology is formed in our image and subordinated to our subjective will. Technological dependency is concerned with the ways in which technology escapes from the bonds of our will and begins to impose its will upon us; begins to make us over in its image.[52]

Instrumentalism breaks down and a "reversal" is initiated at the point where complete human *control* over its tools ceases to be taken for granted. This point where the modernist dream suddenly runs amok, where technology begins to achieve a certain independence, where our tools get (literally and figuratively) *out of hand*, marks the birth of technological dependency. This betrayal of instrumentality is reflected in the titles of certain works from the perspective of technological

---

[52] Jacques Ellul imagines a human made over in the image of technology as, "the technician" (Kuhns:2).

dependency such as, Winner's Autonomous Technology: Technics-out-of-control as a Theme in Political Thought, and Menzie's Fastforward and Out of Control.

That technological dependency portrays itself as a betrayal of technological humanism is a significant point. It marks a definite coherence between the two positions. As D&G's classic schema suggests, technological dependency is understood as an evolutionary progression succeeding technological humanism (instrumentalism) which, in the past, presented a coherent image of technology.[53] Winner has noted the importance of this connection:

> The conclusion that something is "out of control" is interesting to us only insofar as we expect that it ought to be in control in the first place. Not all cultures, for example, share our insistence that the ability to control things is a necessary prerequisite of human survival. There are peoples who have lived and prospered under the belief that an inherent harmony or beneficence in nature would provide for their needs. Western culture, however, has long believed that its continued existence and advancement depend upon the ability to manipulate the circumstances of the material world. In a spirit that many have called Faustian, we believe that control is possible and that we must strive for it. As a both necessary and noble aspect of Western self-identity, we strive to isolate the variable conditions of the environment and manipulate them for our own advantage (Winner:19).

Thus technological dependency accepts at a fundamental level, the logic of

---

[53] We might note that within S-F cinema, the theme of betrayal is commonly played out through the trope of the male oedipal conflict. (This is certainly not the only trope of betrayal. The theme of the monstrous-feminine betraying the instrumental complicity of the virgin is equally popular - this is discussed later). This throws a revealing light on the significance of the notion of "autonomous technology". The betraying son (technology) strives for ego separation (autonomy) in conflict with the Law of the Father (instrumentalism).

instrumentalism, while it insists however that something has gone terribly wrong.[54]

It is important to note that not all instrumentalist/humanist positions are as "naive" as we have described them above. There are more sophisticated humanist arguments, such as that of McLuhan, in which the role of a fundamental "reversal" is not denied, but rather assumes tremendous importance. For McLuhan, reversals invariably mark a reorganization of relations of power and organization, but this does not necessarily spell chaos. In fact, McLuhan understands reversals not as a catastrophic moment in the history of technology, but as a generalized principle of development.

> The principle that during the stages of their development all things appear under forms opposite to those that they finally present is an ancient doctrine. Interest in the power of things to reverse themselves by evolution is evident in a great diversity of observations, sage and jocular (McLuhan, 1964:46).

For McLuhan too, simple instrumentalism is no longer capable of capturing the dynamics of technology: "Obsession with the older patterns of mechanical, one-way expansion from centres to margins is no longer relevant to our electric world. Electricity does not centralize, but decentralizes" (McLuhan, 1964:47). Technology

---

[54] For example, Grant writes: "This representation of technology as an array of instruments, lying at the free disposal of the species which creates them, seems so obviously true as to be beyond argument. Nevertheless this account of technology as instrument, however undeniable, tends to pare down the actual novelness of our situation" (Grant:19). In the case of Heidegger, Hubert Dreyfus and others have noted that, despite Heidegger's critique of productionist metaphysics, Being and Time demonstrates a strong instrumentalist orientation particularly through his formulation of the notion of "readiness-to-hand." See Dreyfus:173-185; and Zimmerman:150-156. On Heidegger's use of the organic extension thesis, see Zimmerman:139.

does tend to evolve a "life of its own" and as long as we remain ignorant of the movements of this evolution, McLuhan argues, technology will be "out of control".

"So the whole question comes down to this: can the human mind master what the human mind has made?" (Paul Valéry quoted in Winner:13). Indeed this *is* the whole question - as long as we abide by the traditional ontological coordinates.

For McLuhan, the answer is simple. While ascribing agency to technology might disrupt the linear purposive relationship of instrumentalism, McLuhan retains the perspective of technological humanism by insisting that technologies constitute mere "make happen" agents as opposed to the more significant and ultimately determining, that is controlling, "make aware" agents.

> These media, being extensions of ourselves, also depend upon us for their interplay and their evolution. The fact that they do interact and spawn new progeny has been a source of wonder over the ages. It need baffle us no longer if we trouble to scrutinize their action. We can, if we choose, think things out before we put them out (McLuhan, 1954:57).

If we accept this scenario with its hierarchy of agencies and its rationalist assumptions, then technology gains its independence only with "our" complicity (whether blind or thoughtful). Of course, the question of who constitutes this complicitous "we" remains of no small importance. This, however, was not a question with which McLuhan concerned himself. Innis, on the other hand, with his focus on political economy was extremely sensitive to it. I would argue, in fact, that this is what most properly defines Innis' distance from McLuhan: not a "realist" belief in the paradox of technology as opposed to McLuhan's optimism, but rather a materialist concern with the socio-economic relations reflected in the bias of

technology as opposed to McLuhan's interest in the consequences of technological bias for the individual (Innis' focus on "Empire" versus McLuhan's focus on the transformations of the "user").

However, returning for a moment to McLuhan's distinction, it is not at all clear that the distinction between and hierarchical ordering of "make happen" and "make aware" agents can demystify the complex problem of agency at the human-machine nexus. McLuhan offers no real defence of these concepts, assuming, one is forced to think, that they will appear self-evident. But there are a number of problems here. Without denying that there are many technological dangers which are from the start foreseeable and thus logically avoidable (If we use nuclear power there is an obvious risk. Don't build nuclear power stations and nuclear disasters won't happen...), to claim that we are capable of completely and effectively *thinking things out before putting them out* implies an admirable feat of futurology (even if we assume, for the moment, the cooperation of a thoroughly deterministic universe). As Mary Douglas and Aaron Wildavsky have demonstrated in their study of risk perception and assessment, "what would be needed to make us able to understand the risks that face us? - Nothing short of total knowledge (a mad answer to an impossible question)" (Douglas and Wildavsky:3).[55]

Hannah Arendt raises another interesting complication to McLuhan's distinction between the superior power of human "make aware" agency in relation to

---

[55] For a thorough investigation of this argument, see Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers, by Douglas and Wildavsky.

technological "make happen" agency. She argues that the battle between "make aware" and "make happen" does not take place between rational humans and functional machines. Rather it marks a conflict internal to the human condition. For Arendt, human agency is not strictly or solely rational but rather reflects a complex mix of thought and functionality (make aware and make happen; *vita contemplativa* and *vita activa*). Furthermore, it has been perhaps the most significant consequences of modern techno-scientific prowess to have effected a reversal in the hierarchical ordering of the *vita contemplativa* and the *vital activa* (to the detriment of the former).[56] Thus, she argues,

> we, who are earth-bound creatures and have begun to act as though we were dwellers of the universe, will forever be unable to understand, that is, to think and speak about the things which nevertheless we are able to do.... If it should turn out to be true that knowledge (in the modern sense of know-how) and thought have parted company for good, then we would indeed become the helpless slaves, not so much of our machines as of our know-how, thoughtless creatures at the mercy of every gadget which is technically possible, no matter how murderous it is (Arendt:3-4).

This is a fascinating image which seems able to recoup even the most dystopian view of technological dependency within an instrumentalist paradigm, albeit one stripped of an originating rational/knowing subject; one which replaces *homo sapian* with a thoughtless *homo faber* as the instrumental agent.

We should note, therefore, that while we find multiple variations on the theme of mastery, what we actually see across the spectrum of technological humanism,

---

[56] See in particular (Arendt:262-268). "Perhaps the most momentous of the spiritual consequences of the discoveries of the modern age...has been the reversal of the hierarchical order between the *vital contemplativa* and the *vita active*" (Arendt:262).

dependency, and realism is an incredible consistency running through all of these arguments which betrays a uniform ontological commitment. All three positions, in other words, the entire classic schema of the organic extension thesis is rooted in an ontology of mastery (the ontological question: does technology spell freedom or enslavement? would be more truthfully phrased as follows: in the human/technology relationship, who is master?).

2.3 The Ontology of Mastery and The Sad Passions

> The kind of partiality I'm talking about is resolutely antitranscendentalist[...], fully committed to the fact that we don't live after we die. In religious language, that's what it comes down to: no life after death. Any transcendentalist move is deadly; it produces death through a fear of it (Haraway,1991b:16).

> When people die whole, a wonderful power is released in the world; a wonderful fearlessness before death, which in turn inspires in others a more profound joyousness about life (Alice Walker, The Temple of My Familiar:310).

> It is against blockage between ourselves and others, those who are alive and those who are dead, that we must work. In blocking off what hurts us, we think we are walling ourselves off from pain. But in the long run the wall, which prevents growth, hurts us more than the pain, which, if we will only bear it, soon passes over us. Washes over us and is gone.[...] Walls remain. They grow moss. They are difficult barriers to cross, to get to others, to get to closed-down parts of ourselves (Alice Walker, The Temple of My Familiar:355).

Technological humanism - technology as the instrument of human freedom - cannot be understood outside of the logic of the ontology of mastery.[57] To properly understand what has animated the modern project of Western science and technology, it is helpful to situate this project firstly in relation to its formulation of a series of closely related conceptual dualisms: freedom/necessity; subject/object; autonomy/dependency. We must note, of course, that these are gendered dualisms, structuring a hierarchy (the first term associated with male privilege, the second subordinated term associated with women). But we must also note that they are dualisms of transcendence, that is, privilege is accorded to the first term only to the extent to which it is able to differentiate from and stand above its opposite.

Western thought has generally conceived of freedom not as a primal state, but rather as one to be achieved through conquest. Freedom arises only out of the mastery of necessity (this formulation stretches back at least to Greek antiquity[58]). There can be freedom only to the extent that the *exigencies of life* which enslave us and constitute our "natural" state can, through some means, be brought under our

---

[57] What I am calling the "ontology of mastery" has been given many other names. Phallogocentrism and State philosophy are two examples. The term "ontology of mastery" better emphasizes what I am concerned with here.

[58] "What all Greek philosophers, no matter how opposed to *polis* life, took for granted is that freedom is exclusively located in the political realm, that necessity is primarily a prepolitical phenomenon, characteristic of the private household organization, and that force and violence are justified in this sphere because they are the only means to master necessity - for instance, by ruling over slaves - and to become free. Because all human beings are subject to necessity, they are entitled to violence towards others; violence is the prepolitical act of liberating oneself from the necessity of life for the freedom of world" (Arendt:30).

control and surmounted.[59] It is important to see how the naturalized opposition of freedom and necessity is simultaneously a naturalization of domination and an imperative to transcendence. In fact, nothing is more contrary to the forces (*puissance*) of nature (*life*) than domination (*pouvoir*) and transcendence (*immortality*). The latter, Spinoza would say, characterize the slave's notion of freedom to the extent that it seeks freedom through a cultivation of the "sad passions"[60] which always reduces our actual power of acting to the lowest possible degree. "The sad passions always amount to impotence" (Deleuze,1988b:28). Under the ontology of mastery, we are slaves most immediately to ourselves through our cultivation of sad passions. Social oppression and structures of domination are not "facts of life," immanent to nature itself. But rather, as D&G argue in relation to one particularly gruesome structure of domination (Oedipus) it "presupposes a fantastic repression of desiring-machines" (D&G,1977:3). This is the work, at least in part, of the sad passions.

> The tyrant needs sad spirits in order to succeed, just as sad spirits need a tyrant in order to be content and to multiply. In any case, what unites them is their hatred of life, their resentment against life. The Ethics [by Spinoza] draws the portrait of the *resentful man*, for whom

---

[59] Contrast this with Spinoza's notion of freedom which has nothing to do with control (either that of the tyrant or the legislator) but flows *necessarily* from the (material) essence of things: "Necessity being the only modality of all that is, the only cause that can be called free is one "that exists through the necessity of its nature alone[...]." What defines freedom is an "interior" and a "self" determined by necessity.[...] Freedom is always linked to essence and to what follows from it, not to will and to what governs it. (Deleuze,1988b:70-71)

[60] "Spinoza traces, step by step, the dreadful concatenation of sad passions; first, sadness itself, then hatred, aversion, mockery, fear, despair, *morus conscientiae*, pity, indignation, envy, humility, repentance, self-abasement, shame, regret, anger, vengeance, cruelty...." (Deleuze,1988b:26).

> all happiness is an offense, and who makes wretchedness or impotence his only passion (Deleuze,1988b:25).

Thus in relation to the problem of domination and the ontology of mastery, Deleuze returns again and again to the same question: how is it possible that people fight for their servitude as if it were their freedom. Deleuze finds this problem at the heart of fascism.[61]

Necessity is the realm of life; the realm of "man's metabolism with nature".[62] Freedom, by contrast, is the realm in which the physical necessities of biological existence (embodiment) are transcended; where we slip the bonds of our metabolic entwinement in nature's mortal cycle. Thus "life, which for all other animal species is the very essence of their being, becomes a burden to man because of his innate *repugnance to futility*" (Arendt:102). Of course this repugnance to futility is a simple reflection of the fear of death (that ultimate *necessity*). Like Roy Batty[63], we are mortified at the intolerable prospect that "all these moments will be lost in time, like tears in rain...." We are mortified in the face of our sad passions in the most literal sense: they destroy our strength and vitality; they fill us with death. The repugnance to futility cultivates a repugnance to life itself; it casts a shadow over the

---

[61] "We cannot shut out the scream of Reich: the masses were not deceived; at a particular time, they actually wanted a fascist regime! There are investments of desire that mold and distribute power, that make it the property of the policeman and the prime minister" (Deleuze and Foucault:215).

[62] "Man's metabolism with nature" is Marx's definition of labour. On the metabolic relationship of life and labour mediated by necessity, see Arendt: 84-88.

[63] Roy Batty is the principle Replicant in Ridley Scott's *Blade Runner*, who spends the film in search of an escape from his impending death.

whole of life and makes it a burden. "We do not live, we only lead a semblance of life; we can only think of how to keep from dying, and our whole life is a death worship" (Deleuze,1988b:26). That this hatred of life, this spirit of negation, has thoroughly infected Western ontology and epistemology, has been diagnosed and repudiated by the Lebensphilosophie or the tradition that Vincent Descombes has called "*naturalist* (in the sense of a hostility towards any *supernatural*): Lucretius, Spinoza, and Nietzsche are its most influential figures" (Descombes:154). More recently, certain feminist theorists, for example Nancy Hartsock and Jessica Benjamin, have insightfully pursued the analysis of the "masculinist preoccupation with death" (Hartsock:246) in relation to gender identity and they too have insisted on its absolutely fundamental connection to the problem of domination.[64]

Deleuze relates the following anecdote reported by Spinoza's biographer Corlerus:

> He looked for some spiders, and made them fight together, or he threw some flies into the cobweb, and was so well-pleased with that battle, that he would sometimes break into laughter" (quoted in Deleuze,1988b:12).

Deleuze accepts as (likely) authentic, this curious habit of the philosopher whom he

---

[64] See Hartsock:243-245 and Benjamin:62-68. Hartsock refers to the masculinist death fetish as "perverse" because it "revers[es] the proper valuation of human activity" (Hartsock:243). This is troublesome because it implies a deviation from a *norm.* Furthermore, it is not really a case of a reversal of values - death is good, life is bad whereas it should *normally* be the other way around. It is rather a question of the forces of negation. Abstract masculinity (Hartsock's name for the ontology of mastery) doesn't pervert life, it negates it. This distinction is important to us because both Haraway and D&G emphasize the positive power of perversion (See, for example, Haraway,1991a:246 note #4; Deleuze,1990b:133) Nothing, in fact, is more threatening to the ontology of mastery (with its laws, its duties, and its strong moral fibre) than perversion.

considered, more than any other, to be suffused with the affirmative spirit of life. There were, Deleuze speculates, a number of lessons Spinoza could have taken from these encounters. He comments:

> Animals at least teach us the irreducibly external character of death. They do not carry it within, although they necessarily bring it to each other: an inevitable *bad encounter* in the order of natural existences. But they have not yet invented that internal death, the universal sado-masochism of the tyrant-slave (Deleuze, 1988b: 12-13).

This connection between the repugnance to life (instituted in the dichotomy of freedom and necessity) and the rise of a certain form of domination internal to the union of tyrant and slave is of fundamental importance.[65] And as we have argued above, the naturalization of the "repugnance to futility" (which would characterize Nietzsche's man of *ressentiment*)[66] serves to naturalize this form of dominance. The attitude towards slavery of the ancient Greeks, as Hannah Arendt describes it, is a case in point. "To be a master of slaves is the human way to master necessity and

---

[65] Deleuze makes this connection more strongly in another passage in which he decries those who cultivate the transcendental death wish. "They feel a hatred of life, they are ashamed of it; a humanity bent on self-destruction, multiplying the cults of death, bring about the union of the tyrant and the slave, the priest, the judge, and the soldier, always busy running life into the ground, mutilating it, killing it outright or by degrees, overlaying it or suffocating it with laws, properties, duties, empires - this is what Spinoza diagnoses in the world, this betrayal of the universe of and of mankind" (Deleuze, 1988b: 12).

[66] On the philosophical significance of the notion of life's "futility" Arendt writes: "Life is a process that everywhere uses up durability, wears it down, makes it disappear, until eventually dead matter, the result of small, single, cyclical, life processes, returns into the over-all gigantic circle of nature herself, where no beginning and no end exist and where all natural things swing in changeless, deathless repetition. [...] A philosophy of life that does not arrive, as did Nietzsche, at the affirmation of "external recurrence" as the highest principle of all being, simply does not know what it is talking about" (Arendt: 84-85).

therefore not *para physin*, against nature; life itself demands it" (Arendt:325).

Furthermore she has insisted that,

> the opinion that labor and work were despised in antiquity because only slaves were engaged in them is a prejudice of modern historians. The ancients reasoned the other way around and felt it necessary to posses slaves because of the slavish nature of all occupations that served the needs for the maintenance of life...
>
> The institution of slavery in antiquity, though not in later times, was not a device of cheap labor or an instrument of exploitation for profit but rather the attempt to exclude labor from the conditions of man's life. What men share with all other forms of animal life was not considered to be human[67] (Arendt:74).

What humans share with all other forms of animal life is not labour *per se* (Marx insisted in fact that "only through labour does man distinguish himself from animals" (Arendt:332)) but rather the phenomenon of *life* itself. It is material existence with "necessity" as its fundamental condition and "futility" as its inevitable telos, which is beneath human dignity.

Indicative of the influence of these ontological commitments, is the significant fact that even Marx, who embraced materialism, turned labour into a fetish, and raised it to the status of human essence (*animal laborans*), insisted that labour (necessity) must ultimately be overcome in the pursuit of freedom. Numerous commentators have noted that precisely this point constitutes the most profound paradox in his writing. Arendt refers to it as:

---

[67] "This, incidently, was also the reason for the much misunderstood Greek theory of the non-human nature of the slave. Aristotle, who argued this theory so explicitly, and then, on his deathbed, freed his slaves, may not have been so inconsistent as moderns are inclined to think. He denied not the slave's capacity to be human, but only the use of the word "men" for members of the species man-kind as long as they are totally subject to necessity" (Arendt:74).

> the fundamental contradiction which runs like a red thread through the whole of Marx's thought, and is present no less in the third volume of Capital than in the writings of the young Marx.[...] He defines man as an *animal laborans* and then leads him into a society in which this greatest and most human power is no longer necessary. We are left with the rather distressing alternative between productive slavery and unproductive freedom (Arendt:90-91).

In the third volume of Capital, Marx lays out the structured relationship between the realm of necessity and the realm of freedom clearly.

> The realm of freedom actually begins only where labour which is determined by necessity and mundane considerations ceases; thus in the very nature of things it lies beyond the sphere of actual material production. Just as the savage must wrestle with Nature to satisfy his wants, to maintain and reproduce life, so must civilized man, and he must do so in all social formations and under all possible modes of production. With his development this realm of physical necessity expands as a result of his wants; but, at the same time, the forces of production which satisfy these wants also increase. Freedom in this field can only consist in socialized man, the associated producers, rationally regulating their interchange with Nature, bringing it under their common control, instead of being ruled by it as by the blind forces of Nature; and achieving this with the least expenditure of energy and under conditions most favourable to, and worthy of, their human nature. But it nonetheless still remains a realm of necessity. Beyond it begins that development of human energy which is an end in itself, the true realm of freedom, which, however, can blossom forth only with the realm of necessity as its basis. The shortening of the working day is its basic prerequisite (Marx and Engels:441).

The revolution, according to Marx, is aimed not at the liberation of the labouring class from domination by the capitalists, but at the liberation of humanity from labour.[68] This distinction must be strongly emphasized since we are arguing that the

---

[68] On this important point, see Arendt:90-91;113. "The danger that the modern age's emancipation of labor will not only fail to usher in an age of freedom for all but will result, on the contrary, in forcing all mankind for the first time under the yoke of necessity, was already clearly perceived by Marx when he insisted that the aim of a revolution could not possibly be the already-accomplished emancipation of the laboring

utopian (transcendental) dream of a liberation from necessity leads inevitably to a subordinated labouring class. This move is nothing less than a radical breach of Marx's materialist convictions. Arendt tells us that Simone Weil had come to the conclusion that "the hope for an eventual liberation from labor and necessity is the only utopian element of Marxism and at the same time the actual motor of all Marx-inspired revolutionary labor movements. It is the "opium of the people" which Marx had believed religion to be" (Arendt:340).[69]

Within the emancipatory modern project, science and technology obviously assume the central positions. Only technology it seems (particularly technological automation) can hold out the hope of ushering in a golden age of freedom which would not be founded on the subordination of a labouring class. The technological utopia of the future would vindicate all the necessary tyrannies of history which, with hindsight, would be seen to have hastened the arrival of Western civilization's noble telos: the foundation of an *Athens without slaves*. Kevin Robins and Frank Webster have noted the popularity of this vision within British politics and civil society. They write:

> A bullish, entrepreneurial utopianism has projected the new technologies as the basis for a post-industrial future of freedom and plenty. In the words of Tory minister Peter Walker, 'we should rejoice

---

classes, but must consist in the emancipation of man from labor" (Arendt:113).

[69] That technology, inserted into this ontological framework does indeed assume a significant religious dimension is an important theme which unfortunately we will not be able to pursue here. For various investigations of this theme within S-F literature, see for example, Norman Spinrad's latest novel Deus X. See also Gibson's Neuromancer, and Lem's Mortal Engines.

> and create a society in which the machine works twenty-four hours a day...Uniquely in history we have the circumstance in which we can create Athens without the slaves' [...]. Computer guru Sir Clive Sinclare [...] has the same vision of a machine utopia in which 'we may experience an age as golden as that of Greece'. 'Freemen of Periclean Athens,' he suggests, 'led not such different lives as we might live, for where we will have the machines, they had slaves who served both to teach and as menials' (Robins and Webster,1988:7-8).

But Robins and Webster are not persuaded by this utopianism. Instead they wonder, in light of all of the more repressive aspects of the new information technologies and the progressing "control revolution," if we are not on our way to becoming "slaves without Athens."[70] This dystopian perspective insists that our faith in technology as an instrument of freedom is misplaced, but it does not question this formulation of the notion of freedom *per se*. They remain avatars of the same ontology of mastery and the same "essence of technique." Grant, too, has made this point very clearly. While rejecting technological utopianism, he intones great sympathy for its basic aspirations.

> Modern human beings since their beginnings have been moved by the faith that the mastery of nature would lead to the overcoming of hunger and labour, disease and war on so widespread a scale that at least we could build the world-wide society of free and equal people. One must never think about technological destiny without looking squarely at the justice in those hopes. Let none of us who live in the well-cushioned west speak with an aesthetic tiredness about our 'worldliness'" (Grant,1986:15).

We should indeed insist on looking at the *justice* in these hopes, but we should also refuse to naturalize justice in the way that Grant wants us to; in the way that he

---

[70] See Robins and Webster,1988:7-53.

always has in his own work, turning justice into a transcendental (religious) value.[71] We must also insist that questioning this justice is not equivalent to bemoaning our "worldliness." It is not (necessarily) a romantic plea for a return to Nature. If we refuse to ground this justice in "natural law," we must be prepared to try to identify what *law* it *is* grounded in.

Pierre Clastres has taken important steps in this direction through his demystification of "necessity" in relation to cultures based on "subsistence economies." His investigations in Society Against the State make an important contribution to the critique of the ontology of mastery. Clastres is concerned foremost to disrupt the evolutionary model which supports the Western notion of naturalized progress animating the rise of "civilization". Western ethnocentrism is grounded in the conviction "that history is a one-way progression, that every society is condemned to enter into that history and pass through the stages which lead from savagery to civilization" (Clastres:190). Clastres "political anthropology" attempts to counteract the Western anthropological bias that has considered all "primitive" subsistence economies to be economies of necessity naturally imposed by the constant threat of scarcity. This attitude assumes that if subsistence economies don't produce a surplus, it is because they are incapable of doing so, all their efforts being already consumed by the basic efforts for subsistence.

> The time-tested and ever serviceable image of the destitution of the Savages. And, to explain that inability of primitive societies to tear themselves away from the stagnation of living hand to mouth, from

---

[71] Kroker calls this "Grant's compromise." See Kroker,1984:48-51.

> perpetual alienation in the search for food, it is said they are technically under-equipped, technologically inferior (Clastres:190-191).

In throwing into question the evolutionary model of civilization, he is also obligated to question the model of technological evolution, each being derivative of the same model of abstract progress. "The astonishing thing," he notes,

> about the Eskimo, or the Australians, is precisely the diversity, imagination, and fine quality of their technical activity, the power of invention and efficiency evident in the tools used by those peoples. Furthermore, one only has to spend a little time in an ethnographic museum: the quality of workmanship displayed in manufacturing the implements of everyday life makes nearly every humble tool into a work of art. Hence there is no hierarchy in the technical domain; there is no superior or inferior technology. The only measure of how well a society is equipped in technology is its ability to meet its needs in a given environment. And from this point of view, it does not appear in the least that primitive societies prove incapable of providing themselves with the means to achieve that end (Clastres:191).

This claim should not be read as blanket relativism. It insists rather that there "is no abstract standard in terms of which technological "intensities" can be measured" (Clastres:192). Technologies are not abstractly superior or inferior, but contextually *appropriate*. It is only grounded within a particular material assemblage that the virtual and actual affectivity of a specific technology can be considered[72].

In opposition to popular Western mythology, Clastres contends that the image of the "Savage" enslaved by Nature as a hostile and merciless task-master, is a flat-

---

[72] While we cannot conceive of technology abstractly we can consider a specific technology (or any other body) in terms of what Brain Massumi calls the superabstract (to distinguish between two uses of the term "abstract" in D&G); in terms, that is, of a plane of immanence, or of a body without organs (BwO). To conceive of something in its superabstract state is to conceive of it at the limit of absolute virtuality, at the maximal threshold of its connective capacity (eg. a schizophrenic plugged into the whole of nature (D&G,1977:2)).

out lie with no factual basis in the material conditions of the subsistence societies he considers.

> The Indians devoted relatively little time to what is called work. And even so, they did not die of hunger. The chronicles of the period are unanimous in describing the fine appearance of the adults, the good health of the many children, the abundance and variety of things to eat. Consequently, the subsistence economy in effect among the Indian tribes did not by any means imply an anxious, full-time search for food[73] (Clastres:193).

It follows obviously, that subsistence economies do not suffer from some material lack that renders them incapable of producing a surplus and thus of supporting a State structure.

"Primitive" societies, Clastres argues, must not be considered as societies without a state. Such negative interpretations based on the identification of a lack always betrays a bias on the part of the evaluator. Rather, he insists, we need to understand these societies as *societies against the state*, that is as societies possessing mechanisms which actively ward off the formation of a state structure.[74] Clastres is lead to ask what could be the purpose of the accumulation of a surplus?

---

[73] Clastres provides numerous examples to support his claim. See Clastres:189-218.

[74] See Clastres:189-218. See also D&G's admiring but critical discussion of Clastres full argument: D&G,1987:357-361, 429-437. These forces or mechanisms directed against the State, D&G call "war machines". They are forces of exteriority which are directed against the interiority of the State. "The State is sovereignty. But sovereignty only reigns over what it is capable of internalizing, of appropriating locally" (D&G,1987:360). Thus the war machine is directed against the forces that constitute the ontology of mastery through the state form of domination. This however does not preclude the fact that a war machine might be capable of manifesting an even greater violence or destructive power. See the discussion of variations of the war machine: D&G,1987:360.

> What would it be used for? Men work more than their needs require only when forced to. And it is just that kind of force which is absent from the primitive world; the absence of that external force even defines the nature of primitive society (Clastres:195).

In identifying a form of domination specific to the State, Clastres has hit on something of great importance. D&G take much from Clastres' analysis of the forces of State formation, and counter-State forces of anticipation/avoidance (the State forces of interiorization and consolidation, and the forces of exteriority belonging to the war machine as it draws lines of flight). Nonetheless, they criticize him for failing to escape the evolutionary model he condemns, through a tendency "to make primitive societies hypostases, self-sufficient entities (he insisted heavily on this point). He made their formal exteriority into a real independence" (D&G,1987:359). Such independence, they insist is an "ethnological dream" (D&G,1987:429) which would furthermore render the existence of anti-state mechanisms overly mysterious. They insist rather that everything coexists in perpetual interaction.[75]

> Primitive societies cannot ward off the formation of an empire or State without anticipating it, and they cannot anticipate it without its already being there, forming part of their horizon. And States cannot effect a capture [of the forces of exteriority] unless what is captured coexists, resists in primitive societies, or escapes under new forms, as towns or war machines... (D&G,1987:435).

The subtlety of argument needed to clarify these broad statements would take

---

[75] In exploding the evolutionary model, D&G refuse the explanation of the State that says it evolved from less complicated forms of organization, or that it arrives historically consequent to "simpler" forms of society. Instead, they are lead to posit the *Urstaat*. "The State clearly dates back to the most remote ages of humanity" (D&G,1987:360). On the Urstaat, see D&G,1977:217-222,260-262; and D&G,1987:360,427-431. See also Dean and Massumi,1992.

us too far afield to justify pursuing them here. We want only to emphasize the point that the "law of the State is not the law of All or Nothing (State-societies *or* counter-State societies), but that of interior and exterior"[76] (D&G,1987:360).

> Primitive societies do not lack formations of power; they even have many of them. But what prevents the potential central points from crystallizing, from taking on consistency , are precisely those mechanisms that keep the formations of power both from resonating together in a higher point and from becoming polarized at a common point: the circles are not concentric, and the two segments require a third segment through which to communicate. This is the sense in which primitive societies have crossed neither the town-threshold nor the State-threshold[77] (D&G,1987:433).

In exposing the myth of the *menace* of necessity (in revealing it as a ploy of the State, to the extent that it demands separation and consolidation) Clastres clears the way for a reinterpretation of the nature of our entwinement in material existence and for the formulation of a notion of freedom that isn't reducible to transcendence. However, he doesn't sufficiently pursue these questions himself, and neither, in the end, does he break with the notion that freedom follows from the mastery of necessity. He argues, more simply, that necessity (understood narrowly as the means

---

[76] "It is in terms not of independence, but of coexistence and competition *in a perpetual field of interaction*, that we must conceive of exteriority and interiority, war machines of metamorphosis and State apparatuses of identity" (D&G,1987:360-361). Despite this image of competition, interiority and exteriority are not properly opposites. "Binary pairs of this kind are best interpreted as markers of a motor imbalance. Walking is controlled falling: "negativity" (the body off-balance on the verge of falling) and "positivity" (the foot catching the fall) as inseparable dimensions of the same process. They are functional complements that are formally distinct but inseparable in fact: they are co-functives, rather than logical opposites or dialectical contradictions" (Dean and Massumi:143).

[77] On all these points relating to Sate formation, see D&G,1987:351-473.

to ensure subsistence) is easily mastered, and consequently that the "civilizing" project of Western technology cannot legitimate itself on this basis.[78]

Perhaps standpoint theorists have made the most significant recent contribution towards the positive valuation of "necessity." Nancy Hartsock, in particular, has developed a view of standpoint theory in which the (potential) epistemological advantage of particular positionings is not distributed abstractly according to one's categorical inclusion within an oppressed class.[79] It is rather an entwinement with necessity; an intimacy with the real conditions of social reproduction that garners a depth of knowledge inaccessible to transcendent subject positions. Just as the opposition to necessity and materialism nourishes a death instinct which impoverishes both our notion and our experience of freedom, so it breeds an impotence[80] within the knowing subject. Novelist Marilyn French has expressed this view in stark clarity.

---

[78] Clastres insists that "if one understands by technics the set of procedures men acquire not to ensure the absolute mastery of nature (that obtains only for our world and its insane Cartesian project, whose ecological consequences are just beginning to be measured), but to ensure a mastery of the natural environment *suited and relative to their needs*, then there is no longer any reason whatsoever to impute a technical inferiority to primitive societies" (Clastres:191).

[79] I am not trying to suggest that the experience of oppression in itself is irrelevant to epistemology. Here however, I am more directly concerned with the experience of necessity which, while it often bears an important relation to the experience of oppression, is not reducible to it.

[80] I have never felt very comfortable employing the terms "impotence" and "potency" in light of the masculinist connotations which feminists have rightly perceived in them. However I would insist that the terms are worth salvaging. Their resonance with the positive force of *potentia* (*puissance*) as well as with the notion (particularly in Bergson) of *potential*, make these terms indispensable, in my view.

> Washing the toilet used by three males, and the floor and walls around it, is, Mira thought, coming face to face with necessity. And that is why women were saner than men, did not come up with the mad, absurd schemes men developed: they were in touch with necessity, they had to wash the toilet bowl and floor (French quoted in Hartsock:236).

Closely related to standpoint theory in its critique of the transcendental subject, we must note an important group of feminist scholars (Dinnerstein, Chodorow, Gilligan, Hartsock, Benjamin, Keller) who have engaged the object-relations school of psychoanalysis[81] in an effort to investigate the rootedness of concepts like *domination, autonomy, control* and others not in an abstract human nature, but in specific ontological or epistemological habits of constructing a world of particular kinds of subjects and objects who, in accordance with their natures, engage in particular kinds of relations. Despite certain essentialist tendencies in this research (which have been the focal point of an enormous amount of feminist debate) the initial impulse behind this research is de-naturalizing[82].

---

[81] On the significant influences of object-relations theory to feminism, Haraway has written: "anglophone object relations theory...maybe did more for US socialist-feminism for a time than anything from the pen of Marx or Engels, much less Althusser or any of the late pretenders to sonship treating the subject of ideology and science" (Haraway,1991a:186). As Nancy Chodorow, Jane Flax, and Nancy Hartsock have argued, "the object-relations school of psychoanalytic theory puts forward a materialist psychology" (Hartsock:237-238).

[82] Gilligan's In a Different Voice which (along with Chodorow) has attracted the bulk of the fire from the essentialism critique, is a good example. The initial impulse of Gilligan's research was an effort to de-naturalize the work of Lawrence Kohlberg who's research on moral development took no account of gender (and other) differences. The fact that Gilligan ends up re-naturalizing moral development according to an essentialized notion of gender difference is the unfortunate result of her failure to theorize a positive notion of difference - in other words, a difference which does not found identity, but a difference which founds itself. For attempts to theorize a positive notion of difference (what Haraway calls a "different difference") see Deleuze, 1968:43-95, Trinh Minh-

What feminists have found in object-relations theory is a tool with which to examine the material conditions of the genesis and development of subject-object relations. By de-naturalizing subjects and objects, that is by showing them to be contingent upon specific mechanisms of social production and systems of social organization, feminist object-relations theory has de-naturalized the patriarchal gender division whereby men claimed the status of subject for themselves while attributing the status of object to women as well as to all other Others.

In a sense, object-relations mounts a "critique of the subject" aimed not at exposing it as a rationalist fiction (it considers its effects to be all too real) but rather at illuminating the subject as a fluid artifact of social production. Subjects are not born fully formed already endowed with rock-like identities. Rather they are produced (and constantly reproduced) through "object relations"[83] in and with the world. Thus object-relations feminists have argued that the dominant notion of subjectivity, closely aligned with a notion of autonomy as radical independence, is a masculinist model of the subject explicable in terms of such factors as patriarchal social institutions, organized divisions of labour, class and other social stratifications which imply structural variance in the material conditions of existence for various

---

ha:79-116, and De Lauretis:1-30.

[83] Keller has noted (following Gilligan) that "the very choice of the name *object relations* for a theory concerned with the development of self-other relations, particularly in the context of the mother-child relation, itself reflects the specific failure that this theory attempts to analyze: the failure to perceive the mother as subject. This fundamental flaw reverberates in the theory's preoccupation with autonomy as a developmental goal and its corresponding neglect of connectedness to others" (Keller,1985:72).

segments of society.[84] Particularly important among these is the nuclear family which has ensured women's primary responsiblity for raising children and handling domestic necessities, while enforcing a sexual division of labour, and ensuring that girls are reared by the parent of the same sex while boys are reared by their Others[85]. Consequently, it is argued , the experience of differentiation and the consolidation of gender identity is a fundamentally different experience for girls and boys. The most immediate consequence of this is that girls (who's gender identification is formed in concrete interaction with the mother) tend to develop an experience of self as "relational" whereas the boy's experiences self (abstractly modeled on a largely absent father) as rigidly independent. The latter model Freud took to be the norm: "Normally, there is nothing of which we are more certain than the feeling of ourself, of our own ego. This ego appears to us as something autonomous and unitary, marked off distinctly from everything else" (Freud quoted in Hartsock:240).

---

[84] In my effort to encapsulate the gist of these positions, I must necessarily gloss over many subtleties of argument with the unfortunate result that these arguments may appear to be more essentializing than is actually the case. For qualifying assertions in relation to the problem of essentialism, see for example Harstock:236 and Keller,1985:102,106-108.

[85] Dorothy Dinnerstein identifies women's historical role as primary parent as the most significant organizational factor leading to the perpetuation of misogyny (see Keller,1985:93). See also Hartsock: "To become masculine, the boy must separate himself both externally from his mother's body, and within himself, from his own already formed primary identification with femininity. This requires the construction of barriers to femininity directed both inward and outward. The mother may be represented as an evil creature, a witch, to counteract the wish to merge with her. Or the barrier may be constructed and sustained by fantasies of harming the mother" (Hartsock:?39).

It is argued then that women's experience provides the basis for a materialist ontology of coexistence which points in the direction a different way of knowing and interacting with the world; one which is potentially more truly "scientific" to the extent that it appeals only to material relations and resists the seduction of what Haraway calls "the God trick".

The scientific implications of the critique of the ontology of mastery have been pursued most thoroughly by Evelyn Fox Keller(as well as by Donna Haraway and Sandra Harding). Keller in particular has differentiated these two models of the subject position (corresponding to the independent and the relational subject) according to her notions of static or rigid autonomy and dynamic autonomy. As Keller explains,

> Dynamic autonomy reflects a sense of self (Winnicott calls it the "true self") as both differentiated from and related to others, and a sense of others as subjects with whom one shares enough to allow for a recognition of their independent interests and feelings - in short for a recognition of them as other subjects (Keller,1985:99).

Dynamic autonomy thus lends itself to an ontology of coexistence conceived as intersubjectivity (we will return to question this formulation in Chapter 6). Static autonomy conceives a hostile rather than interactive relation to its objects (and its objects are not considered to be subjects, as in the theory of instrumentalism[86]). The threat posed by the hostile nature of the object necessitates "complete" separation and the construction of rigid ego boundaries. But as Keller notes,

---

[86] See also Keller's discussion of the work of Ernest Schachtel who distinguishes between allocentric and autocentric perception. What is normally call instrumentalism is characterized as "secondary autocentricity." See Keller,1985:118-121.

> Constant vigilance and control are the telltale marks of a conception of autonomy that in fact belies its own aims. They reflect not so much confidence in one's difference from others as resistance to (even repudiation of) sameness, not so much the strength of one's own will as the resistance to another's, not so much a sense of self-esteem as uncertainty about the durability of the self - finally, not so much the security of one's ego boundaries as their vulnerability. It betrays particular fears of dependency, loss of self-control, and loss of self. Control (of one's self and another) is called forth as a way of alleviating these fears. To the extent that one's psychic world is pervaded by the sense of conflict, control seems a natural and necessary response. But it is a primarily defensive response, and its effectiveness is accordingly at best short term (Keller,1985:102).

Keller's discussion of static autonomy (with its reactive and transcendental investments) is particularly illuminating to our concerns because of the important role that autonomy has played in the discourse of technology (in the next chapter, the issue of autonomy will be raised again in relation to the organic extension thesis).

We know that the ontology of mastery prescribes particular types of relations between subjects and objects mediated by the principle of voluntarism (purposive will or instrumentalism). That the reversal initiated by autonomous technology is conceived as a reversal of the subject-object relation is made evident by the rhetoric which describes it. Technology's attainment of autonomy is modelled on an image of masculine ego development. Autonomy marks the point at which a *technological subjectivity*[87] suddenly congeals and declares its (rigid) independence. Technology is now endowed with an "intrinsic Geist" (Winner:281). It possesses "a wilful, active, self-determining quality of its own" (Winner:281). But the recognition of a

---

[87] See Negri's discussion of the violent activation of the "subjectivity of capital" (Negri,1991:143) and of the relation "*between two complete, opposed subjectivities* that are hostile to the point of destroying each other reciprocally" (Negri,1991:145).

technological subjectivity will not encourage an intersubjective coexistence between human and machine. Rather it demands a paranoid escalation in the phantasized battle for control.

> Just as Faustian man rebelled against nature, so his machine technology now rebels against him: "The master of the world becomes the slave of the machine. It compels him, us, and indeed all without exception, in the direction of its course, whether we know and want it, or not" (Spengler quoted in Zimmerman:28).

But as an underside to the fear and resentment we experience at the technological threat to our autonomy, is it not consistent with the pathology we have described, that these sad passions, which bread a hatred of the Machine, should become entwined with another: *envy*? Are we not haunted, in our weaker moments, by the suspicion that the Machine possess a more stable and truly static autonomy than we do, and is thus more worthy of subjectivity? Or again, are we not convinced that, by virtue of its absence of an organic tie to necessity (life), the Machine is more free than we can ever hope to be? As a character, in Hal Harley's recent film Simple Men, insightfully observes: "there's nothing like a machine to make a man feel inadequate."

We do, I would argue, see this psychology reflected quite clearly today, particularly within cyberpunk culture and its derivatives. Much of this literature is motivated in part by the paradox of *complete autonomy* as the ultimate goal (of the transcendent subject) and the absolute human lack (or more specifically, the absolute organic lack). Real autonomy, according to many popular representations, is the domain of technology.

As the human organism is increasingly forced to confront its codependency within a "complex interacting energy chain and protective biosphere," (Stelarc:592) it realizes that its form and function are inadequate to the realization of its dream: "abstract individualism, an ultimate self untied at last from all dependency, a man in space" (Haraway,1991a:151). While it is together that the human organism and the machine fabricated the technoscape and journeyed into space, the human body quickly reveals itself as dead weight; as an albatross around the neck of technology. As the Australian performance artist Stelarc has written,

> The problem with space travel is no longer with the precision and reliability of technology but with the vulnerability and durability of the human body. In fact, it is now time to REDESIGN HUMANS, TO MAKE THEM MORE COMPATIBLE TO THEIR MACHINES. It is not merely a matter of 'mechanizing' the body. It becomes apparent in the zero-G, frictionless and oxygen-free environment of outer space that technology is even more durable and functions more efficiently than on Earth. It is the human component that has to be sustained an also protected from small changes of pressure, temperature and radiation (Stelarc:593-594).

Arthur and Marilouise Kroker have expressed a related sentiment which suggests that what we feared all along has come to pass. "In technological society, the body has achieved a purely *rhetorical* existence: its reality is that of refuse expelled as surplus-matter no longer necessary for the autonomous functioning of the technoscape" (Kroker and Kroker,1987:21).

Today many elements within cyberpunk culture are more than happy to submit to the superiority of technology and celebrate the obscelescence of the body.[88] For

---

[88] On the debate over the obscelescence of the body see summer 1989 edition of Whole Earth Review (#63). This issue contains short responses to the question "is the

example, in William Gibson's Neuromancer, Case, the protagonist, is dealt a cruel *life sentence* when his nervous system is altered to prevent him from being able to jack into the inorganic and weightless *freedom* of cyberspace.

> For Case, who'd lived for the bodiless exultation of cyberspace, it was the Fall. In the bars he'd frequented as a cowboy hotshot, the elite stance involved a certain relaxed contempt for the flesh. The body was meat. Case fell into the prison of his flesh (Gibson:6).

We will turn finally to Andreas Huyssen's incisive analysis of Fritz Lang's *Metropolis*[89], in which he has demonstrated the film's mediation of a doubled image of technology both aspects of which are the products of a neurotic male fantasy. The opposing aspects of this doubled image, corresponding to the optimism of technological humanism and the pessimism of technological dependency, constitute a tension within the film that reflects an anxiety at the heart of man's (the masculine) encounter with technology. Huyssen demonstrates once again by his insistence on foregrounding the relationship between technology and sexuality, and the significance of the presentation of the machine as woman[90], that this anxious (we should rather say neurotic) relationship to technology characterizes the relationship between the subject of male identity and its Other.

> The fears and perceptual anxieties emanating from ever more powerful machines are recast and reconstructed in terms of the male fear of female sexuality, reflecting, in the Freudian account, the male's

---

body obsolete?'' from a variety of perspectives: industry scientists, writers, performance artists, sex trade workers, technology critics, etc.

[89] See Huyssen's The Vamp and the Machine.

[90] On the theme of technology and sexuality, see also Hacker:197-223, McLuhan,1951:93-101, Doane,1990:163-176, Seltzer,1992.

> castration anxiety. This projection was relatively eas_ 'o make; although woman had traditionally been seen as standing in a closer relationship to nature than man, nature itself, since the 18th century, had come to be interpreted as a gigantic machine. Woman, nature, machine had become a mesh of significations which all had one thing in common: otherness; by their very existence they raised fears and threatened male authority and control (Huyssen:70).

Huyssen acknowledges that this construction of technology through projective phantasy embodies the theory of technology as organic extension. Thus to the extent that man constructs an image of woman through the same projective mechanisms the extension thesis is easily applied to her as well in order to capture what man (from his instrumentalist perspective) perceives as her purposive nature (biological destiny):

> just as the technological artifact is considered to be the quasi-natural extension of man's natural abilities (the lever replacing muscle power, the computer expanding brain power), so woman, in male perspective, is considered to be the natural vessel of man's reproductive capacity, a mere bodily extension of the male's procreative powers. But neither technology nor woman can ever be seen as solely a natural extension of man's abilities. They are always also qualitatively different and thus threatening in their otherness. It is this threat of otherness which causes male anxiety and reinforces the urge to control and dominate that which is other (Huyssen:72).

Should not the obvious inappropriateness of an extension thesis interpretation of woman give us a related indication of the warped view it projects of technology? That such a view is indeed warped (a misunderstanding of the true nature of the being of entities) was the motivation behind Heidegger's contribution to the critique of the ontology of mastery, that is his critique of "productionist metaphysics."

Returning to Huyssen's argument once again, he insists that a masculinist phantasy has been busily at work splitting the Machine (technology perceived as other) into nurturing good object (technological humanism as an expression of our

omnipotence) and castrating bad object (technological determinacy as an expression of our impotence). We cannot downplay or explain away the fact that our traditional typology of technological discourse which lays out "the major positions which might be adopted on the question of technology" happens to correspond to two age-old patriarchal images of women. As Huyssen observes:

> In the machine-woman, technology and woman appear as creations and/or cult objects of the male imagination. They myth of the dualistic nature of woman [couldn't we say *ambiguous* nature?! - furthermore are we not being led by this logic to acknowledge that the conclusion: 'woman is an enigma' constitutes a 'realist' interpretation?] as either asexual virgin-mother or prostitute-vamp is projected onto technology which appears as either neutral and obedient or as inherently threatening and out-of-control. [...] Of course, the potent sexuality of the vamp is as much a male fantasy as the asexuality of the virgin-mother (Huyssen:73-74).

Susan Griffin has emphasized this last point in her discussion of the convertibility of the images of the virgin and the whore[91]. "But of course" she tells us, "the virgin and the whore are part of one mind. [...] In the pornographic mind, all along, the virgin *is* a whore" (Griffin:22-23). In the same way, for the mind gripped by the ontology of mastery (that "universal sado-masochism of the tyrant slave") technological humanism *is* in a fundamental sense, technological determinacy, the one is always the underside of the other; each exists only within the tension binding it to its opposite. In other words, under the ontology of mastery, we have

---

[91] See Griffin:20-24. The explicitness of this analogy is by no means peculiar to *Metropolis*. For example, Henry Adams is famous for his associations in "The Dynamo and the Virgin." See Adams:379-390; Seltzer:30. And according to Kuhns, "Norman Mailer questions whether we haven't somewhere lost our soul to the whore of technology" (Kuhns:2).

always been neurotic technological realists splitting the world into good and bad objects in the maintenance of the dialectical phantasy of impotence - omnipotence[92]. In perceiving technology as inherently ambiguous and naturalizing this perception in the form of a "great secret" we are seduced by our own fear and satisfied to fuel our neurosis through this mystification of technology as enigma. We posit a static essence within an abstract technology and bypass the difficult and concrete task of analysing particular technologies embedded with specific fields of material conditions.

If technologies embody essences (and they do, however "vague,"[93]) we cannot understand these by considering technology, as either present-at-hand abstracted from the field of relations) or ready-to-hand (subordinated to the single-minded relation of purposive rational action). The essence of a technology can only be determined in relation to the desiring-machine of which it is a part. Likewise if we affirm the importance of Haraway's notion of the cyborg, it is because the cyborg is not the image of a super-subject expressing its power (omnipotence) through the

---

[92] This reading of psychological splitting would be enriched through a consideration of Julia Kristeva's theory of abjection (See Kristeva, 1982). Barbara Creed and Mary Anne Doane have applied Kristeva's concepts to technological themes (see Creed, 1986, 1990; Doane, 1990). Of particular interest is Creed's discussion of the monstrous-feminine as an alien variation on Huyssen's vamp.

[93] See D&G, 1987:46 on D&G's appropriation of Husserl's notion of vague essences. "It seems to us that Husserl brought thought a decisive step forward when he discovered a region of *vague and material* essences (in other words, essences that are vagabond, anexact and yet rigorous), distinguishing them from fixed, metric and formal, essences. We have seen that these vague essences are as distinct from formed things as they are from formal essences. They constitute fuzzy aggregates".

manipulation of a thousand technological prosthetics[94]. Rather it is an image of an agency (and a desire) machined within a material assemblage involving human and machine within specific spatio-temporal coordinates. It is the assemblage which is the true machine, which becomes productive through the engineering of its parts. Only as part of a machine (defined as a desiring-machine or an assemblage) is a mechanism, a cybernetic device, an instrument, or a tool *technological.*

[94] For the most part, Haraway doesn't subscribe to the rhetorical tropes of the organic extension thesis although she does invoke the image of "prosthetics" now and again. While this isn't a big deal, I feel that at a basic level this doesn't jibe with the notion of cyborg agency that comes across in my reading of Haraway.

Chapter III

3.1 The History of Organic Extensions

> How one periodizes and where one locates ruptures or denies them are all political choices that determine the construction of the present. Whether one excludes or foregrounds certain events and processes at the expense of others affects the intelligibility of the contemporary functioning of power in which we ourselves are enmeshed. Such choices affect whether the shape of the present seems "natural" or whether its historically fabricated and densely sedimented makeup is made evident (Crary:7).

A thorough history of the organic extension thesis has yet to be written. When employing the metaphor, certain authors occasionally credit a predecessor, but it is more often the case that commentators pull the metaphor from the unauthored catalogue of accepted wisdom. The few attempts that have been made to construct a history of organic extension have been flawed from a number of perspectives, not the least of which being their faith in the unbreachable truth of the thesis. While I hope to redress some of the insufficiencies of these historical accounts, it is not my aim, within the limited scope of this chapter to construct a comprehensive history of organic extension.[95]

The hypothesis that technology constitutes an organic or sensory extension of the human body is today associated most strongly with the work of Marshall McLuhan. And while McLuhan's work has been subjected to endless scrutiny and

---

[95] I have been able to find only two sources which actively attempt to trace the history of the notion of organic extension: Curtis (1978), and Levinson (1979). Many authors discuss the wide popularity of the thesis, but these are the only two works, of which I am aware, that attempt to locate an origin and track the historical decent of the organic extension metaphor.

criticism, the theory of organic extension has received little critical reflection in relation to its ontological presuppositions. The significance of this fact extends far beyond the bounds of McLuhan's own writings for, as we know, McLuhan is only a recent and prominent representative of a long standing opinion. Paul Levinson has noted that "in the century and a half since the invention of telegraphy..., technology has been characterized as an "extension" of our biological organs by numerous observers, including Butler, Emerson, Kapp, Bergson, Van Loon, Freud, Mumford, Fuller, Innis, McLuhan, and many others" (Levinson,1982:158).[96] Furthermore, Rosi Braidotti has pointed to the importance of the organic extension thesis to French thought, arguing that this view of technology "seems...to characterize the French epistemological school from Bachelard down to Foucault"[97] (Braidotti:149).

In this chapter, my goal is to reexamine the historical legacy of the organic extension thesis in an attempt to elucidate its presupposition and expose some of the drawbacks to which Deleuze and Guattari draw our attention. Typically, this legacy is considered to date from approximately the 1860's. However, I will argue that, in

---

[96] The "many others" should be heavily emphasized. This list doesn't begin to be comprehensive of even the most important examples. Some of the examples that are significant to this essay but not mentioned in any of the above are Karl Marx, Marcel Mauss, Arnold Gehlen, and Jurgen Habermas.

[97] Braidotti has over-stated the case here. Foucault is not a part of this tradition. In fact, he makes an important break with the instrumentalist logic of extension: "The microscope was called upon not to go beyond the frontiers of the fundamental domain of visibility, but to resolve one of the problems it posed: the maintenance of specific visible forms from generation to generation. The use of the microscope was based upon a non-instrumental relation between things and the human eye - a relation that defines natural history" (Foucault, 1970:133). This non-instrumentality is quite distinct from the pseudo "non-instrumentality" of autonomous technology.

order for the full range of these presuppositions to become clear, it is necessary to resituate the organic extension thesis in a much wider historical frame.

3.2 Origin Stories of the Organic Extensions Thesis

> To contest for origin stories is a form of social action (Haraway, 1989:289).

As we have noted, historical discussions of the organic extension thesis tend to place the genesis of this hypothesis at some point during the second half of the 19th c. For example, in James Curtis' effort to reconstruct the lineage of the extension thesis leading to McLuhan, he argues (incorrectly) that Ernst Kapp's Outlines of a Philosophy of Technology (1887) was "the first work that states and develops the hypothesis that technology functions as the extension of man" (Curtis:62). He further argues that since Kapp's work had, until recently, remained virtually unknown except to a few German specialists, "it is reasonable to assume that McLuhan originally found the concept in Bergson; he certainly studied its use in Mumford and Teilhard de Chardin" (Curtis:83). On the basis of this supposition Curtis goes on to investigate the rarely noted similarities between McLuhan and Bergson. While this line of investigation is certainly of considerable interest, it is nonetheless a mistake to construct Bergson as the principal source of McLuhan's thinking about organic extension.

In the first place, we cannot credit Kapp as the originator of the notion of

organic extension (or "organic projection" as he termed it), although he was the first to develop his ideas in a book-length study.[98] Secondly, while it is reasonable to assume that in the 1960's McLuhan would likely have been unaware of Kapp's work, we must also assume that McLuhan, whose principle academic training was in literature, not philosophy, would have been familiar with two important English literary precursors to Kapp: Samuel Butler (1863, 1867) and Ralph Waldo Emerson (1870).[99]

It is only in a recently published interview[100] that McLuhan, in passing, acknowledges his connection to the latter: "All technology is a physical extension of man, and our bodies, said Emerson, are a "magazine" or storehouse of all past, present, and future innovations" (McLuhan,1989:12). Yet even before Emerson, Butler's much more important text "The Book of Machines" (a chapter of his classic Erewhon), while never credited directly by McLuhan in relation to the organic extension thesis, can be clearly seen as a direct source, not only of the organic extension thesis, but of other important aspects of McLuhan's theory such as his claim that humans constitute the sex organs of machines. McLuhan had in fact made use of Butler's text in his early work The Mechanical Bride in discussing the

---

[98] Kapp can, however, be credited with the introduction of the term "philosophy of technology."

[99] McLuhan was likely also aware of Marx's formulation of the hypothesis put forward in the first volume of Capital (1867) and even earlier in The Grudrisse (1858).

[100] The recently published collection Marshall McLuhan: The Man and His Message unfortunately gives no information regarding previous publication dates of the various interviews, essays, and fragments contained therein.

"organic character of...machines" (McLuhan,1951:99). We will return in Chapter 5 to examine more fully the significance of Butler's extraordinary text, which as we shall then see, was not only one of the earliest and most eloquent statements of the organic extension thesis, but it also pointed the way beyond the main conceptual constraints which have accrued to the extension thesis in the years prior to and following Butler.

Yet for the moment we must note that what makes Butler's text extraordinary is not that he is the *true* originator of the organic extension thesis. In fact, we quickly discover that looking for the *origin* of this concept is a somewhat dubious task, that is if we have not already realized with Deleuze and Foucault (following Nietzsche and the genealogical method) that the search for *true origins* is, in general, dubious.[101] This, of course, does not mean that we are uninterested in the history of ideas -- quite the contrary. However, it does mean that we remain sceptical of linear regressions of decent or projections of teleology. As Foucault writes:

> The lofty origin is no more than a "metaphysical extension which arises from the belief that things are most precious and essential at the moment of birth." We tend to think that this is the moment of their greatest perfection, when they emerged dazzling from the hands of a creator or in the shadowless light of a first morning

---

[101] Genealogy for Nietzsche and Foucault "opposes itself to the search for "origins"" (Foucault,1977a:140). Similarly, Deleuze insists that everything "begins" in the middle. "One never commences; one never has a *tabula rasa*; one slips in enters in the middle" (Deleuze,1988:123). Gregory Bateson gives us an interesting example of the fundamentalist pre-Darwinian biologist, Philip Henry Gosse, who proposes a different solution to the paradox of origins: "It was to him inconceivable that God could have created a world in which Adam had no navel; the trees in the Garden of Eden, no rings of growth; and the rocks, no strata. Therefore, God must have created the world as though it had a past" (Bateson:345). Even God finds it necessary to start in the middle!

(Foucault,1977a:143).

Donna Haraway has emphasized the importance of recognizing that organisms, like all other things, are not "born", but rather "made in world-changing techno-scientific practices by particular collective actors in particular times and places" (Haraway,1992:297).

In birth, one is endowed with an absolute origin. In the strictest sense, one can only give birth to oneself.[102] To be born is to extract oneself from the "global field of coexistence" (D&G,1977:274) in order to be able to say: *In the beginning...* and to allow everything to flow unproblematically in a linear fashion from that one point. To be made, on the other hand, is to acknowledge all the actors who/which had a hand in your making, and who continue to make you; it is to acknowledge that you have from the "start" been truly "in the middle".[103] We will see, as this chapter progresses, that the problem of origins is centrally implicated in the notion of organic extension.

---

[102] Haraway, borrowing from Zoe Sofoulis, often refers to this birth-in-the-strong-sense as "the second-birthing of Man" which takes place "through the homogenizing of all the world's body into resource for his perverse projects" (Haraway,1991a:198).

[103] Employing Deleuzo-Guattarian terminology, we can contrast the *point* of birth to the production *line* of Haraway's artifactualism. "Points" are characteristic of the molar whereas "lines" characterize molecular becomings. "A line of becoming is not defined by points that it connects.... A point is always a point of origin. But a line of becoming has neither beginning nor end, departure nor arrival, origin nor destination; to speak of the absence of an origin, to make the absence of an origin the origin, is a bad play on words. A line of becoming has only a middle" (D&G, 1987:293).

Foucault argues: "What is found at the historical beginning of things is not the inviolable identity [molar unity] of their origin; it is the dissension of other things. It is disparity" (Foucault,1977a:142).

Yet there is, to be sure, a real proliferation of the extension thesis following 1860 (a renaissance, if not a true naissance) which we can associate with a few significant social conditions. As Levinson notes, of obvious importance is the invention and wide scale commercial introduction of telegraphy at the apogee of a revolutionary phase of technological development. But also of considerable significance, I would argue, is the revolution in evolutionary thought initiated by the publication of Darwin's Origin of the Species in 1859.

Darwin had a tremendous and immediate impact on the work of Samuel Butler. Indeed one of the earliest documents of the extension thesis from this period was a letter written by Butler under a pseudonym entitled "Darwin among the Machines" which appeared in a New Zealand newspaper *The Press* on June 16, 1863. This article was the first fragment of what would later be revised and extended into Erewhon. Many, though not all, of the texts from this period are explicit about the importance of a changing understanding of nature and the evolution of the organism to the formulation of the extension theses. It was often in the context of biologically oriented texts that the extension thesis made its early appearances. Besides Butler's evolutionary writings, Henri Bergson's Creative Evolution, which marked the introduction of the thesis in his work, is a notable example.

We must note, however, the important existence of at least one document in the history of the extension thesis which pre-dates the publication of The Origin of the Species, if only by a number of months. Marx's The Grundrisse, which contains an important "*Fragment on Machines*" which Antonio Negri tells us "was written at the

end of February 1858'' (Negri,1991a:139), speaks of ''instruments, which the worker animates and makes into his organ'' (Marx,1978:279) and of complex automated machinery which reverses things and becomes the animator of the worker.[104]

These are very important events which seem to argue in favour of the sufficiency of the traditional historical scenario. An intellectual climate acutely sensitive to evolutionary ideas and the transformative effects of technology was obviously a conducive environment in which the idea of technology as an organic extension could flourish. And this is indeed what happened. But the idea is not essentially Darwinian, and its roots extend much further into the history of biological thought. For this reason, I insist on the importance of contesting this origin story by situating organic extension in relation to certain currents in the history of biology leading back to Aristotle. This is the context in which Deleuze and Guattari (D&G) situate it in Anti-Oedipus when they characterize the extension thesis as a ''vitalist argument''[105] (D&G:284). We will therefore take a few minutes to introduce vitalism and argue that it is indeed the proper context in which to situate the extension thesis.

For the ease of presentation we will not, for the moment, take issue with any

---

[104] The Marx-Engels Reader (1978) edited by R. Tucker contains extracts from The Grundrisse which include the ''*Fragment on Machines*''. See the section entitled ''Capitalism, Machinery and Automation'' (Marx and Engels:278-290). See also Negri's discussion of this fragment in his Marx Beyond Marx: Lessons on the Grundrisse (Negri:1991a:139-150).

[105] D&G make this characterization while discussing the way in which Butler (1867) actually goes far beyond the extension thesis. We will return to this in Chapter 5.

of the arguments which we will be presenting. Rather we will reserve all critical comments until the end of this presentation.

3.3 Vitalism[106] and Organic Extension

In discussing the relationship between technology and the organic body, D&G make note of the juxtaposition between "two common arguments, the one according to which the organisms are for the moment only more perfect machines..., the other according to which machines are never more than extensions of the organism" (D&G:284). D&G characterize these positions as *mechanist* and *vitalist* respectively, aligning them quite properly with the two classical positions in developmental biology.

Man a Machine (1748) by Julien Offray de la Mettrie presents a classic philosophical statement of the first position. Within biology proper, the mechanistic position advocates a "reductionist" approach to all organic phenomena; that is, it insists that organic life, like everything else in the clockwork universe, is completely explicable by recourse to the laws of physics and chemistry. There is thus, for mechanists, no essential or qualitative distinction between the organic and the inorganic or between mind and matter. The distinction is one of differing degrees of complexity and differentiation.

Vitalism, on the other hand, insists that physics and chemistry are necessary

---

[106] My discussion of vitalism relies heavily on Driesch (1914) but also on Bergson (1944), Haraway (1976), and Sheldrake (1981).

but ultimately insufficient to explain the "autonomy" exhibited by organic processes. They find it necessary to postulate something like a "vital force" specific to the animate realm which alone would be capable of accounting for purposive action and goal oriented behaviour in plants and animals.[107]

It is through the central problematic of *purposivity* that vitalism constructs a certain relational bond between biology and technology and it is only in relation to this problematic that the thesis of organic extension can be properly evaluated as an ideological/rhetorical construction. Without situating the extension thesis in this context, critics such as Levinson (1982) and Curtis (1978) tend to accept the thesis as valid and unproblematic, and investigations of the history of the thesis are simply attempts to establish who first discovered "the truth".

As Hans Driesch explains in an important historical/theoretical analysis of vitalism, the existence of purposive action is accepted by vitalism as a first principle. Vitalism makes no attempt to investigate the nature and validity of the concept of

---

[107] This is what I would call "biological vitalism" which is related to , but is in important senses distinct from, what I would call "philosophical vitalism". ***Biological vitalism*** is concerned with the purposivity specific to the organic realm and absent from inorganic matter (it is precisely about the distinction between *organic* and *inorganic*). ***Philosophical vitalism*** on the other hand is enamoured of what D&G have called the "prodigious idea of *Nonorganic Life*" (D&G,1987:411). Leibnitz is the classic example cited in relation to *philosophical vitalism*. See Carolyn Merchant on vitalism in Anne Conway and Leibnitz (Merchant:258-289). See also Deleuze's book on Leibnitz: "There are no *fewer* living beings than parts of inorganic matter. Clearly an exterior site is not a living being; rather it is a lake, a pond, or a fish hatchery. Here the figure of the lake or pond acquires new meanings, since [they] [...] no longer refer to elastic waves that swim through them like inorganic folds, but to fish that inhabit them them like organic folds. And in life itself the inner sites contained are even more hatcheries full of other fish: a "swarm." [...] Not everything is fish, but fish are teeming everywhere.... Universality does not exist, but living things are ubiquitous" (Deleuze,1993:9).

purposiveness and its applicability to the processes of life "for that there is...much that is purposive in vital phenomena is merely an immediate deduction from the definition of the concept of purpose itself" (Driesch:1). It seeks rather to show that those processes which we label as purposive cannot be accounted for solely on the basis of laws of the sciences of the inorganic (physics and chemistry), but are rather "the result of an *autonomy* peculiar to the processes themselves." (Driesch:1, emphasis in original).

To describe a process as purposive is to orient it in relation to a specifiable and "arbitrarily postulated" end. For Driesch (and vitalism in general) teleology is the essential character of life; it is the practical possibility of postulating a telos which separates organic life from inorganic matter and transcends the limitations of chemical and physical law.

> It is only in relation to organisms that the possibility of an end thus arbitrarily postulated can be thought of.... This is due, among other things, essentially to the fact that relation to an end implies two things: in the first place, the special adaptation of the process in question to an end... and secondly, its appearance in an indefinite number of individuals or examples - in short, its unlimited plurality. This is a postulate which in nature is fulfilled in organic natural bodies, and at the first glance only in them (Driesch:3).

The "exception" to this rule, or rather what is revealed at *second* glance is the purposive orientation of technology. Driesch continues,

> We do, however...also describe as purposive processes in certain objects which are not organic, but which are not objects of "nature" in the narrower sense - that is to say, in so far as we can speak intelligibly if not strictly of "culture" as an opposition to nature. The processes to which we refer occur in *artifacts* due to the action of men (Driesch:3).

But we cannot, according to Driesch, properly speak of an *autonomy* of purposiveness

in machines. Indeed Driesch thinks it improper to describe machines, as *things* or *object*, as purposive, preferring to retain the use of the word for the description of *processes.*[108] Thus while "every single process in a machine is purposive" they are so only "in so far as [they are] part of a higher specific whole" (Driesch:4); that is, in so far as they are an appendage of a vital organic whole.

So while *purposivity* establishes a connection between organism and technology, *autonomy* structures this connection hierarchically, creating a *flow of purpose* from centre (organism) to periphery (technology). *Autonomy* also provides a principal of distinction which precariously attempts to guard the gap between organic and inorganic. While purposivity is indicative of vital functioning, it is the more originary concept of *autonomy* which marks the actual source of a vital force. As we have seen, this force is characterized firstly by its teleological functioning, and secondly (in certain cases), by its capacity to enlist other objects in the effort of attaining a particular *telos*. Thus the vitalist notion of autonomy resonates strongly with the notion of autonomy in technological discourse. Despite the reversal marked by autonomous technology, the same principles subtend: 1) an originary source of vital force (authorial subjectivity or *geist* of the Machine) and purposive extension (humans at the service of a technological will).

Within the frame of vitalism, we can trace the roots of the essential elements of the extension thesis at least as far back as Aristotle. It is after all with Aristotle that standard histories of vitalism begin. Thus we should not be surprised that

---

[108] In this respect (and in others) Driesch is an important precursor to organicism.

Emerson begins his meditation on technology as organic extension in "Work and Days" by invoking Aristotle:

> Our nineteenth century is the age of tools. They grow out of our structure. "Man is the metre of all things," said Aristotle; "the hand is the instrument of instruments, and the mind is the form of forms" (Emerson:141).

In The Politics, Aristotle insists that tools "in the ordinary sense are productive" by which he means to imply that while they are not organic, they are nonetheless in an essential relation to organic life, "enabling a man to live"; tools make themselves "useful for the purpose of living" (Aristotle:31-2) Furthermore, in the section of the same work entitled "The slave as property and as tool," Aristotle parallels the essential function of an enslaved or subservient organism to that of a tool; that which enables or supports the living of another: "Tools may be animate as well as inanimate; a ship's captain uses a lifeless rudder, but a living man for watch; for the worker in a craft is, from the point of view of the craft, one of its tools" (Aristotle:31). The man on watch becomes the sense organ of the craft which in turn operates as a tool of the ship's captain. The watch is, in our present terminology, an extension of the craft which, in turn, is an extension of the captain, who in the end is surely an extension of the Sovereign.

Thus all technologies, while purposive in essence, do not possess a purposiveness of "their own" but partakes of human purposivity. Technological essence resides "outside" of the tool and "inside" the autonomous organism since technologies are subordinated to the teleological demands of a vital organism. Again, Aristotle provides vitalism with a model of this subordination.

Aristotle postulates various stages of the soul which to a certain extent correspond with "stages" of the organic. He distinguishes: 1) the nutritive soul (all animals and plants); 2) the sensitive soul connected with the appetitive (animals only); and finally; 3) reason (humans only). If the human body "possesses many stages of the soul then all the lower are contained in the highest...and each lower stage serves the higher as a tool; for bodies are after all only tools of the spiritual and "exist only for the sake of the soul"" (quoted in Driesch:18). Technology is thus seen to "possess" a second order or derivative purposiveness subordinated to that of the body in the way that the body's purposiveness is subordinated to the successively hierarchized stages of the soul. And in keeping with this logic, the technology (lower) is "contained in" the body (higher) in an essential purposive sense although the tool as thing or object is produced outside the body. Even before the tool is manufactured or *realized* outside the body, it has a potential existence (entelechy) through the nature of the purposivity within the soul of the body (Driesch:14).

While an examination of Aristotle allows us to outline the essential features of the thesis of organic extension, we must note, none-the-less, that what is missing in Aristotle is the all-important spatial metaphor of *extension* itself! This perhaps seems to Levinson, Curtis, and others, to provide ample justification for excluding Aristotle and the history of vitalism from their accounts of the organic extension metaphor. But we have seen that what is *essential* to the organic extension thesis is that it represents a structural relation of purposive action between organism and technology, not that it represents this process by recourse to a spatial metaphor.

To say that the spatial metaphor is not *essential* is not to say that it is insignificant. On the contrary, this spatialization carries important consequences for the ways in which we culturally organize our conceptions of space and time. When we said, for instance, that in Aristotle's nautical example the watch and the craft were *extensions* of the captain, we were putting words in Aristotle's mouth and generating implications which are not there in the absence of the spatial metaphor.

Given the insistence of medium theorists that notions of space and time are conditioned and transformed by (among other things) the technologies employed by a particular culture, we should not expect to find a spatial metaphor such as technology as *extension* employed transhistorically and transculturally. As McLuhan himself has noted in an essay with Edmund Carpenter,

> We [meaning, roughly, Modern Western literate society] employ spatial metaphor [sic] even for such psychological states as tendency, duration, intensity. We say *thereafter*, not the more logical *thenafter*; *always* means *at all times*; *before* means etymologically *in front of*; we even speak of a *space*...of time (McLuhan and Carpenter:66).

But, the authors insist, "not all cultures think this way" (Carpenter:65). Given McLuhan's sustained meditation upon the production (and destruction) of space, it seems curious that he does not reflect upon the implications of the spatial bias of his own central metaphor.[109]

---

[109] If it is objected that we speak of extensions in time as well as in space, we must insist that speaking of temporal extension is merely another example of the way in which our culture spatializes duration. McLuhan did of course reflect in general terms on the consequences of spatializing metaphors (see for example, McLuhan and Powers (1989) and McLuhan and Carpenter (1960). Bergson, who also employed the extension metaphor, was particularly incensed by the tendency to represent processes spatially.

3.4 Habermas and the Closed Body

In an attempt to leave behind the history of vitalism and return to more contemporary theory, we can look briefly at organic extension in the work of Jürgen Habermas. Habermas forms a convenient bridge between vitalism and the twentieth century extension metaphors because he employs both the terminology of purposive-rational action and the spatial metaphor.

In "Technology and Science as "Ideology"," Habermas (adopting in full the arguments of Arnold Gehlen) sets out to critique Herbert Marcuse's "historical" view of technology. In Habermas' opinion, Marcuse's misunderstanding comes from a propensity to see technology as a collection of so many *things*, and a failure to appreciate the intimacy of our connection to our machines, when we form with them a structure of purposive-rational action. For Marcuse, the fact that at *this* historical juncture we operate with *this* particular set of machines instead of some other is a result of the particular interests and political forces driving social development at the time. But Habermas insists that,

> to this view it must be objected that modern science can be interpreted as a historically unique project only if at least one alternative project is thinkable. And, in addition, an alternative New Science would have to include the definition of a New Technology. This is a sobering consideration because technology, if based at all on a project, can only be traced back to a "project" of the human species *as a whole*, and not to one that could be historically surpassed (Habermas:87).

He continues,

> [...] technological development lends itself to being interpreted as though the human species had taken the elementary components of the behavioral system of purposive-rational action, which is primarily rooted in the human organism, and projected them one after another

> onto the plane of technical instruments; thereby unburdening itself of the corresponding functions.... Realizing this, it is impossible to envisage how, as long as the organization of human nature does not change and as long therefore as we have to achieve self-preservation through social labor and with the aid of means that substitute for work, we could renounce technology, more particularly *our* technology, in favor of a qualitatively different one (Habermas:87).

Consequently, Habermas/Gehlen suggest that, "technology cannot evolve beyond the stage of the greatest possible automation, for there are no further specifiable regions of human achievement that could be objectified" (Gehlen quoted in Habermas:126).

Essentially Habermas/Gehlen's position is a logical extrapolation of Emerson's significant though passing statement in "Works and Days" that "The human body is the magazine of inventions, the patent-office, where are the models from which every hint was taken" (Emerson:141). Both are expressions of Aristotelian (and vitalist) *entelechy* in relation to technology. We are the "acorn" out of which the "tree" of technology springs. And the tree cannot exceed the potentiality already inscribed in the acorn. According to this scenario, "human nature" is essentially fixed, "the behavioral system of purposive-rational action" is innate, and the body is an unchanging (unevolving) ultimately closed system.[110] For all intents and purposes, Habermas/Gehlen (and many others who have argued similarly) would have us believe that it is technology itself that has frozen the body in time, removed it from the evolutionary arc by providing more efficient and *externalized* methods of adapting to the environment, of adapting environments to the body. This exteriorization of

---

[110] For a critique of Habermas' position from a Critical Theory perspective, see "Habermas and the Neutrality of Technology," in (Feenberg:176-178).

purposive-rational action through the exteriorization of the organs and the senses is also and ultimately the exteriorization of the evolutionary process. Machines now do our evolving for us.[111]

But we have obvious objections to viewing the organic body as a closed system abstracted from the flux of time, and indeed, abstracted from biology and materiality. For when we talk of the human body as a "magazine" we are not speaking of any particular body marked by age, gender, social status, etc., but an abstract model of a universalized body; D&G's "abstract man".

> One cannot regard the machine as a new segment that succeeds that of the tool, along a line that would have its starting point in abstract man. For man and the tool *are already* components of a machine constituted by a full body acting as an engineering agency, and by men *and* tools that are engineered (*machinés*) insofar as they are distributed on this body. For example, there is a full body of the steppe which engineers man-horse-bow, a full body of the Greek city-state which engineers man and weapons, a full body of the factory which engineers men and machines... (D&G,1977b:131).

Marcel Mauss' ethnographic study of "body techniques" has been very helpful in dispelling the myth of a universal body fulfilling predestined functions in a predestined fashion: "walking or swimming for example, and all sorts of things of the same type, are specific to determinate societies;...the Polynesians do not swim as we do,...my generation did not swim as the present generation does" (Mauss:98). Mary Douglas has furthered Mauss' work in her discussion of "The Two Bodies." There, Douglass insists that,

---

[111] One can find the same basic sentiment in McLuhan: "When man left biology for technical evolution (bows and arrows are as much a part of evolution as losing our tails)..." (McLuhan and Powers:181).

> the social body constrains the way the physical body is perceived. The physical experience of the body, always modified by the social categories through which it is known, sustains a particular view of society. There is a continual exchange of meanings between the two kinds of bodily experiences so that each reinforces the categories of the other. As a result of this interaction the body itself is a highly restricted medium of expression. The forms it adopts in movement and repose express social pressures in manifold ways (Douglas,1970:65).

Thus, even in relation to the techniques of the body (let alone all other technologies) we cannot speak of a body technique that is essential in an ahistorical primal sense, since all senses are educated (or *organ-ized*), all techniques selected within, and in relation to a pre-existing social field or engineering "full body". In this way, technologies and body techniques are invested with politics and, as Marcuse originally argued, the plane of technology is indeed an important site of political struggle.

We therefore object to the hierarchized linearity which we find in Habermas/Gehlen imported straight from Aristotle. For them, purposivity is unambiguously and unproblematically born of reason and radiates in a unidirectional linear flow outwards towards the world. In a not dissimilar biological/evolutionary context, Arthur Koestler has objected to the "central Dogma" of neo-Darwinism based on a similar hierarchized uni-directional flow which states that in biology, information is "born" in the gene and radiates to the cellular body, and never vice versa. In Koestler's opinion "we should be suspicious of a rule like this because it would be the only example found in nature of a biological process devoid of feedback" (quoted in Kelly:13-4).

But while a cybernetic feedback loop is enough to unsettle the notion of a

closed body or a closed genome, it doesn't necessarily shake the effects of purposive linearity. For example, McLuhan has no trouble maintaining the extension thesis in its strongest form even as he acknowledges that "physiologically, man in the normal use of technology (or his variously extended body) is perpetually modified by it and in turn finds ever new ways of modifying technology" (McLuhan,1964:55-6). For him, the human body (mediating human rationality) operates, as it were, as the "main feed" off of which spring innumerable extensions and to which all feedback returns. The centred and originating status of the human as a purposive-rational agent is never put into question. The effects of our purposivity do return "in turn" to re-fashion our bodies, but control remains with the power of the purposive-rational agent (as cybernetic "governor") which directs the circuits development (as with machines that "learn"). Cybernetics remains trapped within organic extension because in essence, it is an attempt to describe non-linear functions in terms of a model which, while it becomes circuitous, remains linear nonetheless and maintains a uni-directional flow.[112]

Jean Baudrillard has, like D&G, recognized the organic extension thesis as a

---

[112] Some authors, notably Gregory Bateson, have argued that the cybernetic model undermines the Cartesian *cogito* (see Bateson:309-337) and while Bateson does this in his own writing, I see no reason why cybernetics can't just as easily serve to support a Cartesian notion of self. While Bateson interprets self/mind as being immanent to the entire system, his model remains linear with its emphasis on the systems directional flow and circuit time: "The holistic and mental character of the system is most clearly demonstrated by this last fact, that the behaviour of the governor (and ,indeed, of every part of the causal circuit) is partially determined by its own previous behaviour. Message material[...]must pass around the total circuit, and the *time* required for the message material to return to the place from which it started is a basic characteristic of the total system." (Bateson:316)

"classic schema" of technology and he furthermore insists that cybernetics does not break with this formulation. He writes:

> From the classical (and even the cybernetic) viewpoint, technology is an extension of the body. It is the evolved functional capacity of a human organism which allows it both to rival Nature and to triumphantly remold it in its own image. From Marx to McLuhan, one sees the same instrumentalist vision of machines and of language: relays, extensions, media-mediators of a Nature destined ideally to become the organic body. In this "rational" view, the body itself is only a medium[113] (Baudrillard,1991:313).

When the flow of purposivity, of one-way effect is disrupted, the appropriateness of the organic extension metaphor is fundamentally undermined. To take an example, we might ask "in what way is television an organ or sensory extension?" McLuhan tells us that, as a global network of electronic technology, TV extends (among other things such as eyes and ears) our central nervous system in a global embrace. But an organic extension does not simply result from any instance of connection or interface. As we have now seen at some length, what defines an organic extension is a particular hierarchy of purposivity: it is all too often forgotten, especially by McLuhan that *plugging in does not an organic extension make*. "One

---

[113] Unlike D&G, Baudrillard does not seem to include the "non-instrumentalist" reversal of autonomous technology within the logical development of organic extension. Thus his break with the organic extension thesis is a creative variation on the theme of reversal. Against organic extension, Baudrillard invokes the vision of J.G. Ballard in one of his most celebrated novels: "Inversely, in its baroque and apocalyptic treatment in *Crash*, technology is the deadly deconstruction of the body - no longer a functional medium, but an extension of death[...] (Baudrillard,1991:313). The beautiful symmetry of this reversal is only clear when we have situated the organic extension thesis within the tradition of vitalism, that is within the tradition that insists that what is ultimately extended through purposive-rationality is a "vital force," in other words, *life* itself. Technology as an extension of *death* follows only too perfectly as the ultimate reversal.

must not confuse...relation and direction'' (Deleuze,1991b:123).

3.5 Corporeal or Corporate Extension?

Robins and Webster (1986) have made what is perhaps, from the perspective of purposivity, a more logical argument when they speak of television as an extension of the market; as ''the extension of corporate capital throughout and between societies'' (Robins and Webster:36). The same argument has been forwarded by Dallas Smythe and others who have insisted that TV coordinates the mass delivery of a receptive audience to the corporate advertisers. The purposive linearity is much clearer in this instance than in that of TV as organic extension of the viewer. This is also the logic of Sartre's serial culture which, Kroker and Cook (1987) argue, finds its quintessential expression in television. Serial culture, for Sartre (and Kroker/Cook) is ''the pervasive effect of the mass media'' (Kroker and Cook:270). It defines a particular ''mode of being'' fostered by mass mediated culture in which beings exist ''outside themselves in the passive unity of the object'' (quoted in Kroker,1984:270); the object being television.

To understand how serial culture operates as a reversal of organic extension it is useful to recall Driesch's insistence that the essence of technology, its purposivity, was not internal to the thing itself but resided in the human (an external object). The technological essence was realized only in the process of extension. Being ''outside oneself'' in essence is precisely the nature of being an organic extension. While Kroker has nothing to say about serial cultures relationship to the extension theses,

R.D. Laing in his lengthy reflection with David Cooper on the significance of Sartre's philosophy clearly appreciates the analogy: "The members of a series are appendages, as it were, of their common fantasy object" (Laing:123). This is a direct consequence of the directionality of the flow of information which presumably defines the nature of purposive activity. While it is easy to believe that reversing the direction changes everything, in fact nothing is changed fundamentally. We are extensions of machines (or corporate structures) rather than machines being extensions of us; the current is reversed on the same circuit; the same model of linearity; the same "subject-system"[114] although subject and object have switched places. The centre becomes the periphery and vice versa, but what remains fundamentally intact is the model of the unified centre as the ultimate origin of purposive-rational action directed to the periphery. Organic extension is predicated on a Cartesian *cogito*; a rational subject endowed with ultimate agency. The reverse thesis, on the other hand, is predicated on a different sort of centred subject; a non-human structural unity as ultimate agent operating according to an instrumental reason.

[114] Stephen Heathe, borrowing the term from Lyotard, argues against the Habermas-Gehlen position on the basis of its predication on a unified subject-system. See Heathe "Representing Television" p.293.

Intermezzo

To this point, our principle task has been to establish that the organic extension thesis, as defined above, can properly be seen to constitute a "classic schema" of technology. This task implied firstly an effort to specify the scope and import of such a claim and to clarify its logic, which is to say, its ontological and epistemological implications and consequences. In the chapters that follow, our intentions are quite different and so a brief word of explanation seems advisable.

We should return our attention for a moment to the passage by D&G which we cited on the first page. At that time we argued that not only did D&G identify the organic extension thesis as a classic schema of technology, but they furthermore enumerated the shortcomings of this schema in terms of a series of modernist investments which seemed to implicate evolutionary biology, psychoanalysis, and Marxist humanism in the discourse of technology, and thus also in the critique of that discourse. The intention of Part Two is therefore to investigate aspects of these investments more thoroughly and to examine the ways in which the discourses of evolutionary theory, psychoanalysis, and Marxism are co-implicated in technological discourse. Furthermore, once these shortcomings are established, we want to see the ways in which they might be overcome through the theoretical innovations of D&G and Haraway and the ways in which, therefor, the organic extension thesis itself might be overcome.

We must acknowledge that in the original outline of this thesis there were

three chapters comprising Part Two, instead of the existing two which follow. The decision to eliminate the final chapter was based solely on time and length considerations and the absence of the final chapter may, to a certain degree, undermine the logic and coherence of the rest of Part Two. For this reason, in all but the harshest practical respects, I regret its absence.

The missing chapter would have investigated the role of the logic of organic extension within evolutionary biology and contrasted the notion of evolution with the Deleuzo-Guattarian notion of "involution". Only a brief fragment of this chapter has survived as a passing note in my "concluding remarks".

As they now stand, Chapters 4 and 5 should be understood in the context of an investigation of those investments identified at the start of the thesis. While I have taken my cue from D&G's passage, I have taken many liberties in these investigations and pursued questions relevant to my own interests and purposes. Chapter 4 which pursues the "Marxist humanist investment" is not primarily concerned the manner in which productive forces are isolated from "the social conditions of their exercise" as D&G indicated (though this concern is implicit in my argument). Rather, it is concerned with the problem of *productionism*, and the way in which it is dispatched by D&G's constitutive ontology or Haraway's notion of artifactualism. This approach not only deals with productionism as a "Marxist humanist investment" but it furthermore provides an opportunity to explore some of the important points around which D&G are often misunderstood. These points can be effectively pursued through a discussion of Baudrillard's critique of production in Marx and in D&G.

Chapter 5 pursues the "psychoanalytic investment" of projection to investigate the significance of the analogy between psychic and organic projection. In both cases, it is demonstrated, projection is a response to the perception (or presupposition) of a hostile environment. In other words, it is a response to a fear or hatred of the outside. Thus projection operates at the nexus of the self and the non-self. Projective phantasy and projective technology are located at the intersections of the psychic and bodily self and non-self, and they negotiate these syntheses. In contrast to projection, we investigate D&G's variation on a different psychoanalytic theme, partial objects, in an effort to displace the logic of projection and initiate a different and positive relationship with the outside.

The goal of Part Two then, is to begin to move beyond the organic extension thesis by beginning to investigate other concepts that generate new conceptualizations of technology. It is only through these latter investigations that we can hope to move beyond the former. For, "a concept does not die simply when one wants it to, but only when new functions in new fields discharge it" (Deleuze, 1991d:94). For Deleuze, philosophy is about the *invention* of concepts (Deleuze, 1991c). "[I]t is never very interesting," he writes, "to criticize a concept: it is better to build the new functions and discover the new fields that make it useless or inadequate" (Deleuze, 1991d:94). If we accept this definition, then Haraway's work too is strongly and positively philosophical. Her work is notable, above all in my mind, for the concepts she creates: artifactualism, cyborg, coyote, apparatus of bodily production, the post-human human, etc., all of which discharge obsolete concepts and

establish new terrains for the pursuit of new theoretical trajectories.

PART TWO

Chapter IV

4.1 Artifactualism is not Productionism

> Productive force emanates from the infinity of being, and its unique organization is given in the movement of the infinite. Every subordination and ordering of productive force that is not the autonomous movement of its own constitutive force is negativity, antagonism, emptiness. [...] Material production, political organization, ethical and cognitive liberation are all posed at the intersection between production force and the positive constitution of the world (Negri,1991:223/4).

While we have earlier made cursory attempts to draw an ontological distinction between the attitude of productionism, which we can associate with the organic extension thesis, and constitutive notions, such as D&G's production and Haraway's artifactualism, we will here address this question more fully, taking note of the Baudrillardian critique of D&G which has been at the heart of much of the confusion.

We will also look briefly at Marx's contributions to the ideology of productionism. Only if we are clear on this, can we appreciate the reductionism of Baudrillard's attempt to equate Marxist and Deleuzo-Guatarrian notions of production. Many theorists have taken this reduction for granted. After all, it has always been popular to pigeon hole Anti-Oedipus as a latter day Freudo-Marxism. When approached from this angle, desiring-production might well be abstracted into the perfect Freudo-Marxist trope (right up there with libidinal economy). But this is to guarantee a misreading of both the essential concepts of desire and production in D&G. As Guattari has asserted:

> a micro-politics of desire is not a proposal for the establishment of a bridge between psychoanalysis and Marxism, looking at them as completely formalized theories. This seems to me to be neither desirable nor possible (Guattari,1977:87).

Desire in D&G cannot be interpreted as lack, but equally well, it cannot be personalized ("Desire is not intrinsically linked to an individuation of the libido" (Guattari,1977:87)). Nor can their notion of production be interpreted in the Marxist, or in the simple industrialist sense of the term.[115] In an attempt to alleviate these misinterpretations, certain terminological changes are introduced in subsequent works (desiring-machines become assemblages).

---

[115] Steven Best and Douglas Kellner provide a good example of the kinds of misreadings that result when the assumption that Anti-Oedipus is a Freud-Marx synthesis is used to replace a careful reading of the text. Rather than attempting to follow the meanings that Anti-Oedipus generates, they decide that D&G's "discourse stems from the capitalist factory *model* of repressed and alienated labour" (Best and Kellner:106;*emphasis added*). With a stable referent in place, they can assume that D&G are simply reproducing the model; D&G's discourse becomes a mirror of productionism. Following this logic, Best and Kellner mistakenly conclude that "Deleuze and Guattari have uncritically assimilated the modernist ethos of incessant self-transformation[...]. Their positions are the theoretical and ethical equivalent of a futurist painting" (Best and Kellner:106). (See D&G,1977b:134 where they discuss futurism as a negative model, that is, as an example of precisely what they are *not* doing). Norman O. Brown, a much more astute reader, (and also a more sympathetic one) still refers to Anti-Oedipus as: "that last ambitious fling at a Marx-Freud synthesis" (Brown:135).

Reading Anti-Oedipus as a Freudo-Marxism is ill-advised for a number of reasons, some of which were addressed in Chapter 1.2 in relation to monstrosity. Mark Seem also warns that: "While Deleuze and Guattari quote frequently from Marx and Freud, it would be an error to view *Anti-Oedipus* as yet another attempt at a Freud/Marx synthesis. For such an attempt always treats political economy (flows of capital and interest) and the economy of the libido (the flows of desire) as two separate economies, even in the work of Reich, who went as far as possible in this direction. Deleuze and Guattari, on the other hand postulate one and the same economy, the economy of flows. The flows and productions of desire will simply be viewed as the unconscious of the social productions. Behind every investment of time and interest and capital, an investment of desire, and vice versa" (Seem:xviii).

All of this confusion seems rather surprising when we consider the following fact: we can identify two distinct postulates as to the origin of the reductive attitude we are calling productionism. Both derive from the violence of a dualism: the first from the human/nature dualism and the second from the form/matter distinction embedded in the more ancient doctrine of hylomorphism. *Both of the dualisms are explicitly rejected and rendered inoperative within the conceptual fields of Deleuzo-Guattarian production and Harawayian artifactualism.*

The first and by far the most common of the two postulates on the origin of productionism, argues that productionism is the very direct result of an anthropocentric human/nature dualism which posits the human as subject, nature as object, and objectification of the latter by the former as the principle of interaction. Nature is placed at the disposal of the human will; a means to human ends.[116]

This is the position adopted by Baudrillard in his critique of Marxist productionism, The Mirror of Production. While productionism is only "fully realized by the capitalist system of political economy" (Baudrillard, 1975:63), according to Baudrillard, the deadly human/nature dualism which founds productionism,

> is rooted in the great Judeo-Christian dissociation of the soul and Nature. God created man in his *image* and created Nature for man's

[116] For an historical investigation of the development of the theme of the domination of nature, see William Liess' The Domination of Nature and Carolyn Merchant's The Death of Nature.

use[117]....

> Rationality begins here. It is the end of paganism, animism and the "magical" immersion of man in nature, all of which is reinterpreted as superstition.... Hence although science, technology, and material production subsequently enter into contradiction with the cultural order and the dogmas of Christianity, nonetheless their condition of possibility remains the Christian postulate of man's transcendence of nature. This is why a scientific movement does not emerge in Greece. Greek rationality distinguished from the Christian rationality and "freedom" based on the separation of man and nature and on the domination of nature (Baudrillard,1975:63-4).

In grounding this dualism in the Judeo-Christian tradition, Baudrillard is following the position put forth by the medievalist and historian of technology Lynn Whyte in his famous essay, "The Historical Roots of our Ecological Crisis". In 1966 Whyte argued that the devastation wreaked on the natural environment by modern science and technology "cannot be understood historically apart from distinctive attitudes toward nature which are deeply grounded in Christian dogma" (Whyte, quoted in Leiss,1972:29). Alexandre Kojève had suggested two years earlier that "Christianity prepared the "ontological" ground for modern science" (Leiss,1972:30). And William Leiss concluded in his review of this material that "science conceived as the winning of mastery over nature seemed to be the natural fulfilment of the Biblical promise that man should be lord of the earth"

---

[117] The words *image* and *use* are italicized by Baudrillard in the original to emphasize the relationship which he insists upon between production and representation: "The discourse of production and the discourse of representation are the mirror by which the system of political economy comes to be reflected in the imaginary and reproduced there as the determinant instance" (Baudrillard,1975:20). That productionism does indeed operate by the representational logic of identity marks one of its essential differences from artifactualism and Deleuzian production. As Haraway writes: "Artifactualism is askew of productionism; the rays from my optical device diffract rather than reflect" (Haraway,1992a:299). Difference, not identity, is produced.

(Leiss,1972:31).

This view however is not without its qualifications or even contradictions. Baudrillard was obliged to acknowledge that productionism tended to contradict the cultural order of Christianity, and similarly Leiss notes the fact that "Christian doctrine sought to restrain man's earthly ambitions by holding him accountable for his conduct to a higher authority" (Leiss,1972:34). Furthermore Baudrillard notes that efforts within the Judeo-Christian tradition to achieve the transcendence of humans from the rest of nature were,

> repeatedly intersected by contradictory, heretical currents, which in their protest were always attached to "naturalism": a rehabilitation of nature, a beyond of Christianity most often expressed only by a nostalgia for the origins of Christianity. From St. Francis of Assisi with his Christ-like angelicism (all creatures praise God, etc.)...to Spinoza[118] with his subtle and impious pantheism (God is everywhere in Nature, thus he is nowhere) and all the Adamite sects that preached the refusal of labor and the resurrection of the body, and dreamt of abolishing the very finality of the Christian order (its principle of transcendence and sublimation) in their immediate demand for the end of the whole world and for "Paradise now" (Baudrillard,1975:64-5).

Hannah Arendt has been an important voice lending credence to the argument against the Judeo-Christian origins of the domination of nature.[119] In her opinion,

---

[118] It is extremely important to note that Spinoza, whom as we know is one of principle sources of the Deleuzian notion of production, is here associated by Baudrillard with the "beyond of Christianity" which runs counter to its mainstream productionist trajectory: "This is what Spinoza calls Nature: a life no longer lived on the basis of needs, in terms of means and ends [the terms of "productionism"], but according to a production, a productivity, a potency, in terms of causes and effects" (Deleuze,1988b:3).

[119] Arendt's rejection of the Judeo-Christian roots of the human/nature dualism occurred some eight years before White formulated his thesis. In the aftermath of the publication of White's essay, a heated debate ensued concerning the tenability of it's thesis. The literature comprising this controversy is expansive if repetitive and redundant

"the notion of man as lord of the earth is characteristic of the modern age" and is in fact "in contradiction to the spirit of the Bible" (Arendt:342).

> According to the Old Testament, man is the master of all living creatures (Gen. 1), which were created to help him (2:19). But nowhere is he made the lord and master of the earth; on the contrary, he was put into the garden of Eden to serve and preserve it (2:15). It is interesting to note that Luther, consciously rejecting the scholastic compromise with Greek and Latin antiquity, tries to eliminate from human work and labor all elements of production and making. Human labor according to him is only "finding" the treasures God has put into the earth. Following the Old Testament, he stresses the utter dependence of man upon the earth, not his mastery (Arendt:342).

The attitude towards nature characteristic of productionism is in Hannah Arendt's opinion the attitude of the decidedly modern figure of *homo faber.*[120]

> Nature seen through the eyes of the *animal laborans* is the great

---

and it has, to the present day, achieved no clear consensus. For a recent appraisal of the controversy, see Elspeth Whitney, 1993. The controversy parallels in many respects the controversy surrounding Weber's The Protestant Ethic and the Spirit of Capitalism. On the Weber controversy see Giddens, 1976:8-12. Weber's essay was after all a principle stimulus behind White's complementary project. See White's later reflections on his thesis in White, 1973:55. One of the most frustrating stumbling blocks within the controversy results from the fact that so many of White's critics mounted textual arguments drawn from scripture while Whites argument was not based on such evidence and he even argued against the trustworthiness of such evidence as a methodological principle for the medievalist.

[120] On the birth of *homo faber* Arendt writes, "I have been unable to ascertain when and where the expression *homo faber*, certainly of modern, postmedieval origin, first appeared. Jean Leclercq ("*Vers la société basée sur le travail*," *Revue du travail*, Vol. LI, No.3 [March, 1950]) suggests that only Bergson "Threw the concept of *homo faber* into the circulation of ideas"' (Arendt:341). The term however has many vernacular precedents, notably Benjamin Franklin's definition of "man" as a "tool-making animal". Marx writes, "The use and fabrication of instruments of labour, although existing in the germ among certain species of animals is specifically characteristic of human labour-process, and Franklin therefore defines man as a tool-making animal" (Marx,1967:175). See also Arendt:139-140 on Marx's evaluation of Franklin's definition as characteristically "modern".

> provider of all "good things," which belong equally to all her children, who "take [them] out of [her] hands" and "mix with" them in labor and consumption. The same nature seen through the eyes of *homo faber*, the builder of the world, "furnishes only the almost worthless materials as in themselves," whose whole value lies in the work performed upon them (Arendt:116).[121]

In distinction to both of these periodizations, we can take note of a second thesis on the origin of productionism which traces its roots back to the doctrine of hylomorphism. Martin Heidegger, the most notable exponent of this position, insists that the principle of productionism needs to be traced all the way back to Greek metaphysics, to the form/matter distinction in Aristotle's doctrine of hylomorphism, or back even further to the "proto-hylomorphism" of Plato's "forms".[122] The logic of this argument is identical in all its essential features to the one grounded on the human/nature dualism to the extent that the human/nature dualism is fundamentally a recapitulation of hylomorphism; a variation on the dialectical theme of active versus passive, agent versus patient, doer versus done-to.

In Heidegger's view, the modern technological era was, in a very real sense, prefigured within Greek ontology, which founds what Heidegger calls "productionist metaphysics."

> The metaphysical schemes of Plato and Aristotle, Heidegger argued, were based on the view that the structure of all things is akin to the

---

[121] The internal quotations are attributed to Locke. See Arendt:341, note #86,87.

[122] "Although the doctrine of hylomorphism is specifically derived from Aristotle; the account of the creation given in Plato's Timaeus is essentially hylomorphic in that it supposes a "formless material" and an original model" (Welchman:1). Hylomorphism, as I use the term here, refers to any form/matter distinction and not specifically to Aristotle.

> structure of products or artifacts. Aristotle's metaphysics, for example, is "productionist" insofar as he conceived of all things, including animals, as "formed matter." The most obvious example of such "formed matter" is the work produced by an artisan who gives form to material. Plato and Aristotle seemingly projected onto all entities the structure of artifacts (Zimmerman:157).

While the groundwork of productionism had been laid within Greek society, the Greeks themselves, according to Heidegger, "did not "objectify" things because the Greeks were not yet "subjects"'"[123] (Zimmerman:157). There are a number of points to be made in relation to hylomorphism (we shall return to these at the end of this chapter), but we shall set these aside for the moment to look briefly at productionism as it manifests itself within the writing of Marx.

4.2 Productionism in Marxist Ontology

> Productionism and its corollary, humanism, come down to the story line that "man makes everything, including himself, out of the world that can only be resource and potency to his project and active agency." This productionism is about man the tool-maker and -user, whose highest technical production is himself; i.e., the story line of phallogocentrism. He gains access to this wondrous technology with a subject-constituting, self-deferring, and self-splitting entry into language, light, and law. Blinded by the sun, in thrall to the father, reproduced in the sacred image of the same, his reward is that he is self-born, an autotelic copy. That is the mythos of enlightenment transcendence (Haraway,1992a:297-298).

According to the perspective of classical Marxism, the human is an *animal laborans*. This is meant to imply, as Herbert Marcuse has suggested, that "labor is

---

[123] Hubert Dreyfus notes that "In his reflections on Nietzsche, Heidegger singles out the subject/object distinction as the philosophical development which makes possible modern technology" (Dreyfus:173).

an ontological concept of human existence as such" (quoted in Baudrillard,1975:34). It is only through labour that being is sustained.

> So far [...] as labor is a creator of use-value, is useful labor, it is a necessary condition, independent of all forms of society, for the existence of the human race; it is an external nature-imposed necessity, without which there can be no material exchanges between man and nature, and therefore no life" (Marx, quoted in Baudrillard,1975:34).

To the extent that Marx declares all labor to be productive (regardless of whether a durable object (product) results), life itself appears as the first production;[124] as the prerequisite to all secondary productions (ie. commodity production). First, and at every moment, life calls out to be "*reproduced*" (sustained). We can say, then, that Marx marks a theoretical apogee within the ideology of humanism. Here, I use the term "humanism" to refer to a "philosophy which places humanity at the center, displacing God, nature, and all other deities" (Evernden:31). In other words, humanism, as an historical formation, refers to the philosophical reign of its preferred subject, the "human", which we have already discussed in an earlier chapter.[125] Neil Evernden has commented that:

> By dictionary definition, [humanism] is "devotion to human interests; system concerned with human (not divine) interests, or with the human race (not the individual); Religion of Humanity." Others elaborate slightly: "Humanism is also any philosophy which recognizes the value or dignity of man and makes him the measure of all things or somehow takes human nature, its limits, or its interests as its theme." Most

---

[124] "The first historical act is thus the production of [...] material life itself. And indeed this is an historical act, a fundamental condition of all history, which today, as thousands of years ago, must daily and hourly be fulfilled merely in order to sustain human life" (Marx, quoted in Baudrillard,1975:21).

[125] See Note #35 in Chapter 1.2.

> members of contemporary society would find themselves in sympathy with at least some of these themes, and indeed may take them entirely for granted. Unfortunately, the near-obsession with humanity alone makes the genuine valuing of the nonhuman next to impossible. "Human progress" becomes the sole legitimating principle (Evernden:31-32).

Nowhere is Marx's androcentric humanism manifested so fully as in the concept of nature as the "inorganic body" of the human, an observation which, for Marx, highlighted "the naturalism of man and the humanism of nature"[126] (Marx and Engels:85).

> The universality of man is in practice manifested precisely in the universality which makes all nature his *inorganic* body -- both inasmuch as nature is (1) his direct means of life, and (2) the material, the object, and the instrument of his life-activity. Nature is man's *inorganic body* -- nature, that is, in so far as it is not itself the human body. Man *lives* on nature -- means that nature is his *body*, with which he must remain in continuous intercourse if he is not to die. That man's physical and spiritual life is linked to nature means simply that nature is linked to itself, for man is a part of nature (Marx and Engels:75).

Or again, thirteen years later, Marx writes:

> What M. Proudhon calls the extra-economic origin of property, by which he understands just landed property, is the pre-bourgeois relation of the individual to the objective conditions of labour, and initially to the natural objective conditions of labour -- for, just as the working subject appears naturally as an individual, as natural being -- so does the first objective condition of his labour appear as nature, earth, as his inorganic body; he himself is not only the organic body, but also the subject of this inorganic nature. This condition is not his product but something he finds to hand -- presupposed to him as a natural being apart from him (quoted in Lyotard:131).

Lyotard notes that the inorganic body is named thusly only in order to

---

[126] Baudrillard refers to this move more properly as "the naturalization of man and the humanization of nature" (Baudrillard, 1975:35).

distinguish it from the organic body of the worker. But in fact "it is a body organically bound up with the organic body" (Lyotard:132). Together they compose one and the same super-organism: humanized nature. Or at least this super-organism, this ideal of *organic unity*, acts as a limit or attractor state around which Marxist theory orbits. And not only Marxist theory -- C.S. Lewis identified the same phenomenon when he referred to "that great movement of internalisation, and that consequent aggrandizement of man and desiccation of the outer universe, in which the psychological history of the West has so largely consisted" (quoted in Evernden:35).

But within Marxism, we find other concepts emanating from the principle of organic unity. In particular, we are reminded of his definition of labour as "the eternal necessity to effect the metabolism between man and nature" (Arendt:330). Arendt has noted that "when Marx speaks as he frequently does of the "life process of society," he is not thinking in metaphors" (Arendt:330). It is in the context of an ontology rooted in organic unity which situates the human in the position of the "organ of power" that these physiological descriptions are literalized.

The strong and foregrounded presence of organic unity in Marx gives added coherence to his rendering of the organic extension thesis. That the thesis comprises a principle of unity is made particularly evident when it is viewed in relation to these other unifying metaphors. Thus we may note a preliminary categorical distinction between productionism on the one hand, and artifactualism and other constitutive ontologies on the other: productionism operates according to a model of unity and identity; it is a question of giving form to matter. Artifactualism and constitutive

ontologies produce difference, not identity. But by difference it must be understood that we mean positive difference not negative relational difference. We need to arrive, as Deleuze used to say, at a concept of difference which is not merely conceptual difference -- difference in itself (or "self-difference" as Haraway says) rather than the relational difference of the one and the other.[127]

A final point in relation to Marxist ontology: Lyotard draws our attention to the significant fact that in the Marxist formulation, the inorganic body of nature, like the organic body itself, "is *given* and not produced" (Lyotard:132). In other words, Marxist ontology is not at all constitutive.[128]

---

[127] For feminist contributions to a positive notion of difference, see Trinh Mihn-ha:79-116; and de Lauretis:1-30. Rosi Braidotti often uses the term "positive difference" but in what I take to be a mistaken fashion. She continues to operate with a notion of conceptual difference and "positive" is appended to this concept as a valuation: "good" difference (see for example, Braidotti,1988:157;159). Positive as I use it here does not denote a value judgement but rather it designates the positivity of a term which is not negatively determined or dialectically defined. See Deleuze's discussion of difference-in-itself in Deleuze,1968:43-95.

[128] We will expand upon this point in the final section of this chapter in light of the work of Gilbert Simondon.

4.3 Baudrillard's critique of D&G's production

> Far from transcending political economy, Marxism, to Baudrillard, strengthens and extends its most basic propositions. Man is conceptualized as a producing animal just as in political economy, except that Marx wants to liberate his productive potential. This still leaves us with a metaphor or "mirror" of production through which alone every aspect of social activity is intelligible. And so contemporary French theorists remain trapped in this conceptual cage: Althusser sees theory as a "production," Deleuze and Guattari give us an unconscious that is a "producer" of desire [...]" (Poster:3).

Evaluating the substance of Baudrillard's charge that D&G reproduce the "mirror of production" through their notion of desiring-production might easily become an involved task. We might be led to evaluate not only his critique of production in D&G and other contemporary French theorists, but also his own theoretical elaborations which are premised upon this critique (i.e., the theory of seducation). However here we are concerned only with clarifying D&G's notion of production, and not with commenting on Baudrillard's writing as a whole.

With the publication of The Mirror of Production in 1973, the critique begins with a series of cursory remarks aimed at assimilating D&G to the real subject of Baudrillard's critique, Marxist productionism. But the critique becomes a recurring theme, playing a central role in many of Baudrillard's later theoretical developments (most notably the theory of seduction) and receiving its fullest statement in Forget Foucault.

As we have seen, Baudrillard's critique of productionism, particularly in The Mirror of Production, is premised on the illegitimacy of the human/nature dichotomy. This is only one of the points of confluence between Baudrillard's critique and the

critique of the ontology of mastery put forward in Chapter 2 of this thesis. For example, he also develops a critique of the humanist notion of liberation as well as a critique of the category of necessity which are, at least in part, compatible with what has been said in Chapter 2.[129] This returns us to the central question: in light of D&G's rejection of the human/nature dualism and their critique of the doctrine of hylomorphism, on what can Baudrillard base his claim that they reproduce the mirror of production?

For the most part, Baudrillard relies on imprecise terminology and word play to blur Deleuzian production into Marxist productionism. This is underpinned apparently by a belief that production can mean only one thing and thus at a fundamental level the terms must be identical. If this identity cannot be based upon a human/nature or form/matter dualism, Baudrillard needs to find another common denominator capable of bridging their differences and bringing them back to the same. In Forget Foucault therefore he argues as follows:

> From one discourse to the other [i.e., from Marx to Deleuze or Foucault] -- since it really is a question of discourse -- there runs the same ultimatum of *pro-duction* in the literal sense of the word. The original sense of "production" is not in fact that of material manufacture; rather, it means to render visible, to cause to appear and be made to appear: *pro-ducere*. Sex is produced as one produces a document, or as an actor is said to appear (*se produire*) on stage. To produce is to force what belongs to another order (that of secrecy and seduction) to materialize. *Seduction* is that which is everywhere and always opposed to *production*; seduction withdraws something from the visible order and so runs counter to production, whose project is to set everything up in clear view, whether it be an object, a number, or a

---

[129] On the critique of liberation, see Baudrillard,1975:21-22; and Baudrillard,1987:26-27. On the critique of necessity, see Baudrillard,1975:58-59.

> concept. Let everything be produced, be read, become real, visible, and marked with the sign of effectiveness; let everything be transcribed into force relations, into conceptual systems or into calculable energy; let everything be said, gathered, indexed and registered: this is how sex appears in pornography, but this is more generally the project of our whole culture, whose natural condition is "obscenity" (Baudrillard,1987:21-22).

But here Baudrillard's argument is simply counterfactual: "to render visible" is not at all the original or literal meaning of production: *pro-ducere* (*pro*-forward + *ducere*-to lead) and neither does this sense of the term underpin all discourses of production. Certainly the literal sense is more closely reflected in: *to give birth to; to give rise to; to give being to*[130] -- in other words, to lead into existence or to actualize.

We cannot allow the notions of "to actualize" and "to make appear" or "render visible" to become entangled or confused. Production as a rendering visible, as an "obscene" compulsion does indeed bear an affiliation to productionism to the extent that it embodies a force of subjectification: to "render visible" has already implied an observer and a dichotomy between spectator and spectacle. In other words, this sense of production is in no way originary, and was, in fact, itself *produced*. Nothing of this sense survives in the positive constitutive sense of production which we find in D&G. As Massumi has very bluntly stated: "By production [D&G] mean the process of becoming" (Massumi,1992:192).

According to Baudrillard, there is no production outside of productionism or outside of humanism. Thus he finds that, today,

---

[130] Any dictionary will confirm that "to render visible" is simply one sense among many (in no way privileged or originary). Historical etymology generally dates this sense to the last quarter of the 16th Century.

> we are at the end of production. Production coincides, in the West, with the formulation of the commodity law of value, that is with the reign of political economy. Before that nothing was *produced*, strictly speaking: everything was *deduced*, from grace (of God), or beneficence (of nature) of an agency that offered or refused its wealth.[...] If there is a law here, it is, in contrast to the law of the market, a *natural* law of value (Baudrillard,1988:128-129).

Baudrillard sees production as the *product* of political economy. D&G insist, however, that this is getting things backward. Capitalist production is merely a special type of production[131]. But Baudrillard can see no production beyond humanist production: production begins with the end of the God-form, it is contemporaneous with the Man-form, and it passes with it.

Nothing could be further from the Deleuzian notion of production. We will never understand Deleuzian production if we remain in a humanist framework. Rather we should see Spinoza and Nietzsche as the two great producer/products. Together they demonstrate that production exceeds humanism on all sides. As Robert Hurley has argued, "Spinoza is prior to [the Man] form and Nietzsche sees beyond it.[132] What they share[...] is a philosophy of forces or powers that compose [produce] such forms" (Hurley:i). In both an historical and a conceptual sense then, Spinoza and Nietzsche (and the sense of production derived from them) mark the beyond of the human.

---

[131] See also Lyotard's critique of Baudrillard and his insistence that political economy is a libidinal economy. In Lyotard,1993:104-135.

[132] "As we know, Nietzsche is associated with the death of [God], but Deleuze points out that, after Feuerbach, the death of God could be taken for granted, and Nietzsche was more concerned with the death of His successor, Man" (Hurley:i).

We find the same problem with Baudrillard's notion of liberation. Again he sees nothing beyond the humanist concept. Thus he insists that:

> Any form of liberation is fomented by repression: the liberation of productive forces is like that of desire; the liberation of bodies is like that of women's liberation, etc. There is no exception to the logic of liberation: any force or any liberated form of speech constitutes one more turn in the spiral of power [*pouvoir*] (Baudrillard,1987:26).

So we understand that by "forms of liberation" Baudrillard means liberation of x, y, or z, and not variations in terms of what liberation means or involves. The latter apparently admits no variation but falls under the inexorable "logic of liberation." In Chapter 2 we investigated a notion of liberation which has nothing to do with that logic. In Chapter 1 we introduced the distinction between *puissance/pouvoir* (*potentia/potestas*) to differentiate between a constitutive force and an organizational power; between a force of production and the structuring of relations of productionism.

But the concept of *puissance*, like that of the virtual (as a plane of immanence) and of actualization simply don't exist in Baudrillard. He scoffs at the heavy architecture of these "*force*/notions" (Baudrillard,1987:39): "What bothers me about desire is the idea of an energy at the source of all these fluxes.[...] Things make events all by themselves, without any mediation, by a sort of instant communication" (Baudrillard,1987:74-75).

But all of these notions in Deleuze manifest a relationship to the "outside." This is as much as to say that in Baudrillard, *there is no outside*, and thus lines of

escape are pointless.[133] In Deleuze, we need to see production immediately as a principle of exteriority. Organized production (ie. capitalist production) will generate forces of interiority, but interiority is always the effect of an infolding of the outside.[134] In Baudrillard, by contrast, there is only "the code" as a vast interior.

Baudrillardian cynicism is renowned -- revered by some, reviled by others. In my opinion his cynicism is merely a symptom of a sickness which I am uncertain whether to call claustrophobia or claustrophilia. Claustrophobia is certainly what I experience inside his books. Today, in the absence of a sense of the outside, Baudrillard is the great theorist of all or nothing:

> Both linear and dialectical causality no longer function, therefore everything is indetermination. The center of meaning is empty, therefore we are satellites in lost orbit. We can no longer act like legislator-subjects or be passive like slaves, therefore we are sponges. Images are no longer anchored by representation, therefore signifiers slip chaotically over each other. A circuit has been created between the real and the imaginary, therefore reality has imploded into undecidable proximity of hyperreality. All of these statements make sense only if it is assumed that the only conceivable alternative to representative order is absolute indetermination, whereas indetermination as he speaks of it is in fact only the flipside of order, as necessary to it as the fake copy is to the model, and every bit as much a part of its system (Massumi,1987a:95-96).

But these are not our only options. We may not know what these other options are, but that is because they don't preexist. Like Haraway's "elsewhere" they must be *produced.*

---

[133] Massumi has said of Baudrillardian "hyperspace" that it is "eccentric but not exorbital. He fails to go off on a tangent" (Massumi,1992:179).

[134] On the inside as a fold of the outside. See Deleuze,1993; and Deleuze,1988a:94-123.

4.4 Let it Be (or the Suppression of Becoming)

> It is no longer a question of "being" oneself but of "producing" oneself[135] (Baudrillard,1975:19).

> When the living being is considered as an individual, there are two ways in which it can be conceived. There is the substantialist viewpoint, which conceives the unity of living being as its essence, a unity that it has provided for itself, is based on itself and is created by itself; a unity that will vigorously resist anything that is not itself. There is also the hylomorphic viewpoint, which regards the individual as having been created from the conjunction of a form and some matter. If we compare these two approaches, we can see there is a clear opposition between the self-centred monism of substantialist metaphysics and the bipolarity depicted by hylomorphism. But despite this opposition, these two ways of analysing the real nature of the individual have something in common: in both cases, there is the assumption that we can discover a principle of individuation, exercising its influence before the actual individuation itself has occurred[...].
>
> The conception of being that I put forth, then, is the following:[...] Individuation must be grasped as the becoming of the being and not as a model of the being which would exhaust its signification. The individuated being is neither the whole being nor the primary being. *Instead of grasping individuation using the individuated being as a starting point, we must grasp the individuated being from the viewpoint of individuation, and individuation from the viewpoint of preindividuated being,* each operating at many different orders of magnitude (Simondon:297-311).

Baudrillard is not ignorant of the fact that in condemning D&G's production he is condemning becoming, but this simply means that "becoming" too must be nothing more than another productionist compulsion ('before political economy there was no becoming'). Thus Arthur Kroker was recently driven to remark: "what is the

---

[135] In context, Baudrillard is mocking those who are no longer simply content to *be.*

romantic mysticism of "becoming" but a retelling, this time in the language of emancipation not domination, of the story of the scientific imagination" (Kroker,1992:115-116).

If we want to answer Kroker's question, we need to know what exactly he means by "the story of the scientific imagination." It is safe to assume that he is referring to the Enlightenment imagination, the modern spirit of humanist science which has been the driving force of productionism. In this case, I would insist that becoming, in fact, has little or nothing to do with a "scientific imagination" thusly defined.

What then, is becoming?: it is the generation of positive difference; it is Bergsonian duration: the flux of time freed from the abstraction of conceptual (representational) thought; it is simultaneously a rejection of a world of stable and eternal essences and a rejection of a world ruled by productionism (hylomorphism), both of which are revealed as twin tropes of foundationalist metaphysics. Simondon helps to clarify things when he stresses the importance of understanding that "becoming is a dimension of the being, not something that happens to it following a succession of events that affect a being already and originally given and substantial" (Simondon:311).

Productionism belongs to the Enlightenment *project*. It is itself a *project* in the Sartrean sense: it "is expressed by action in light of a future end" (Sartre:806). The project of Enlightenment presupposes a subject (the human) and an object/objective (enlightenment). By contrast, a becoming is never a *project*, but a

process (the Enlightenment project versus the production process[136]).

In making such a claim about the "scientific imagination" Kroker misrepresents not only what science *has been* but equally well, what it *might be*, for we might well pursue a "science of becomings." Sandra Harding has spoken of the desire to transform scientific practice in the pursuit of what she has called a "successor science,"[137] a title which emphasizes a temporal break, marking a new moment when science would no longer be the functionary of Enlightenment ideology. D&G share this desire in broad terms although they would not support the temporal disjunction or the finality implied in the notion of a successor science. Royal science or State science, as they call the model of dominant science, predates the Enlightenment project and we should not expect it to disappear with the failure of the Enlightenment. But Michel Serres has found something very different also predating the Enlightenment:

> There is a kind of science, or treatment of science, that seems very difficult to classify, whose history is even difficult to follow. What we are referring to are not "technologies" in the usual sense of the term. But neither are they "sciences" in the royal or legal sense established by history. According to a recent book by Michel Serres[138], both the

---

[136] On becomings, see D&G,1987:233-309. On production (or becoming) as a process, see D&G,1977a:3-5. The use of *project* also resonates with the sense of the term in "organic projection" or psychoanalytic projection, as it will be discussed in the next chapter. We must be careful not to confuse this sense of projection with the very different way D&G use it in A Thousand Plateaus, wherein projection takes on the meaning of a trajectory, a pure movement (eg. of the war machine), and in this sense, is indeed a property of becoming.

[137] See the discussion of Harding in Haraway,1991a:183-201.

[138] Michel Serres, *La naissance de la physique dans le texte de Lucrèce: Fleuves et turbulences*. Paris: Minuit,1977.

> atomic physics of Democritus and Lucretius and the geometry of Archimedes are marked by it (D&G,1987:361).

The model in question, that of "nomad science" or "minor science" as D&G call it, "is one of becoming and heterogeneity, as opposed to the stable, the eternal, the identical, the constant[139]" (D&G,1987:361). It is distinct from Royal science in precisely the same way artifactualism is distinct from productionism, that is, through an opposition to hylomorphism. D&G take much, in their critique of hylomorphism, from the work of Gilbert Simondon. "To the form-matter schema," they note, "Simondon opposes a dynamic schema, that of matter endowed with singularities - forces, or the energetic conditions at the basis of a system" (D&G,1987:555). Simondon has profitably investigated the significance of this change of focus in relation to modes of individuation.

In Simondon's view, becoming manifests a mode of individuation which is not at all that of the standard scientific imagination. It expresses a mode of being which is dynamic and productive but which must be strongly contrasted with the mode of productionism.[140] As Simondon describes,

---

[139] Although they note that: "It is a "paradox" to make becoming itself a model" (D&G,1987:361). For a full discussion of nomad science and Royal science, see D&G,1987:361-374. In a related manner, Haraway has suggested that, "Splitting, not being, is the privileged image for feminist epistemology of scientific knowledge. "Splitting" in this context should be about heterogeneous multiplicities that are simultaneously salient and incapable of being squashed into isomorphic slots or cumulative lists (Haraway,1991c:22).

[140] "In the living being, *individuation is brought about by the individual itself*, and is not simply a functioning object that results from an individuation previously accomplished, comparable to the product of a manufacturing process" (Simondon:305).

> individuation is no longer produced, as in the physical domain, in an instantaneous fashion, quantumlike, abrupt and definitive, leaving in its wake a duality of milieu and individual -- the milieu having been deprived of the individual it no longer is, and the individual no longer possessing the wider dimension of the milieu. It is no doubt true that such a view of individuation is valid for the living being when it is considered as an absolute origin, but it is matched by a perpetual individuation that is life itself following the fundamental mode of becoming: *the living being conserves in itself an activity of permanent individuation.* It is not only the result of individuation[...]but is a veritable theater of individuation'' (Simondon:304-305).

For Simondon, individuation is becoming; individuation is differentiation (the production of difference); individuation is constitutive process. This view is framed as a simultaneous rejection of substatialist metaphysics and hylomorphism. Nature as artifactualism in Haraway, or nature as a process of production in Spinoza/Deleuze therefore cannot mean: nature as a factory of human productionism. Rather it means: nature as a theatre of becoming.

Furthermore, it must be strongly emphasized that while a constitutive ontology ceases to interpret stable ''objects'' and ''things'' as the be all and end all, it is not a flight into transcendence as Kroker charges.[141] It is precisely the opposite. It

---

[141] Kroker argues that becoming and the whole structure of the virtual in D&G manifests a flight from the *cold inertial facts of materiality*. He is making the flippant and rather improbable argument (considering what we have so far seen) that, while D&G and Spinoza might talk a good line, they are still motivated by sad passions: ''The impossible dream, that is, of escaping mortality, of evading the senescence of the body, by the construction of a virtual world: a world of ''haecceities'' -- pure relational affects -- governed by the monism of *becoming*. And not a happy dream either, but one which is motivated, as Nietzsche knew, by vicious *ressentiment* over the failure of the bodily organs to achieve immortality'' (Kroker,1992:116). But Kroker's mistakes are obvious: 1) the BwO is not without corporeality; 2) the virtual is not an escape from material existence, it is a dimension of materiality; 3) materiality is not reducible to inertial death, and arguing otherwise is not reducible to romantic mysticism. To be fair, we might note that other influential critics have (mistakenly) read the BwO as an escape from

rejects the transcendences of substantialist metaphysics and hylomorphism (or in Haraway's terminology: transcendental naturalism and productionism), and insists instead that *matter is an event.* Becoming isn't something that *happens to* matter. Becoming is fully a dimension of matter itself: matter-flow. As Deleuze explains in relation to Bergson's philosophy: "Duration is only the most contracted degree of matter, matter the most expanded (*détendu*) degree of duration. But duration is like a naturing nature (*nature naturante*), and matter a natured nature (*nature naturée*) (Deleuze, 1991a:93).

This ontological shift is necessitated by the reductive character of hylomorphism. "Simondon demonstrates that the *hylomorphic* model leaves many things, active and affective, by the wayside" (D&G, 1987:408). Donna Haraway introduces her theory of artifactualism precisely in an effort to become accountable to the plethora of active and affective characters whom productionism silences. Artifactualism attempts to refigure agency in a manner which avoids the simplifications of the active/passive split; which resists hasty designations of agents and patients. Her work is often discussed in relation to a commitment to "social constructionism" but this description can stand only if the notion of the "social" (or the "collective") is transformed and dramatically broadened:

> The "collective," of which "nature" in any form is one example from my point of view, is always an artifact, always social, not because of some transcendental Social that explains science or vice versa, but because of its heterogeneous actants/actors. Not only are not all of

---

materiality. For example, Gayatri Spivak writes of the BwO: "I have not yet been able to read this as anything but a last-ditch metaphysical longing (Spivak:155).

> those actors/actants people; I agree there *is* a sociology of machines. But that is not enough; not all of the other actors/actants were *built* by people. The artifactual "collective" includes a witty actor that I have sometimes called coyote.[...] The artifactual "collective" must include those between humans and artifacts in the form of instruments and machines, a genuinely *social* landscape. But the interface between machines and *other* non-humans, as well as the interface between humans and *non-machine* non-humans must also be counted in.[...] None of these actants can be considered as simply resource, ground, matrix, object, material, instrument, frozen labor, they are all more unsettling than that (Haraway,1992a:332).

In a revealing conclusion to her description of artifactualism as the constitutive practice of the "collective" made up of heterogeneous agents that span the whole of nature/coyote, she arrives at the following: "Perhaps my suggestions here come down to re-inventing an old option within a non-Eurocentric Western tradition indebted to Egyptian Hermeticism that insists on the active quality of the world and on "animate" matter (Haraway,1992a:332). This, it must be acknowledged, is the bottom line of any constitutive ontology. Deleuze has been unflinching in his commitment to a fundamental "vitalism" of sorts, although here we must invoke the distinction we introduced in Chapter 3 between philosophical and biological vitalism, and distance the Deleuzian notion from the latter (which, we will recall is teleological, attributes a vital force only to organized individuals, and is associated with the organic extension thesis). In Deleuze, the vital principle shares more with a non-personal, non-teleological Bergsonian *élan vital* or Nietzschean will to power. In D&G, "desire" is an embodiment of this kind of vital force. There is nothing particularly mystical in this notion. It is the flow of nature and it implies a particular conception of matter: *Hyle* as matter-flow rather than as inert matter awaiting the

transformative force of a transcendent subject.[142] Revisioning nature and production in the absence of hylomorphic and substantialist assumptions comes down to a revisioning of matter[143]:

> On the one hand, to the formed or formable matter we must add an entire energetic materiality in movement, carrying *singularities or haecceities* that are already like implicit forms that are topological, rather than geometrical, and that combine with processes of deformation: for example, the variable undulations and torsions of the fibers guiding the operation of splitting wood. On the other hand, to the essential properties of the matter deriving from the formal essence we must add *variable intensive affects*, now resulting from the operation, now on the contrary making it possible: for example, wood that is more or less porous, more or less elastic and resistant. At any rate, it is a question of surrendering to the wood, then following where it leads by connecting operations to a materiality, instead of imposing a form upon a matter (D&G,1987:408).

We will turn now, in the final chapter, to the problem of projection, which we will see corresponds to the hylomorphic schema: it is an attempt to impose the form of identity on a matter preceived as chaotic and potentially threatening.

---

[142] Deleuze has likewise insisted that a similar notion lies at the heart of Foucault's thought: "When power becomes bio-power resistance becomes the power of life, a vital power that cannot be confined within species, environment or the paths of a particular diagram. Is not the force that comes from outside a certain idea of Life, a certain vitalism, in which Foucault's thought culminates" (Deleuze,1988a:92-93).

[143] In Deleuze, this notion of materiality is co-implicated with a particular conception of causality (derived, according to Michael Hardt, from Scholastic philosophy); a rejection of external causes in favour of an internal "efficient" cause. See Hardt's helpful discussion in Hardt,1993:5-22.

CHAPTER V

5.1 Projection and Civilization

> There are the elements, which seem to mock at all human control: the earth, which quakes and is torn apart and buries all human life and its works; water, which deluges and drowns everything in a turmoil; storms, which blow everything before them; there are diseases, which we have only recently recognized as attacks by other organisms; and finally there is the painful riddle of death, against which no medicine has yet been found, nor probably will be. With these forces nature rises up against us, majestic, cruel and inexorable; she brings to our mind once more our weakness and helplessness, which we thought to escape through the work of civilization (Freud, 1961a:15-16).

> New legislative measures are initiated by the House of Commons, the genes; the House of Lords can then accept or reject what is submitted to it by the House of Commons. Darwin placed the power of Evolution in the Upper House; this is what he called Natural Selection.
>
> In psychoanalysis we see the same thing, that first we have the Id and only then the Ego[...] (Róheim:419).

The psychoanalytic understanding of psychic development or psychic "evolution"[144] is deeply indebted in certain essential features to the Darwinian evolutionary model: not nature, but "reality" red in tooth and claw.[145] The

---

[144] As terms within biology, "development" and "evolution" are not interchangeable. "Development" generally characterizes the growth of an individual organism (ontogeny) whereas "evolution" characterizes species change over many generations (phylogeny). Within our present discussion, however, the terms become interchangeable to the extent that Freud subscribes to the largely discredited principle that *ontogeny recapitulates phylogeny* (more on this below). In (neo-)Darwinian theory, the hostility of the environment plays no role in the development of the individual, which is simply the unfolding of the information enclosed in the genome. With Freud, however, the hostile environment becomes decisive in individual psychic development.

[145] "Nature, red in tooth and claw," the famous fragment from "In Memoriam," a poem by Tennyson has become, within evolutionary theory and elsewhere, the classic expression of the notion of a hostile environment.

Freudian "reality principle" stands as a loose psychological counterpart to Darwinian "natural selection".[146] Both embody the hostile "exigencies of life" (Ritvo:61) which are the stimuli to adaptation and thus the motor of evolution.

> The view of adaptation revealed by Darwin's theory called attention to and emphasized the strife and conflict underlying the seemingly harmonious workings of nature celebrated by poets like Goethe and incorporated into science by pre-Darwinian biologists. Lamarck's evolutionary theory seen as "innate tendency to evolve" and "volition" did not, like Darwin's "struggle for existence," stress conflict. The idea of conflict is omnipresent in Freud's work and remained basic to his thinking throughout his life. Freud found not only that neurotic symptoms are based on pathogenic conflicts but also that conflicts are the essential core of the normal human personality (Ritvo:61).

In accepting the motivating principle of the hostility of the non-self towards the self, Freud paved the way for a further series of analogies between Darwinian "contrivances"[147] and Freudian defence "mechanisms", both of which represent modes of physical or psychological adaptation in the struggle to ensure an organism's fitness for physical and psychical survival. The resonance of "contrivance" and "mechanism" with technique is clear enough. But it is important to note that the use of these terms by Darwin and Freud betrays their particular predisposition towards the status of technology: technologies take up their place at the point of intersection between human and nature. They support the dialectical distinction of human/nature

---

[146] "First there was the Id, and in adjusting to external pressure it becomes Ego. Or, in terms of evolution, first we have variations in the genes and only then Natural Selection, which accepts or selects as the case may be" (Róheim:418).

[147] See Darwin's The Various Contrivances by Which Orchids Are Fertilised. A contrivance refers to an external, extra-corporeal method of environmental adaptation.

and negotiate the synthesis of the two terms into an organic unity.

With Freud's postulation of a "structural theory" in Ego and the Id (1923) the ego emerged as the psychological "organ of adaptation"[148] (Ritvo:60). The psychoanalytic community expressed its faith in the adaptationist paradigm, beginning in the second quarter of the present century, through a swelling interest in the ego's mechanisms of "defence" leading to what became some of the most notable schools of psychoanalysis research ("ego psychology" and "object relations analysis") and some of the most important individual psychoanalysts such as D. W. Winnicott and, of more immediate concern to us here, Melanie Klein and her theories of splitting, projection, introjection, and projective identification.

In psychoanalytic terms, the human phantasmal capacity of projection operates to a certain extent like an intellectual opposable thumb: a psychic attribute seemingly unique to human beings which goes a long way toward explaining our apparent evolutionary advantage. Psychic development proceeds through a series of violent confrontations with reality out of which the ego emerges as "the precipitate of abandoned object cathexes" (Klein quoted in Mitchell:16).

> The human baby is born prematurely. Its instincts are weak - it seems to have only a slight instinctual notion of how to avoid danger or to get satisfaction for its own needs from the outside. It is thus much more helpless and dependent on others for the satisfaction of its vital needs than even those mammals most closely related to human beings. When

---

[148] "It remained for a psychoanalyst of the next generation, Heinz Hartmann (1984-1970), to enunciate in 1939 the extremely fruitful concept of the "conflict-free ego sphere," which by its very designation reveals the prevalence of conflict in Freud's view of the ego and adaptation" (Ritvo:63). See Heinz Hartmann Ego Psychology and the Problem of Adaptation.

> its caretaker (usually - but, more important, prototypically - its mother) satisfies the baby, she is 'at one' with it and hence not felt as separate. When, however, she is felt to fail to satisfy the baby's need, she (or her breast) is experienced as separate from the baby and hence as the first distinct psychological object.[...]
>
> For the prematurely born infant there is a perception of the danger of helplessness and a signal of anxiety. *The ego is formed on this bed of helplessness and anxiety*. But the infant's helplessness relates to its inside as well as to its outside world. The internal needs and wishes, which are the instigators of the problem, themselves come to feel dangerous. Thus the ego which is being constructed has to cope with dangers from two directions: it develops means of avoiding external dangers and of rejecting internal ones that emanate from the id - these means are termed the ego's defences (Mitchell:15-6; emphasis mine).

Defence mechanisms develop as the ego's adaptative survival skills. They are theorized as a necessary response to the very real threat of "annihilation" and "disintegration" not of the organic body, but of the evolving ego.[149] Without such mechanisms, psychic evolution would be snuffed out or it would never really begin. As a specialized adaptation of a naturally limited or deficient "organ," defence mechanisms are tools enabling the infant to transform the world through phantasy in a manner which is analogous to and a substitute for the way mature human beings transform their relationship to nature through technology in order to make it more habitable; more conducive to human survival. Phantasy can thus be seen as a "civilizing" process in the Freudian sense.[150]

D&G have noted that Géza Róheim in Psychoanalysis and Anthropology makes explicit "the analogy between the physical projection of tools and the psychic

---

[149] On ego-integration and disintegration see (Davis and Wallbridge:32-45).

[150] See Civilization and its Discontents (Freud,1961b).

projection of phantasies'' (D&G,1977b:118). However, Roheim added little to Freud who had already done essentially the same thing -- although without the convenient unifying metaphor of projection -- in Future of an Illusion. ''I have tried to show that religious ideas [a projective phantasy] have arisen from the same need as have all the other achievements of civilization [i.e., science and technology]: from the necessity of defending oneself against the crushingly superior force of nature'' (Freud,1961a:21). In Civilization and its Discontents, Freud reiterates and develops this theme, and furthermore puts forward a poignant rendering of the organic extension thesis.[151] He speaks, however, of technology ''perfecting'' the organs rather than projecting or extending them. And rather than psychic projection, he speaks of general mechanisms of phantasy, but the analogy still persists. Freud's unifying metaphor is instead the civilizing process, which as Freud describes, ''serves two purposes - namely to protect men against nature and to adjust their mutual relations''[152]

---

[151] ''With every tool man is perfecting his own organs, whether motor or sensory, or is removing the limits to their functioning [i.e., ''extending'']. Motor power places gigantic forces at his disposal which, like his muscles, he can employ in any direction; thanks to ships and aircraft neither water nor air can hinder his movements; by means of spectacles he corrects defects in the lens of his own eye; by means of the telescope he sees into the far distance; and by means of the microscope he overcomes the limits of visibility set by the structure of his retina.[...] Writing was in its origin the voice of an absent person; and the dwelling-house was a substitute for the mother's womb, the first lodging, for which in all likelihood man still longs, and in which he was safe and felt at ease'' (Freud,1961b:41-2).

[152] In The Future of an Illusion (Freud,1961a), Freud had phrased the same idea somewhat differently , demonstrating the slippage between the discourse of freedom and that of mastery: ''[Civilization] includes on the one hand all the knowledge and capacity that men have acquired in order to control the forces of nature and extract its wealth for the satisfaction of human needs, and, on the other hand, all the regulations necessary in order to adjust the relations of men to one another and especially the distribution of the

(Freud,1961b:40). (Here, we can't help but hear the echoes of Marx's formulation of labour effecting a metabolism between human and nature). To the extent that Freud interprets projective phantasies as "the mental assets of civilization" (Freud,1961a:10), they can be seen to fulfil these same purposes.

But can we not in fact say that Marx, who we will remember is as deserving as anyone of carrying the title of Father of the organic extension thesis, had already intuited the fundamental connection between physical and psychical projection half a century before the birth of psychoanalysis when he composed an organic and prosthetic metaphor for his own famous condemnation of religious illusion: "Religion is [...] the heart of a heartless world, and the soul of soulless conditions. It is the *opium* of the people" (Marx,1978:54) (translation modified).

Rather than being a simple substitute for physical projection, psychic projection operates more as the ground which supports subsequent physical projections:

> it is in fact natural to man to personify everything that he wants to understand in order later to control it (psychical mastering as a preparation for physical mastering) (Freud,1961a:22).

It is the interaction of this double capacity of mastery which defines the unique evolutionary position of the human species: a *homo neuroticus* that lurks as the unconscious underside of *homo faber*.

The projective capacity of technology has often been seen as an evolutionary

---

available wealth" (Freud,1961a:6). This formulation better reflects the double project of productionism: first the domination of nature and subsequently the domination of human nature.

principle. Kubrick's well-known opening sequence to *2001: A Space Odyssey* conveys the full force of this equation. The Ape-man "discovers" the violent power of a benign object transformed into a purposive projection. At this discovery, the bone is launched into the air in ecstatic celebration. The camera tracks the sun bleached bone as it tumbles in slow motion against an empty sky. Now set loose, the projectile cuts an arc through timeless space and the first projectile is transposed into the projectile of 2001: bone becomes space craft in perfect visual symmetry, phallic and white floating free in empty space.

But this evolutionary allegory can and has been theorized in two contradictory ways. The first, which is the most "common sensical," the least scientifically defensible (from the perspective of Biology and Psychoanalysis), and the one that has had the most influence on liberal theories of technological progress, is rooted jointly in Ernst Haeckel's "discredited"[153] hypothesis that the development of the individual (ontogeny) recapitulates, in a condensed form, the evolutionary trajectory of the species (phylogeny), and in the related and equally "discredited" pre-Darwinian theory of J.B. Lamarck regarding the accumulation of acquired characteristics. Recapitulation theory argues that the progressive stages of the

---

[153] In a field as riddled with ideological scandal as evolutionary theory and developmental biology, the notion of "discredited" theory should always be viewed with suspicion. Scientists outside of the mainstream of genetic determinism are constantly struggling to rescue the babies that keep getting thrown out with the bathwater. Stephen Jay Gould made the most significant contribution towards salvaging important resources from Haeckel's recapitulation theory (Gould, 1972). Arthur Koestler, in his later life, led a sustained and influential crusade for the revival of Lamarckian-type principles (See for instance, Koestler, 1971).

developing human correspond to *adult* stages of species that lie at the beginning of our evolutionary line of descent. Thus gill slits of the human fetus correspond to gill slits of adult fish and testify to an ancient common heritage.

Another example would argue that the intelligence of a modern human child would be the same as that of a primitive ancestor. Similarly, the theory of the accumulation of acquired characteristics argues that certain capacities developed over the course of an individual's life are transferred to future generations at birth. This is evolution by *acceleration*: we are born having already overcome many of the challenges that faced our ancestors; all else is *progress*. This view tallies nicely with the scientific/technological model of progress as accelerated accumulation. But it is in complete contradiction to the second way in which the evolutionary significance of projection has been interpreted.

This second interpretation understands projection to derive, not from an accelerated maturation process, but on the contrary, precisely from the *decelerated*, "infantile" character of human beings; from an evolutionary process called neoteny whereby fetal or infantile characteristics are retained by the mature adult -- a condition which, under certain conditions, can afford an evolutionary advantage.[154]

---

[154] While technical authors will usually make distinctions between neoteny and related terms such as paedomorphosis and fetalization, I am using neoteny in an inclusive sense to refer to all processes leading "to the retention in the sexually mature adult of structures which were confined to the embryos [or early developmental stages] of its ancestors" (Smith:270). While Gould (1977) prefers paedomorphosis as a general and inclusive term, other biologists (for example, John Maynard Smith) prefer neoteny. As well, neoteny is the term commonly used in the context of interdisciplinary studies. See for example, Róheim,1950; Gehlen,1980,1988; Margulis and Sagan,1991. The term "fetalization," introduced by Louis Bolk (1866-1930) who laid the foundations of

As Stephen Jay Gould has explained,

> Flexibility is the hallmark of human evolution. If humans evolved, as I believe, by neoteny[...], then we are, in a more than metaphorical sense, permanent children. (In neoteny, rates of development slow down and juvenile stages of ancestors become the adult features of descendants.) Many central features of our anatomy link us with fetal and juvenile stages of primates: small face, vaulted cranium and large brain in relation to body size, unrotated big toe, foramen magnum under the skull for correct orientation of the head in upright posture, primary distribution of hair on head, armpits, and pubic areas.[...] In other mammals, exploration, play, and flexibility of behaviour are qualities of juveniles, only rarely of adults. We retain not only the anatomical stamp of childhood, but its mental flexibility as well. The idea that natural selection should have worked for flexibility in human evolution is not an ad hoc notion born of hope, but an implication of neoteny as a fundamental process in our evolution. Humans are learning animals (Gould,1981:333).

Arnold Gehlen has theorized this flexibility in terms of a "world-openness" which characterizes humans. Trained in biology himself, and drawing on the neoteny research of Adolf Portman and Louis Bolk, Gehlen constructed a naturalistic theory of technology and of social institutions which shares much with the logic of the Freudian theory of civilization.[155] Following Portman's research, Gehlen argued,

> that essential steps in the development of the human organism take place after the individual's birth, thus making the developing organism uniquely susceptible to the influences of the extraorganismic environment. This "unfinished" character of the human organism at birth is closely related to its unspecialized instinctual structure. Man, unlike all other mammals, is characterized by "instinctual deprivation" *(Instinktarmut)*. Because his instincts do not provide him with a stable structure within which to move, man faces an "open world"; put

---

neoteny, is generally used only in specific reference to Bolk's work.

[155] We will remember that in Chapter 3.4 we discussed Gehlen's work in relation to his rendering of the organic extension thesis and his influence on Habermas' view of technology.

> differently, man is characterized by "world-openness" *(Weltoffenheit)*. In consequence, man's condition is marked by great instability. The condition is biologically (and by extension, psychologically) intolerable. Therefore, man himself must construct stable structures by his own activity (Forward to Gehlen by Berger:ix).

Gehlen's position is tied to the Freudian position primarily through its reliance on a logic of *lack*. "World-openness" or human "flexibility," as Gould refers to it, is interpreted by Gehlen and Freud as an immediate lack of stability; world-openness is simply the absence of a natural state of world-closedness (the outside, simply the absence of a natural inside). The human is thus first and foremost an animal that lacks:

> man, lacking specialized organs and instincts, is not naturally adapted to a specific environment of his own, and is thereby thrown upon his ability to transform intelligently any preconstituted natural conditions. Poorly equipped as he is with sensory apparatus, naturally defenceless, naked, constitutionally embryonic through and through, possessing only inadequate instincts, man is a being whose existence necessarily depends upon *action* (Gehlen,1980:2-3).

From this perspective, all human *action* is viewed as an attempt to attain what is lacked; to attain a closure which is denied by the world-open character of the human. Action is purposive and refers to the abstract *telos* of stability and closure.

As we have seen, the same principle of lack emanating from the infantile character of the human underpins the psychoanalytic theory of projection. While Freud is clear on this point, there is a certain paradox in the fact that he espouses this position while maintaining a fervent adherence to both the recapitulation theory of

Haeckel and to Lamarckian principles (long after their respective downfalls).[156] In relation to the latter commitment, Gould relates the following tentative comment of one biologist otherwise favourably disposed to psychoanalysis:

> In nothing is the courage of the psychoanalysts better seen than in their use of the biogenetic law. They certainly employ that great biological slogan of the nineteenth century [Haeckel's law] with a fearlessness that makes the timid twentieth century biologist gasp (W.M. Wheeler, quoted in Gould,1977:156).

But Freud's use of recapitulation theory did not shake the absolutely fundamental importance of the infantile character of human beings to psychoanalysis in general and ego development in particular. Géza Róheim, in particular, develops these aspects of psychoanalysis in relation to the theory of neoteny involving a lengthy discussion of Bolk's research.[157] Again as D&G noted earlier, this leads Róheim to express the equation between psychic and physical projection:

> Perhaps we may even assume a kind of circular or balanced situation according to which the more man regresses towards the infantile, the more he progresses in culture, the less specialized we become in body the more specialized we become in culture and society. Or as Ferenczi put it, autoplastic reactions (body specializations) are increasingly replaced by alloplastic behaviour (culture) (Róheim:408).

5.2 Partial Objects and Unnatural Couplings

But if D&G reject the imperialism of projection, it is interesting that they look to another Kleinian invention, *partial objects*, to help them theorize non-projective

---

[156] On Freud's use of Haeckel's law see Gould,1977:154-164; and Ritvo:13-30,74-98. On Freud's relationship to Lamarck, see Ritvo:31-59,64-73.

[157] See Róheim:397-460.

relations of difference. Melanie Klein did not, of course, invent projection but she developed the concept further than any other theorist and her name is most closely associated with the term. D&G's partial objects are derivative of Klein's "part-objects," but the terminological slip corresponds to a conceptual shift which takes place in D&G's use of the term. D&G's partial objects are partial by nature whereas Kleinian part-objects continue to refer themselves to organic wholes.

> Melanie Klein was responsible for the marvellous discovery of partial objects, that world of explosions, rotations, vibrations. But how can we explain the fact that she nonetheless failed to grasp the logic of these objects? It is doubtless because, first of all, she conceives of them as fantasies and judges them from the point of view of consumption, rather than regarding them as genuine production. She explains them in terms of causal mechanisms (introjection and projection, for instance), of mechanisms that produce certain effects (gratification and frustration), and of mechanisms of expression (good or bad) - an approach that forces her to adopt an idealist conception of the partial object. She does not relate these partial objects to a real process of production - of the sort carried out by desiring-machines, for instance. In the second place, she cannot rid herself of the notion that schizoparanoid partial objects are related to a whole, either to an original whole that has existed earlier in a primary phase, or to a whole that will eventually appear in a final digressive stage (the complete Object). Partial objects hence appear to her to be derived from (*prélevés sur*) global persons (D&G.1977a:44).

To D&G, however, partial objects express a completely different nature. They are parts, prone to assemblage (in search of "assemblages"), but they are not the property of wholes. Rather, partial objects are like:

> pieces of a puzzle belonging not to any one puzzle but to many, pieces assembled by forcing them into a certain place where they may or may not belong, their unmatched edges violently bent out of shape, forcibly made to fit together, to interlock, with a number of pieces always left over (D&G,1977a:43).

Klein misunderstands partial objects because she continues to submit them to the law

of oedipal molarity. D&G insist, however, that "*partial objects are the molecular*[158] *functions of the unconscious*" (D&G,1977a:324).

> Partial objects are what make up the parts of the desiring-machines; partial objects define the working machine or the working parts, but in a state of dispersion such that one part is continually referring to a part from an entirely different machine, like the red clover and the bumble bee, the wasp and the orchid [...] (D&G,1977a:323).

The molecular encounters of partial objects express a mode of composition that is not integrative; a connective synthesis that is not premised on projection, introjection, or identification, but rather on a symbiotic association; an "*aparallel evolution* of two beings that have absolutely nothing to do with each other" (Chauvin, quoted in D&G,1987:10).

It is interesting that when D&G come to speak about the molecular functioning of technical machines, they invoke Samuel Butler's "The Book of Machines". We will recall, of course, that Butler's text was cited by Levinson and others as one of the founding texts of the organic extension thesis. But what Levinson fails to note is how Butler, unlike so many who come after him, actually goes far beyond any simple

---

[158] On the distinction between the molar and the molecular, see D&G, 1987:272-286. "It is crucial for understanding Deleuze and Guattari [...] to remember that *the distinction between molecular and molar has nothing whatsoever to do with scale.* Molecular and molar do not correspond to "small" and "large," "part" and "whole," "organ" and "organism," "individual" and "society." There are molarities of every magnitude (the smallest being the nucleus of the atom). The distinction is not one of scale, but of mode of composition: it is qualitative, not quantitative. In a molecular population (mass) there are only local connections between discrete particles. In the case of a molar population (superindividual or person) locally connected discrete particles have become correlated at a distance.[...] Molarity implies the creation or prior existence of a well-defined boundary enabling the population of particles to be grasped as a whole" (Massumi,1992:54-55).

formula of organic extension, completely exploding its logic.

In fact, as D&G note, Butler's text appears at first glance merely to be contrasting the two classical views of biology, laying out, on the one hand, the organic extension thesis as an expression of biological vitalism, and on the other, the mechanist vision of the human as simply a more perfect machine. Both positions, as D&G demonstrate, interpret the machine in terms of molar formations.

> From machines, mechanism abstracts a *structural unity* in terms of which it explains the functioning of the organism. Vitalism invokes an *individual and specific unity* of the living, which every machine presupposes insofar as it is subordinated to organic continuance, and insofar as it extends the latter's autonomous formations on the outside (D&G,1977a:284).

But, D&G insist, "there is a Butlerian manner for carrying each of the arguments to an extreme point where it can no longer be opposed to the other, a point of nondifference or *dispersion*" (D&G, 1977:284). At this point, Butler makes a double refusal of both vitalism and mechanism: "He shatters the vitalist argument by calling in question the specific or personal unity of the organism, and the mechanist argument even more decisively, by calling in question the structural unity of the machine" (284).

It is the tendency to invoke unities, to impose them upon individual multiplicities which leads vitalism and mechanism to operate at the level of molar formations. The molecular level is accessible only through the subtraction of unity; through the perception of all molecular populations (individuals) as multiplicities.[159]

---

[159] "When we say that a molarity is grasped as a whole, the emphasis is on the *as*. The particles are still there, no less numerous than before. A molarity remains a

"The Book of the Machines" is truly a molecular text. It lays out a universe of partial objects (which lack nothing) engaged in all sorts of unnatural couplings and deterritorializations. We now need to quote Butler's text at considerable length:

> It is said that machines do not reproduce themselves, or that they only reproduce themselves through the intermediary of man, but does any one say that the red clover has no reproductive system because the bumble bee (and only the bumble bee only) must aid and abet it before it can reproduce? No one. The bumble bee is a part of the reproductive system of the clover. Each one of ourselves has sprung from minute animalcules whose entity was entirely distinct from our own.... These creatures are part of our reproductive system; then why not we part of that of the machines?... We are misled *by considering any complicated machine as a single thing*; in truth it its a city or a society, each member of which was bred truly after its kind. We see a machine as a whole, we call it by a name and individualize it; we look at our own limbs, and know that the combination forms an individual which springs from a single centre of reproductive action; we therefore assume that there can be no reproductive action which does not arise from a single centre; but this assumption is unscientific, and the bare fact that no vapour-engine was ever made entirely by another, or two others, of its own kind, is not sufficient to warrant us in saying that vapour-engines have no reproductive system. The truth is that each part of every vapour-engine is bred by its own special breeders, whose function is to breed that part, and that only, while the combination of the parts into a whole forms another department of the mechanical reproductive system. (Butler 1960:184-6; quoted in D&G, 1977a:284-5)

It will be immediately apparent to anyone familiar with McLuhan that Butler is undoubtedly the source of McLuhan's theory of the human as sex organs/servomechanism to the machines:

> To behold, use or perceive any extension of ourselves in technological

---

multiplicity - only a disciplined one.... The unity of the individual exists *in addition to* its multiplicity, as imposed on it from a higher level than the one on which the individual existed up to that point.... The unity of a molarized individual is transcendent (exists only from the point of view of the forms of expression to which the individual is subjected, and on their level)." (Massumi:55)

> form is necessarily to embrace it. To listen to radio or to read the printed page is to accept these extensions of ourselves into our personal system and to undergo the "closure"...of perception that follows automatically.... By continuously embracing technologies, we relate ourselves to them as servomechanisms.... Man becomes, as it were, the sex organs of the machine world, as the bee of the plant world, enabling it to fecundate and to evolve ever new forms. The machine world reciprocates man's love by expediting his wishes and desires, namely, in providing him with wealth." (McLuhan, 1964:55-6)

But unfortunately McLuhan misses the point. And why? Simply because he doesn't know how to have a productive relationship with an "outside". Everything has to return to organic unity.

Butler does not simply say that technologies extend the body, but insists that machines are actual limbs and organs lying about in various separated points in space. "The lower animals keep all their limbs at home in their bodies, but many of man's are loose, and lie about detached, now here now there, in various parts of the world" (Butler,1967:196). These organs have an existence apart, they are *partial objects*. Partial objects embody a principle of external relation and they lack nothing. As such, the organic extension thesis has no understanding of partial objects. It has no way to understand parts that do not integrate into wholes, or relations that do not constitute an interiority. We will recall that for Driesch and biological vitalism (Chapter 3), machines-in-themselves must be perceived as lacking in essence, It is only through a subordination to the unity of the purposive-rational subject that the machine realizes itself. Within the logic of the organic extension thesis, the outside is always dealt with through the mode of subordination (incorporation) or annihilation. And this is yet another mark of the molarity. Molarity is a system of interiority and

is imperialist by nature. It "has no mechanism by which to interact with the outside as outside" (Massumi,1992:115).

> It can only deal with an unidentified body by putting it to the test, either assigning it an acceptable category and taking into the fold, or assigning it a bad category and attacking it. Incorporate or annihilate. Anything perceptible to the forces of molarity, but resistant to selective evaluation, is reacted to as a potential threat to the purity of the plane of transcendence and the stasis it polices. Molarity cannot tolerate anything remaining outside its purview, it must constantly expand its domain in an outward drive of conquest of the "Other," identified as *Enemy*. That becomes the catch-all category, *the* operative category (Massumi,1992:115).

McLuhan interprets Butler, as the extension thesis is wont to make him do, on the model of interiority. We "embrace" our technologies; bring them "into our personal system"; undergo an automatic "closure" of perception. This has always been the model of McLuhan's organic extension. The "outering" of the senses was really only an "innering" of the outside. Thus, for example, McLuhan always placed such a heavy emphasis on the Sputnik flight.

> Perhaps the largest conceivable revolution in information occurred[...] when Sputnik created a new environment for the planet. For the first time the natural world was completely enclosed in a man-made container. At the moment that the earth went inside this new artifact, Nature [outside] ended and Ecology [inside] was born. (McLuhan, 1989:71)

But this is not at all what Butler is about. What appeals to D&G in Butler is precisely that which we never find in McLuhan: "Finally some relation to the outside!" (D&G 1977a:290).

Butler's red clover and bumble bee correspond to Deleuze's wasp and orchid, his preferred and recurring example of an "unnatural" coupling. The name is not

without irony: these couplings are "unnatural" not by *nature* but by decree. They are enemies of the law. Unnatural couplings are not unions in the molar sense, they do not join to constitute and interior. Rather, they incite a molecular revolution by enacting "multiple cocausal becomings" (Massumi,1992:82).

> The line...of becoming that unites the wasp and the orchid produces a shared deterritorialization: of the wasp, in that it becomes a liberated piece of the orchid's reproductive system, but also of the orchid, in that it becomes the object of an orgasm in the wasp, also liberated from its own reproduction. A coexistence of two asymmetrical movements that combine to form a block, down a line of flight that sweeps away selective pressures. The line, or the block, does not link the wasp to the orchid, any more than it conjugates or mixes them: it passes between them, carrying them away in a shared proximity in which the discernibility of points disappears. (D&G, 1987:294)

This was the radical aspect of Butler's description of machinic reproduction. Not to unify humanity and its technologies into a single super-organism, but to situate organic humans, technological machines, and the nature of their interaction on a plane of consistency teeming with unnatural couplings.

5.3 Concluding Remarks and Avenues For Further Research

> It's not a "happy ending" we need, but a non-ending. That's why none of the narratives of masculinist, patriarchal apocalypses will do. The System is not closed; the sacred image of the same is not coming. The world is not full (Haraway,1992a:327).

I would like to think that I indicate some measure of success rather than total failure when I acknowledge that, were I to begin this thesis again, it would look considerably different then it presently does. The goal after all was not to get it

right, but to get someplace new, "to unsettle [...] closed logics," to make things "move differently"[160] (Haraway,1992a:326-327).

Similarly the goal of a conclusion should not be to introduce closure or to claim to have arrived at some final destination. Endings should be open; they should strive for infinite connectability (this is not a moral, but an ethic). From where we now stand there is less to be gained from summing up what has been said to this point, than there is in looking forward and noting a few of the avenues for further research that now seem to present themselves.

My one reservation about concluding in this manner concerns the reader who might feel that the thesis already follows too many tangents to the detriment of certain points which would have benefited from a more focused consideration.

To a certain degree I think this criticism would be justified. I do think that some points are more important than others and this is not always indicated by how thoroughly or carefully they were argued. On the other hand, I would have less sympathy with the charge that the thesis too often allows itself to be distracted with irrelevancies and digressions. The way I see this type of project, there is a certain necessity to remain open to the "irrelevant," even to cultivate the extraneous. "Digressions," Massumi has suggested, are "evidence of overflow, of how hard it is

---

[160] In relation to her taste for SF, Haraway writes: "Most of the SF I like motivates me to engage actively with images, plots, figures, devices, linguistic moves, in short, with worlds, not so much to make them come out "right," as to make them move "differently" (Haraway,1992a:326).

to keep a text in departure from taking leave of itself''[161] (Massumi,1992:9).

These, then, are a few of the directions in which I would carry further research:

1) While I related organic extension to the history of vitalism in Chapter 3 this does not sufficiently account for the important role that the logic of organic extension has played within evolutionary theory. This investigation could be profitably pursued in relation to the work of Richard Dawkins. Few recent works in evolutionary biology have attracted more scandal and/or celebration than Dawkins The Selfish Gene. This popular presentation synthesizes and clarifies the reigning neo-Darwinian position while generating a series of potent metaphors which have become standards in the repertoire of all good biological determinists. With the publication of his second book, The Extended Phenotype, his reproduction of the logic of organic extension was complete: the *self*-ish gene established itself as absolute origin, transcendent agents (another potent Dawkins metaphor dubs the genetic strands ''immortal coils''); genetic *code* replacing Platonic *form*. The *extended* phenotype (or body) for its part, emerges as a mere ''survival machine''; a means to end: the reproduction and

---

[161] See D&G, 1987:49. ''Challenger admitted having digressed at length but added that there was no possible way to distinguish between the digressive and the nondigressive. The point was to arrive at several conclusions concerning the unity and diversity of a single stratum''. Professor Challenger is the protagonist of a series of science fiction adventures by Arthur Conan Doyle. In the third plateau of A Thousand Plateaus, D&G assume the persona of Challenger and relate the contents of the chapter in the guise of a (not very popular) lecture delivered by Challenger on the topic of the ''Geology of Morals''.

perpetuation of the genotype. It is a material copy of the ethereal model; a simple physical projection.

If anything is made clear by relating Dawkins position to the organic extension thesis, it is that *objections to biological determinism cannot be made in the name of humanism*. The logic of humanism is part of the problem.

2) As a partial response to the juridical genetics of Dawkins, I would want to investigate the implications of the burgeoning literature on viruses and viral genes. Here lies the monstrous dimension of genetic science, a science of unnatural couplings:[162]

> As François Jacob says, transfers of genetic material by viruses or through other procedures, fusions of cells originating in different species, have results analogous to those of "the abominable couplings dear to antiquity and the Middle Ages." Transversal communications between different lines scramble the genealogical trees. Always look for the molecular, or even submolecular, particle with which we are allied. We evolve and die more from our polymorphous and rhizomatic flus than from hereditary diseases, or diseases that have their own line of descent. The rhizome is an anti-genealogy (D&G,1987:10-11).

The paradigms of *infection* and *contagion* have a lot to teach communication studies, the sciences, and other disciplines. At the beginning of A Thousand Plateaus, D&G had taken note of what was at that time this very new research:

> After integration-extraction in a cell, viruses may, due to an error in excision, carry off fragments of their host's DNA and transmit them to new cells: this in fact is the basis for what we call 'genetic engineering.' As a result, the genetic information of one organism may

---

[162] See Dorion Sagan (1992) on bacterial onmisexuality, genetic transfer, and the body as *chimera*. See also Ann Giudici Fettner's The Science of Viruses.

> be transferred to another by means of viruses. We could even imagine an extreme case where this transfer of information would go from a more highly evolved species to one that is less evolved or was the progenitor of the more evolved species. This mechanism, then, would run in the opposite direction to evolution in the classical sense. If it turns out that this kind of transferral of information has played a major role, we would in certain cases have to *substitute reticular schemas (with communications between branches after they have become differentiated) for the bush or tree schemas currently used to represent evolution* (Christen, quoted in D&G,1987:518-519).

Of course D&G have suggested that this new schema should be the "rhizome" (D&G,1987:3-25), and at least one respected biologist has latched on to this image.[163]

3) There is no doubt that cultural theorists and other cultural workers have, in recent years, gained a lot of milage out of the image of the cyborg. If it enjoyed for a short time, a certain fashionable lustre, it now strikes many people as cliché. I am interested in Haraway's cyborg to the extent that she cultivates its monstrous character, and to the extent that monstrosity is understood as it has been developed in this thesis; as the product of an unnatural coupling. To my mind, this has not been sufficiently understood within the bulk of cyborg writing. I therefore think there is much to reclaim in the cyborg, a radical potential that has rarely been realized.

Much of the cyborg writing which disappoints me has come out of cyberpunk and SF studies.[164] Here the cyborg is the quintessential protagonist in a post-

---

[163] See Erich Jantsch's discussion of the rhizome in Jantsch:234; 304-305.

[164] See for example, Scott Bukatman's recent Terminal Identity: The Virtual Subject in Post-Modern Science Fiction. The final section of this book appropriates Haraway's

humanist landscape. But if we were pursuing this line of research, it would be important to distinguish between two very different senses of the "post-human," both of which the cyborg can be called upon to demonstrate. The less interesting of these two sense interprets the "post-human" in relation to a post-biological era of technological superiority, where the efficiency of machines compensates for the deficiencies of nature. This is the age of the simulacra in Baudrillard's sense, where the human wavers as a vanishing referent; where the *human*, (mis)taken for the *real*, is now assumed to be defunct. We discussed this notion of the post-human in Chapter 2.3 and saw that it is in complete agreement with the organic extension thesis.

But there is a very different, much more interesting sense of the post-human to which the cyborg attests when it announces itself as a creature of monstrosity. From the perspective of this second sense, the first sense discussed above is revealed as a sham. For the *human* was never the body; was never biology. And thus the post-human cannot simply represent the post-biological. It has nothing to do with the supposed "obsolescence" of the body. Post-human means post-humanism. It means abandoning all the baggage of the human-form: the ideology of productionism, the ontology of mastery, negativity, etc.

What needs to be emphasized about the cyborg is not the ratio of organism to machine -- we are not interested in the power struggles between these two molar forms. What we must look for are the molecular becomings that take place *between* them. Most of all, we do not want to *humanize* the cyborg. On the contrary,

---

cyborg and D&G's body without organs, both to ill-effect.

technology's capacity to generate freedom is contingent upon the becoming-monstrous of the cyborg. "As the failure of Enlightenment has shown, liberation is never *of* the human, it is only ever *from* it" (Dean and Massumi,1992:167).

4) It now seems to me that an investigation of the theme of univocity and a more thorough elaboration of the theory of substantive multiplicities in opposition to organic unities would have greatly clarified certain important points.

> The body without organs is in fact produced as a whole, but a whole alongside the parts -- a whole that does not unify or totalize them, but that is added to them like a new, really distinct part.
>
> When it repels the organs, as in the mounting of the paranoiac machine, the body without organs marks the external limit of the pure multiplicity formed by these organs themselves insofar as they constitute a nonorganic and nonorganized multiplicity. And when it attracts them and fits itself over them, in the process of a miraculating fetishistic machine, it still does not totalize them, unify them in the manner of an organism: organs-partial objects cling to the body without organs, and enter into the new synthesis of included disjunction and nomadic conjunction, of overlapping and permutation, on this body -- syntheses that continue to repudiate the organism and its organization (D&G,1977a:326).

Technology does not merely extend our organs, it deterritorializes them. Organs and machines are swept up in a mutual deterritorialization and a double capture. It is not so much that an organ gets extended, that one partial object reflects or is internalized by another, but rather there is a body without organs that spreads out and runs between. There is a BwO of the cyborg/assemblage that is an expression of monstrous potential.

Bibliography

Adams, Henry. "The Dynamo and the Virgin." The Education of Henry Adams. Ed. Ernest Samuels. Boston: Houghton Mifflin Company, 1974: 379-390.

Arendt, Hannah. The Human Condition. New York: Doubleday & Company, Inc., 1958.

Aristotle. The Politics. Harmondsworth: Penguin Books, 1962.

Aronowitz, Stanley. "Technology and Culture: review of Arthur Kroker, *Technology and the Canadian Mind: Innis/McLuhan/Grant*." Canadian Journal of Political and Social Theory 9.3 (1985): 126-133.

Artaud, Antonin. "The Body is the Body." Semiotext(e) 2.3 (1977):59.

---. "To Have Done with the Judgement of God." Antonin Artaud: Selected Writings. Ed. Susan Sontag. Berkeley: University of California Press, 1988: 553-571.

Attali, Jacques. Millennium: Winners and Losers in the Coming World Order. Trans. Leila Conners and Nathan Gardels. New York: Times Books, 1991.

Ballard, Edward G. Man and Technology: Toward the Measurement of a Culture. Pittsburg: Duquesne University Press, 1978.

Ballard, J.G. Crash. New York: Vintage Books, 1985.

Balsamo, Anne. "Reading Cyborgs Writing Feminism." Communication 10 (1988): 331-344.

Barns, Ian. "Post-Fordist People? Cultural meanings of new technoeconomic systems." Futures November (1991): 895-914.

Barth, Friedrich G. Insects and Flowers: The Biology of a Partnership. Trans. M.A. Biederman-Thorson. Princeton: Princeton University Press, 1985.

Basalla, George. The Evolution of Technology. Cambridge: Cambridge University Press, 1988.

Bateson, Gregory. Steps to an Ecology of Mind. New York: Ballantine Books, 1972.

Baudrillard, Jean. Forget Foucault. Trans. Nicole Dufresne. New York: Semiotext(e), 1987.

---. Jean Baudrillard: Selected Writings. Ed. Mark Poster. Stanford: Stanford University Press, 1988.

---. Seduction. Trans. Brian Singer. Montreal: New World Perspectives, 1990a.

---. Fatal Strategies. Trans. Philip Beitchman and W.g.j. Niesluchowski. New York: Semiotext(e), 1990b.

---. "Crash." Science-Fiction Studies 18 (1991):313-320.

Baum, R. F. Doctors of Modernity: Darwin, Marx, and Freud. Peru: Sherwood Sugden and Company, 1988.

Bellig, Robert and George Stevens, eds. The Evolution of Sex. San Francisco: Harper and Row, 1988.

Benison, Jonathan. "Jean Baudrillard on the Current State of SF." Foundation 52 (1984): 25-42.

Benjamin, Jessica. The Bonds of Love: Psychoanalysis, Feminism, and the Problem of Domination. New York: Pantheon Books, 1988.

Benthall, Jonathan. The Body Electric: Patterns of Western Industrial Culture. London: Thames and Hudson, 1976.

Bergson, Henri. Creative Evolution. Trans. Arthur Mitchell. 1911. New York: The Modern Library, 1944.

---. Matter and Memory. Trans. N.M. Paul and W.S. Palmer. New York: Zone Books, 1988.

---. The Creative Mind: An Introduction to Metaphysics. Trans. Mabelle L. Andison. New York: Citadel Press, 1992.

Best, Steven and Douglas Kellner. Postmodern Theory: Critical Interrogations. New York: The Guilford Press, 1991.

Bogue, Ronald. Deleuze and Guattari. London: Routledge, 1989.

Boucher, Douglas H, ed. The Biology of Mutualism: Ecology and Evolution. New York: Oxford University Press, 1985.

Braidotti, Rosi. "Organs Without Bodies." Differences 1 (1988): 147-161.

---. Patterns of Dissonance. Trans. Elizabeth Guild. New York: Routledge, 1991.

---. "Towards a New Nomadism: Feminist Deleuzian Tracks, or: Metaphysics and Metabolism." Unpublished essay, 1992.

Brown, Norman O. "The Turn to Spinoza." Apocalypse and/or Metamorphosis. Berkeley: University of California Press, 1991.

Büchner, Georg. Complete Plays and Prose. Trans. and Ed. Carl Richard Mueller. New York: Hill and Wang, 1963.

Bukatman, Scott. "Postcards from the Posthuman Solar System." Science-Fiction Studies 18 (1991): 343-357.

Butler, Octavia E. Xenogenesis. New York: Guild America Books, 1989.

Butler, Samuel. "Darwin Among the Machines." 1863. The Note-Books of Samuel Butler. Ed. Henry Festing Jones. New York: E.P. Dutton and Co., 1917: 42-46.

---. Erewhon. 1867. New York: The New American Library, 1960.

---. Life and Habit. 1910. London: Wildwood House, 1981.

Canguihem, Georges. "Machine and Organism." Trans. Mark Cohen and Randall Cherry. Incorporations: Zone 6. Eds. Jonathan Crary and Sanford Kwinter. New York: Urzone Inc., 1992: 44-69.

Capek, Karel and Josef Capek. R.U.R. and The Insect Play. Trans. Paul Selver. Oxford University Press, 1989.

Carey, James W. "Space, Time, and Communications: A Tribute to Harold Innis." Communication As Culture: Essays on Media and Society. Boston: Unwin Hyman, 1988.

Carpenter. Edmund and Marshall McLuhan. "Acoustic Space." Explorations in Communication. Eds. Edmund Carpenter and Marshal McLuhan. Boston: Beacon Press, 1960: 65-70.

Castoriadis, Cornelius. Crossroads in the Labyrinth. Cambridge: MIT Press, 1984.

Channell, David F. The Vital Machine: A Study of Technology and Organic Life. New York: Oxford University Press, 1991.

Clastres, Pierre. Society Against the State. Trans. Robert Hurley and Abe Stein. New York: Zone Books, 1989.

Creed, Barbara. "Horror and the Monstrous-Feminine: An Imaginary Abjection." Screen 27.1 (1986): 44-70.

---. "*Alien* and the Monstrous-Feminine." Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema. Ed. Annette Kuhn. London: Verso, 1990: 128-141.

---. "Gynesis, Postmodernism and the Science Fiction Horror Film." Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema. Ed. Annette Kuhn. London: Verso, 1990: 214-218.

Crosby, Christina. "Allies and Enemies." Coming to Terms: Feminism, Theory, Politics. Ed. Elizabeth Weed. New York: Routledge, 1989: 205-208.

Csicsery-Ronay, Istvan. "The SF of Theory: Baudrillard and Haraway." Science-Fiction Studies 18 (1991): 387-404.

Curtis, James M. Culture as Polyphony: An Essay on the Nature of Paradigms. Columbia: University of Missouri Press, 1978.

Darwin, Charles. The Various Contrivances by Which Orchids Are Fertilised by Insects. Chicago: University of Chicago Press, 1984.

Davidson, Arnold I. "The Horror of Monsters." The Boundaries of Humanity: Humans, Animals, Machines. Eds. James J. Sheenan and Morton Sosna. Berkeley: University of California Press, 1991: 36-67.

Davis, Madeleine and David Wallbridge. Boundary and Space: An Introduction to the Work of D.W. Winnicott. New York: Brunner/Mazel Publishers, 1981.

Dawkins, Richard. The Selfish Gene. Oxford: Oxford University Press, 1989.

---. The Extended Phenotype. Oxford: Oxford University Press, 1982.

Dean, Kenneth and Brian Massumi. "Unity in Dismemberment: A Flowchart of Despotic Desire." Discours social / Social Discourse 3.3&4 (1990/91): 7-20.

---. First and Last Emperors: The Absolute State and the Body of the Despot. Brooklyn: Autonomedia, 1992.

DeLanda, Manuel. War in the Age of Intelligent Machines. New York: Swerve Editions, 1991.

---. "Nonorganic Life." Incorporations: Zone 6. Eds. Jonathan Crary and Sanford Kwinter. New York: Urzone Inc., 1992: 178-167.

de Lauretis, Teresa. "The Technology of Gender." Technologies of Gender: Essays on Theory, Film, and Fiction. Bloomington: Indiana University Press, 1987:1-30.

Deleuze, Gilles. Différence et Répétition. Paris: Presses Universitaires de France, 1968.

---. "I Have Nothing To Admit." Trans. Janis Forman. Semiotext(e) 2.3 (1977): 110-116.

---. Nietzsche and Philosophy. Trans. Hugh Tomlinson. New York: Columbia University Press, 1983.

---. "Nomad Thought." Trans. David B. Allison. The New Nietzsche. Ed. David B. Allison. 1977. Cambridge: The MIT Press, 1985: 142-149.

---. Cinema 1: The Movement-Image. Trans. Hugh Tomlinson and Barbara Habberjam. Minneapolis: University of Minnesota Press, 1986.

---. Foucault. Trans. Seán Hand. Minneapolis: University of Minnesota Press, 1988a.

---. Spinoza: Practical Philosophy. Trans. Robert Hurley. San Francisco: City Lights Books, 1988b.

---. Expressionism in Philosophy: Spinoza. Trans. Martin Joughin. New York: Zone Books, 1990a.

---. The Logic of Sense. Trans. Mark Lester with Charles Stivale. Ed. Constantin V. Boundas. New York: Columbia University Press, 1990b.

---. Bergsonism. Trans. Hugh Tomlinson and Barbara Habberjam. New York: Zone Books, 1991a.

---. Empiricism and Subjectivity: An Essay on Hume's Theory of Human Nature. Trans. Constantin V. Boundas. New York: Columbia University Press, 1991b

---. "The Conditions of the Question: What is Philosophy?" Trans. Daniel W. Smith and Arnold I. Davidson. Critical Inquiry 17 (1991c): 471-478.

---. "A Philosophical Concept..." Who Comes After the Subject?" Eds. Eduardo Cadava, Peter Conner, and Jean-Luc Nancy. New York: Routledge, 1991d:94-95.

---. "Postcript on the Societies of Control." October 59 (1992a): 3-7.

---. "What is a Dispositif?" Michel Foucault: Philosopher. Trans. Timothy J. Armstrong. New York: Routledge, 1992b: 159-168.

---. "Mediators." Trans. Martin Joughin. Incorporations: Zone 6. Eds. Jonathan Crary and Sanford Kwinter. New York, Urzone Inc., 1992c: 281-294.

---. The Fold: Leibniz and the Baroque. Trans. Tom Conley. Minneapolis: University of Minnesota Press, 1993.

Deleuze, Gilles and Michel Foucault. "Intellectuals and Power." Language, Counter-Memory, Practice: Selected Essays and Interviews. Ed. Donald F.Bouchard. Trans. Donald F. Bouchard and Sherry Simon. Ithaca: Cornell Univeristy Press, 1977.

Deleuze, Gilles and Félix Guattari. Anti-Oedipus: Capitalism and Schizophrenia. Trans. Robert Hurley, Mark Seem, and Helen R. Lane. New York: The Viking Press, 1977a.

---. "Balance Sheet: Program for Desiring Machines." Trans. Robert Hurley. Semiotext(e) 2.3 (1977b): 117-135.

---. Kafka: Toward a Minor Literature. Trans. Dana Polan. Minneapolis: University of Minnesota Press, 1986.

---. A Thousand Plateaus: Capitalism and Schizophrenia. Trans. Brian Massumi. Minneapolis: University of Minnesota Press, 1987.

Deleuze, Gilles and Claire Parnet. Dialogues. Trans. Hugh Tomlinson and Barbara Habberjam. New York: Columbia University Press, 1987.

Descombes, Vincent. Modern French Philosophy. Trans. L. Scott-Fox and J.M. Harding. Cambridge: Cambridge University Press. 1980.

Dictionary of Biology. Sixth Edition. Harmondsworth: Penguin Books, 1973.

Doane, Mary Ann. "Cyborgs, Origins, and Subjectivity." Coming to Terms: Feminism, Theory, Politics. Ed. Elizabeth Weed. New York: Routledge, 1989: 209-214.

---. "Technophilia: Technology, Representation, and the Feminine." Body/Politics: Women and the Discourse of Science. Ed. Mary Jacobus, Evelyn Fox Keller, Sally Shuttleworth. New York: Routledge, 1990.

Douglas, Mary. "The Two Bodies." Natural Symbols: Explorations in Cosmology. New York: Pantheon Books, 1970.

---. Risk and Blame: Essays in Cultural Theory. London: Routledge, 1992.

Douglas, Mary and Aaron Wildavsky. Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers. Berkeley: Univesity of California Press, 1982.

Dreyfus, Hubert. "Heidegger's History of the Being of Equipment." Heidegger: A Critical Reader. Eds. Hubert Dreyfus and Harrison Hall. Oxford: Blackwell, 1992: 173-185.

Driesch, Hans. The History and Theory of Vitalism. London: MacMillan and Co., Limited, 1914.

Dubois, Page. Centaurs and Amazons. Ann Arbor: University of Michigan Press, 1982.

Elkins, Charles. "The Uses of Science Fiction." Rev. of Primate Visions, by Donna Haraway. Science-Fiction Studies 17 (1990): 269-272.

Emerson, Ralph Waldo. "Works and Days." Society and Solitude. Boston: Fields, Osgood, and Co., 1870: 141-166.

Evernden, Neil. The Social Creation of Nature. Baltimore: Johns Hopkins University Press, 1992.

Feenberg, Andrew. Critical Theory of Technology. New York: Oxford University Press, 1991.

Foucault, Michel. The Order of Things: An Archaeology of the Human Sciences. New York: Vintage Books, 1970: 150-157.

---. "Monstrosities in Criticism." Trans. Robert J. Matthews. Diacritics Fall (1971):57-60.

---. "Nietzsche, Genealogy, History." Language, Counter-Memory, Practice. Ed. Donald F. Bouchard. Ithica: Cornell University Press, 1977a.

---. "Preface." Anti-Oedipus: Capitalism and Schizophrenia. By Gilles Deleuze and Félix Guattari. Trans. Robert Hurley, Mark Seem, and Helen Lane. New York: Viking Press. 1977b:xi-xiv.

---. "Introduction." Herculine Barbin: Being the Recently Discovered Memoirs of a Nineteenth-Century French Hermaphrodite. Trans. Richard McKougall. New York: Pantheon Books, 1980: vii-xvii.

Franklin, Sarah. Rev. of Primate Visions, by Donna Haraway. Journal of the History of Sexuality 1.2 (1990): 338-340.

Freud, Sigmund. The Future of an Illusion. Trans. James Strachey. New York: W.W. Norton and Company, 1961a.

---. Civilization and Its Discontents. Trans. James Strachey. New York: W.W. Norton and Company, 1961b.

Gates, Henry Louis, Jr. Figures in Black: Words, Signs, and the "Racial" Self. New York: Oxford University Press, 1987.

Gehlen, Arnold. Man in the Age of Technology. Trans. Patricia Lipscomb. New York: Columbia University Press, 1980.

---. Man: His Nature and Place in the World. Trans. Clare McMillan and Karl Pillemer. New York: Columbia University Press, 1988.

Gibson, William. Neuromancer. New York: Ace Books, 1884.

Giddens, Anthony. "Introduction." The Protestant Ethic and The Spirit of Capitalism. By Max Weber. New York: Scribners, 1976: 1-12.

---. The Nation-State and Violence. Berkeley: University of California Press, 1987.

Gilligan, Carol. In a Different Voice: Psychological Theory and Women's Development. Cambridge: Harvard University Press, 1982.

Gould, Stephen Jay. Ontogeny and Phylogeny. Cambridge: The Belknap Press of Harvard University Press, 1977.

---. The Mismeasure of Man. New York: W.W. Norton & Company, 1981.

---. "Helpful Monsters." Hen's Teeth and Horse's Toes: Further Reflections in Natural History. New York: W.W. Norton and Company, 1983: 187-198.

Grant, George. Technology and Justice. Toronto: Anansi, 1986.

Greenberg, Harvey R. "Reimagining the Gargoyle: Psychoanalytic Notes on *Alien*." Close Encounters: Film, Feminism, and Science Fiction. Eds. Constance Penley, Elisabeth Lyon, Lynn Spigel, and Janet Bergstrom. Minneapolis: University of Minnesota Press, 1991: 83-104.

Griffin, Susan. Pornography and Silence: Culture's Revenge AgainstNature. New York: Harper and Row, 1981.

Grossberg, Lawrence. We Gotta Get Out of This Place: Popular Conservatism and Postmodern Culture. New York: Routledge, 1992.

Guattari, Félix. "Everybody Wants to be a Fascist." Trans. Suzanne Fletcher. Semiotext(e). 2.3 (1977): 87-98.

---. "A Liberation of Desire: An Interview by George Stambolian. Homosexuality and French Literature: Cultural Contexts/Critical Texts. Eds. George Stambolian and Elaine Marks. Ithica: Cornell University Press. 1979: 56-69.

---. Molecular Revolution: Psychiatry and Politics. Trans. Rosemary Sheed. Harmondsworth: Penguin Books, 1984.

---. "The Three Ecologies." Trans. Chris Turner. New Formations 8 (1989b): 131-147.

---. Chaosmose. Paris: Éditions Galilée, 1992a.

---. "Regimes, Pathways, Subjects." Trans. Brian Massumi. Incorporations: Zone 6. Eds. Jonathan Crary and Sanford Kwinter. New York, Urzone Inc., 1992b: 16-37.

Habermas, Jurgen. "Technology and Science as "Ideology"." Toward a Rational Society: Student Protest, Science, and Politics. Trans. Jeremy J. Shapiro. Boston: Beacon Press, 1970: 81-122.

Hacker, Sally L. "Doing it the Hard Way:" Investigations of Gender and Technology. Ed. Dorothy E. Smith and Susan M. Turner. Boston: Unwin Hyman, 1990.

Haraway, Donna. Crystals, Fabrics, and Fields: Metaphors of Organicism in Twentieth-Century Developmental Biology. New Haven: Yale University Press, 1976.

---. Rev. of Laboratory Life, by Bruno Latour and Steve Woolgar. Isis 71 (1980): 488-489.

---. "The High Cost of Information in Post World War II Evolutionary Biology: Ergonomics, Semiotics, and the Sociobiology of Communications Systems." Philosophical Forum XIII.2-3 (1981-2): 244-278.

---. "Signs of Dominance: From a Physiology to a Cybernetics of Primate Society, C.R. Carpenter, 1930-70." Studies in History of Biology 6 (1983): 129-219.

---. "Class, Race, Sex, Scientific Objects of Knowledge: a Socialist-Feminist Perspective on the Social Construction of Productive Knowledge and Some Political Consequences." Women in Scientific and Engineering Professions. Eds. Violet Haas and Carolyn Perucci. Ann Arbor: University of Michigan Press, 1984: 212-229.

---. Donna Haraway Reads National Geographic. Videocassette. Prod. Paper Tiger, 1987.

---. Primate Visions: Gender, Race, and Nature in the World of Modern Science. New York: Routledge, 1989a.

---. Rev. of Spirits of Resistance and Capitalist Discipline, by A. Ong. Signs 14.4 (1989b): 945-947.

---. Simians, Cyborgs, and Women: The Reinvention of Nature. New York: Routledge, 1991a.

---. "Cyborgs at Large: Interview with Donna Haraway." Technoculture. Ed. Constance Penley and Andrew Ross. Minneapolis: University of Minnesota Press, 1991b: 1-20.

---. "The Actors Are Cyborgs, Nature Is Coyote, and the Geography Is Elsewhere: Postscript to 'Cyborgs at Large'." Technoculture. Ed. Constance Penley and Andrew Ross. Minneapolis: University of Minnesota Press, 1991c: 21-26.

---. "The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others." Cultural Studies. Ed. Lawrence Grossberg, Cary Nelson, Paula A. Treichler. New York: Routledge, 1992a: 295-337.

---. "Ecce Homo, Ain't (Ar'n't) I a Woman, and Inappropriate/d Others: The Human in a Post-Humanist Landscape." Feminists Theorize the Political. Eds. Judith Butler and Joan W. Scott. New York: Routledge, 1992b: 86-100.

---. "When Man™ is On the Menu." Incorporations: Zone 6. Eds. Jonathan Crary and Sanford Kwinter. New York: Urzone Inc., 1992c: 38-43.

---. "Otherworldly Conversations; Terran Topics; Local Terms." Science as Culture 3.1 (1992d): 64-98.

Hardt, Michael. "Introduction." The Savage Anomaly: The Power of Spinoza's Metaphysics and Politics. Trans Michael Hardt. Minneapolis: University of Minnesota Press, 1991.

---. Gilles Deleuze: An Apprenticeship in Philosophy. Minneapolis: University of Minnesota Press, 1993.

Hartsock, Nancy C. M. Money, Sex, and Power: Toward a Feminist Historical Materialism. Boston: Northeastern University Press, 1985.

Heath, Stephen. "Representing Television." Logics of Television. Ed. Patricia Mellencamp. Bloomington: Indiana University Press, 1990.

Hollinger, Veronica. "Women in Science Fiction and Other Hopeful Monsters." Science-Fiction Studies 17 (1990): 129-135.

Hurley, Robert. "Preface." Spinoza: Practical Philosophy. By Gilles Deleuze. Trans. Robert Hurley. San Fransisco: City Lights Books, 1988:i-iii.

Huyssen, Andreas. "The Vamp and the Machine: Fritz Lang's *Metropolis*." After the Great Divide: Modernism, Mass Culture, Postmodernism. Bloomington: Indiana University Press, 1986.

Ihde, Don. Instrumental Realism: The Interface between Philosophy of Science and Philosophy of Technology. Bloomington: Indiana University Press, 1991.

---. Philosophy of Technology: An Introduction. New York: Paragon House, 1993.

Innis, Harold A. The Bias of Communication. Toronto: University of Toronto Press, 1951.

Jacob, François. The Logic of Life: A History of Heredity. Trans. Betty E. Spillmann. New York: Pantheon Books, 1973.

---. The Possible and the Actual. Seattle: University of Washington Press, 1982.

Jantsch, Erich. The Self-Organizing Universe: Scientific and Human Implications of the Emerging Paradigm of Evolution. Oxford: Pergamon Press, 1980.

Julien Oppray de la Mettrie. Man a Machine. La Salle: Open Court, 1912.

Keller, Evelyn Fox. Reflections on Gender and Science. New Haven: Yale University Press. 1985.

---. Secrets of Life, Secrets of Death: Essays on Language, Gender, and Science. New York: Routledge, 1992.

Kelly, Kevin. "Deep Evolution: The Emergence of Pstdarwinism." Whole Earth Review 76 (Fall 1992).

Klein, Melanie. The Selected Melanie Klein. Ed. Juliet Mitchell. London: Penguin Books, 1991.

Koestler, Arthur. The Case of the Midwife Toad. New York: Vintage Books, 1971.

Kristeva, Julia. Powers of Horror: An Essay on Abjection. New York: Columbia University Press, 1982.

Kroker, Arthur. Technology and the Canadian Mind: Innis/McLuhan/Grant. Montreal: New World Perspectives, 1984.

---. The Possessed Individual: Technology and the French Postmodern. Montreal: New World Perspectives, 1992.

Kroker, Arthur and David Cook. "Television and The Triumph of Culture." The Postmodern Scene: Excremental Culture and Hyper-Aesthetics. Montreal: New World Perspectives, 1987.

Kroker, Arthur and Marilouise Kroker. "Preface: Mediascape." Canadian Journal of Political and Social Theory 10.1-2 (1986): 60-65.

---. "Theses on the Disappearing Body in the Hyper-Modern Condition." Body Invaders: Panic Sex in America. Ed. Arthur and Marilouise Kroker. Montreal: New Wold Perspectives, 1987: 20-34.

Kuhns, William. The Post-Industrial Prophets: Interpretations of Technology. New York: Weybright and Talley, 1971.

Laing, R.D, and David Cooper. "Critique of Dialectical Reason." Reason and Violence: A Decade of Sartre's Philosophy 1950-1960. London: Tavistock Publications, 1964.

Landau, Misia. Narratives of Human Evolution. New Haven: Yale University Press, 1991.

Lecercle, Jean-Jacques. Philosophy Through the Looking Glass. La Salle: Open Court, 1985.

Leddy, Thomas. "Moore and Shusterman on Organic Wholes." The Journal of Aesthetics and Art Criticism. 49.1 (1991): 63-73.

Leiss, William. The Domination of Nature. New York: George Braziller, Inc., 1972.

---. Under Technology's Thumb. Montreal: McGill-Queen's University Press, 1990.

Lem, Stanislaw. Mortal Engines. Trans. Michael Kandel. San Diego: Harcourt Brace Jovanovich, 1974.

Levins, Richard and Richard Lewontin. The Dialectical Biologist. Cambridge: Harvard University Press, 1985.

Levinson, Paul. Human Replay: A theory of the Evolution of Media. PhD Thesis. New York University, 1979.

---. "What Technology Can Teach Philosophy: Ruminations along Kantian/Popperian Lines." In Pursuit of Truth: Essays on the Philosophy of Karl Popper on the Occasion of His 80th Birthday. Ed. Paul Levinson. Atlantic Highlands: Humanities Press Inc., 1982: 157-175.

---. "Information Technologies As Vehicles of Evolution." Philosophy of Technology II: Information Technology and Computers in Theory and Practice. Eds. Carl Mitcham and Alois Huning. Dordrecht: D. Reidel Publishing Company, 1986: 29-47.

Lewontin, R.C. Biology as Ideology: The Doctrine of DNA. Concord: Canadian Broadcasting Corporation, 1991.

Lowe, Marian. "Social Bodies: The Interaction of Culture and Women's Biology." Biological Woman: The Convenient Myth. Eds. Ruth Hubbard, Mary Sue Henifin, and Barbara Fried. Cambridge: Schenkman, 1982.

Lyotard, Jean-Francois. Libidinal Economy. Trans. Iain Hamilton Grant. Bloomington: Indiana University Press, 1993.

Margulis, Lynn. "Symbiosis and Evolution." Life: Origin and Evolution. Readings from Scientific American. San Francisco: W.H. Freeman and Company, 1979: 101-110.

---. Symbiosis in Cell Evolution: Life and it's Environment on the Early Earth. San Francisco: W.H. Freeman and Company, 1981.

---. Early Life. Boston: Science Books International, 1982.

Margulis, Lynn and Dorion Sagan. Microcosmos: Four Billion Years of Microbial Evolution. New York: Simon and Schuster, 1986.

---. Mystery Dance: On the Evolution of Human Sexuality. New York: Summit Books, 1991.

Marx, Karl. Capital, vol. 1. Trans. Samuel Moore and Edward Aveling. Ed. Frederick Engels. New York: International Pubishers, 1967.

Marx, Karl and Frederick Engels. The Marx-Engels Reader. Second Edition. ed. Robert C. Tucker. New York: W.W. Norton & Company, 1978.

Massumi, Brian. "Realer than Real: The Simulacrum According To Deleuze and Guattari." Copyright 1 (1987a): 90-97.

---. "Translator's Foreword: Pleasures of Philosophy." A Thousand Plateaus: Capitalism and Schizophrenia. Gilles Deleuze and Félix Guattari. Minneapolis: University of Minnesota Press, 1987b: ix-xv.

---. "Deleuze and Guattari's Teories of the Group Subject, Through a Reading of Corneille's Le Cid." Discours social / Social Discourse 1.4 (1988): 423-440.

---. "Ronald Reagan: Where the Rest of Him Went." Discours social / Social Discourse 3.3&4 (1990/91): 21-31.

---. A User's Guide to Capitalism and Schizophrenia: Deviations from Deleuze and Guattari. Cambridge: The MIT Press, 1992.

Maturana, Humberto R. and Francisco J. Varela. The Tree of Knowledge: The Biological Roots of Human Understanding. Trans. Robert Paolucci. Boston: Shambhala, 1992.

Mauss, Marcel. "Body Techniques." Sociology and Psychology. Trans. Ben Brewster. London: Routledge and Kegan Paul, 1979. 95-123.

Maynard Smith, John. "Generating Novelty by Symbiosis." Nature 341 (1989): 284-285.

McLuhan, Marshall. The Mechanical Bride: Folklore of Industrial Man. Boston: Beacon Press,1951.

---. Understanding Media: The Extensions of Man. New York: Mentor, 1964.

---. Marshall McLuhan: The Man and His Message. Eds. George Sanderson and Frank Macdonald. Golden: Fulcrum, Inc., 1989.

McLuhan, Marshall and Edmund Carpenter. "Acoustic Space." Explorations in Communication. Ed. Edumnd Carpenter and Marshall McLuhan. Boston: Beacon Press, 1960.

McLuhan, Marshall and Bruce Powers. The Global Village. New York: Oxford University Press, 1989.

Menzies, Heather. FastForward and Out of Control: How Technology is Changing Your Life. Toronto: Macmillan of Canada, 1989.

Merchant, Carolyn. The Death of Nature: Women, Ecology, and the Scientific Revolution. San Francisco: Harper, 1980.

Mitchell, Juliet. "Introduction." The Selected Melanie Klein. Ed. Juliet Mitchell. London: Penguin Books, 1991: 9-32.

Mumford, Lewis. Technics and Civilization. 1934. Introd. Lewis Mumford. New York: Harcourt, Brace and World, Inc., 1963.

Negri, Antonio. "Interview with Toni Negri." By Alice Jardine and Brian Massumi. Coppyright 1 (Fall 1987):75-89.

---. "The First Megamachine." Diogenes. 55 (1966): 1-15.

---. Marx Beyond Marx: Lessons on the Grundrisse. Trans. Harry Cleaver, Michael Ryan, and Maurizio Viano. New York: Autonomedia, 1991a.

---. The Savage Anomaly: The Power of Spinoza's Metaphysics and Politics. Trans. Michael Hardt. Minneapolis: University of Minnesota Press, 1991b.

Newman, Jenny. "Mary and the Monster: Mary Shelley's *Frankenstein* and Maureen Duffy's *Gor Saga*." Where No Man Has Gone Before: Women and Science Fiction. Ed. Lucie Armitt. London: Routledge, 1991: 85-96.

Parfrey, Adam, ed. Apocalypse Culture. New York: Amok Press, 1987.

Park, Katherine and Larraine J. Daston. "Unnatural Conceptions: The Study of Monsters in Sixteenth- and Seventeenth-Century France and England." Past and Present 92 (1981): 20-54.

Piaget, Jean. Behavior and Evolution. Trans. Donald Nicholson-Smith. New York: Pantheon Books, 1978.

Poster, Mark. "Introduction." The Mirror of Production. By Jean Baudrillard. Trans. Mark Poster. St. Louis: Telos Press, 1975.

Ritvo, Lucille B. Darwin's Influence on Freud: A Tale of Two Sciences. New Haven: Yale University Press, 1990.

Robins, Kevin and Frank Webster. "The Revolution of the Fixed Wheel: Information, Technology, and Social Taylorism," Television in Transition. Eds. Phillop Drummond and Richard Patterson. London: British Film Institute. 1986.

---. "Athens Without Slaves... or Slaves Without Athens? The Neurosis of Technology." Science as Culture 3 (1988): 7-53.

Rochelson, Meri-Jane. "Mary Shelley's Progeny." Science-Fiction Studies 17 (1990): 259-268

Róheim, Géza. Psychoanalysis and Anthropology. New York: International Universities Press, 1950.

Rose, Steven, R.C. Lewontin, and Leon J. Kamin. Not in Our Genes: Biology, Ideology, and Human Nature. Harmondsworth: Penguin Books, 1984.

Ryan, Michael. Marxism and Deconstruction: A Critical Articulation. Baltimore: The Johns Hopkins University Press, 1982.

Sagan, Dorion. Biospheres: Reproducing Planet Earth. New York: Bantam Books, 1990.

---. "Metametazoa: Biology and Multiplicity." Incorporations: Zone 6. Eds. Jonathan Crary and Sanford Kwinter. New York: Urzone Inc., 1992: 362-385.

Sartre, Jean-Paul. Being and Nothingness. Trans. Hazel E. Barnes. New York: Washington Square Press, 1966.

Scott, Joan W. "Cyborgian Socialist?" Coming to Terms: Feminism, Theory, Politics. Ed. E'izabeth Weed. New York: Routledge, 1989: 215-217.

Seem, Mark. "Introduction." Anti-Oedipus: Capitalism and Schizophrenia. By Gilles Deleuze and Félix Guattari. Trans. Robert Hurley, Mark Seem, and Helen Lane. New York: Viking Press, 1977: xv-xxiv.

Seltzer, Mark. Bodies and Machines. New York: Routledge, 1992.

Sheehan, James J. and Morton Sosna, eds. The Boundaries of Humanity: Humans, Animals, Machines. Berkeley: University of California Press, 1991.

Sheldrake, Rupert. A New Science of Life: The Hupotheses of Formative Causation. Los Angeles: J.P. Tarcher, Inc., 1981.

Simondon, Gilbert. "The Genesis of the Individual." Trans. Mark Cohen and Sanford Kwinter. Incorporations: Zone 6. Eds. Jonathan Crary and Sandford Kwinter. New York: Urzone Inc., 1992: 296-319.

Smith, John Maynard. The Theory of Ecvolution. Edinburgh: Penguin Books, 1958.

Sobchack, Vivian. "The Trouble with Creatures and Monsters." Screening Space: The American SCience Fiction Film. 2nd enlarged ed. Unger: New York, 1988: 43-55.

Sontag, Susan. Under the Sign of Saturn. New York: Farrar, Straus, Giroux, 1972.

Spengler, Oswald. Man and Technics: A Contribution to a Philosophy of Life. Trans. Charles Francis Atkinson. Westport: Greenwood Press, 1976.

Sperling, Susan. "Baboons with Briefcases: Feminism, Functionalism, and Sociobiology in the Evolution of Primate Gender." Signs 17.1 (1991): 1-27.

Spinrad, Norman. Dexus X. New York: Bantam Books, 1993.

Spivak, Gayatri Chakravorty. "Scattered Speculations on the Question of Value." In Other Worlds: Essays in Cultural Politics. New York: Routledge, 1988: 154-175.

Springer, Claudia. "The Pleasure of the Interface." Screen 32.3 (1991): 303-323.

Stelarc. "Prosthetics, Robotics, and Remote Existence: Postevolutionary Strategies." Leonardo 24.5 (1991): 591-595.

Sterling, Bruce. "Processing The Simulacra for Fun and Profit." Monad 1 (1990): 51-65.

Stivale, Charles J. "Mille/Punks/Cyber/Plateaus: Science Fiction and Deleuzo-Guattarian "Becomings"." SubStance 66 (1991): 66-84.

Stone, Allucquère Rosanne. "Will the Real Body Please Stand Up?: Boundary Stories about Virtual Cultures." Cyberspace: First Steps. Ed. Michael Benedikt. Cambridge: The MIT Press, 1991: 81-118.

---. "Virtual Systems." Incorporations: Zone 6. Eds. Jonathan Crary and Sanford Kwinter. New York: Urzone Inc., 1992: 608.621.

Strathern, Marilyn. "Primate Visionary." Rev. of Primate Visions, by Donna Haraway. Science as Culture 2.2 (1991):282-295.

Suvin, Darko. "Karel Capek, Or the Aliens Amongst Us." Metamorphoses of Science Fiction. New Haven: Yale University Press, 1979: 270-283.

Thompson, William Irwin, ed. Gaia - A Way of Knowing: Political Implications of the New Biology. Great Barrington: Lindisfarne Press, 1987.

Trinh, T. Minh-ha. "Difference: "A Special Third World Women Issue"." Women, Native, Other. Bloomington: Indiana University Press, 1989:79-116.

Tuttle, Lisa. "Pets and Monsters: Metamorphoses in Recent Science Fiction." Where No Man Has Gone Before: Women and Science Fiction. Ed. Lucie Armitt. London: Routledge, 1991: 97-108.

Varela, Francisco J. and Jean-Pierre Dupuy, eds. Understanding Origins: Contemporary Views on the Origin of Life, Mind and Society. Dordrecht: Kluwer Academic Publishers, 1992.

Weiss, Paul. Nature and Man. New York: Henry Holt and Company, 1947.

Wells, H.G. The Time Machine. New York: Ventura Books, 1980.

White, Lynn Jr. Machina Ex Deo: Essays in the Dynamism of Western Culture. Cambridge: The MIT Press, 1968.

---. "Continuing the Conversation." Western Man and Environmental Ethics: Attitudes Toward Nature and Technology. Ed. I. G. Barbour. Reading: MA. 1973: 55-64.

Whitney, Elspeth. "Lynn White, Ecotheology, and History". *Environmental Ethics*. (1993): 151-169.

Whole Earth Review. Special issue on "Is the Body Obsolete?". 63 (1989): 1-144.

Winner, Langdon. Autonomous Technology: Technics-out-of-control as a Theme in Political Thought. Cambridge: MIT Press, 1977.

Winnicott, D.W. Playing and Reality. London: Routledge, 1971.

---. Home is Where We Start From: Essays By a Psychoanalyst. New York: W.W. Norton and Company, 1986.

Wood, Robin. "Gods and Monsters." Film Comment 14.5 (1978): 19-25.

Young, Robert M. "Science, Ideology, and Donna Haraway." Science as Culture 3.2 (1992):164-207.

Zimmerman, Michael E. Heidegger's Confrontation With Modernity: Technology, Politics, and Art. Bloomington: Indiana University Press, 1990.