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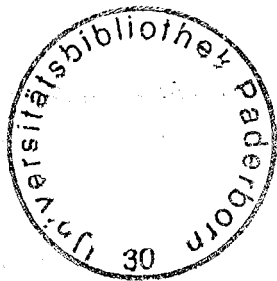
Die Zukunft des Wissens

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Contested Meanings: Nature in the Age of Technoscience

„To do away with the last remnants of nature and with the natural as such is surely the secret dream and longing of all contemporary or postcontemporary, postmodern, thought - even though it is a dream the latter dreams with the secret proviso that >nature< never really existed in the first place anyhow.”
 Frederick Jameson

„... the collapse of metanarratives that is supposed to be diagnostic of postmodernism is nowhere in evidence in either technoscience or transnational capitalism.” Donna Haraway

May be that it was a traditional philosophical attitude which led me to research in the field of technoscience. Long before I started reasoning about the sociocultural effects and discursive power of technoscience in contemporary western societies I wondered about a certain shift in contemporary theory.

Most of the theory I read in the last two decades - I'm thinking of poststructuralism, deconstructivism, constructivism or system theory in its feminist or >traditional< versions - shows a tendency towards the theoretical strategy of >denaturalization< - despite of all the diversity of these different theoretical approaches.

What I call >denaturalization< is a negative strategy which criticises the reifying and naturalizing use of categories and insists on their social and cultural construction and linguistic mediation. >Entities< such as >subject<, >history<, >presence< - and especially >nature< are not seen as pre-existing, but as constituted in historical, sociocultural and discursive processes. Consequent >denaturalization< insists that there is no positive, unmediated access to reality defined as an independent ontological realm. This strategy follows the insight of Katherine Hayles: that “... we are always already within the theater of representation< (Hayles 1998:1).

With this strategy postmodern critical discourse has been trying to get rid of an ideologically contaminated use of categories, which were addressed to Humanist thought constructing categories as self-evident, natural, prediscursive and everlasting. Criticising this dubious politics of representation masqueraded as objectivity and universality and insisting on the sociocultural construction and linguistic mediation of categories was supposed to overcome the dangerous and

seductive strategies of scientific and other naïve realism, of naturalism as well as of biologism, with their rigid hierachical and dichotomic way of thinking¹.

In my opinion, the success of or even enthusiasm for this strategy in contemporary philosophical discourse is on one hand grounded in its enlightening and differentiated critique of the >logic(s) of identity< (Adorno) of western philosophy and - at least in the Anglo-American postmodern debate² - in the reduction of modern philosophy to an exhausting attempt to mirror nature (see Rorty 1979) on the other. The ignorance of already well-known versions of >denaturalization< - as they were developed for example in Kants >Critique of pure reason< - made the glorious >invention< of this strategy much easier.

And still I wonder why the strategy of denaturalization - and especially >dematerialization< as its dogmatic form - did develop *such* a power of persuasion and definition in contemporary discourse.

As I have shown elsewhere (Weber 1998a/b), dematerialization - in contrast to denaturalization - is the radical negation not only of the prediscursive, but of everything beyond cultural discourse. Insisting on the more or less literal *production* of nature by culture, discourse or / and language, dematerialization makes itself wide-ranging ontological statements and leads to problematic effects.

And why is it, that in the age of inquisitive critique of the >metaphysics of presence< (Derrida) as well as *prima philosophia* (Adorno) dematerialization could become may be even more popular than its modest and subtle version called denaturalization? And why has denaturalization been naturalized itself so easily? And how could these strategies more or less gain the status of a >grand narrative< (Lyotard) or even >leviathan narrative< (Traweek) in postmodern theoretical discourse?

Confronted with these problems I started to reason about the relation between the popularity of >denaturalization< and especially >dematerialization< in postmodern philosophy and our every day experiences with and in the culture of technoscience. Reading the following lines of Alice Jardine gave me a kick:

>They (the postmodern writers; JW) have denaturalized the world that humanism naturalized, a world whose anthro-pology and anthro-centrism no longer makes sense. It is a strange new world they have invented, a world that is *unheimlich*.“ (Jardine 1985:24)

But what makes our contemporaries, who write “self-consciously, from within the ...

epistemological crisis specific to the postwar period and who do not pretend that the first half of the twentieth century did not happen” (Jardine 23), present their (and our) world so strange and

¹ see Alcoff 1988

² Perhaps this is an effect of the >globalisation< of theoretical discourse and its discourses crisscrossing the atlantic?; for the communication problems between Anglo-American and Continental philosophy see Knapp 1998, Weber 1999a

uncanny? Much of the new developments of our century which cause this feeling of strangeness and fear seems to be connected to the development of science and technology. John Barth characterizes our century with the following words:

>It *did* happen: Freud and Einstein and two world wars and the Russian and the sexual revolutions and automobiles and airplanes and telephones and radios and movies and urbanization, and now nuclear weaponry and television and microchip technology and the new feminism and the rest, and there's no going back...< (Barth 1980, 70)

Even though I am not quite convinced of his specific collection of attributes for our century, what becomes clear here is the wide-ranging meaning of these multiple kinds of technologies and their omnipresence in our age. This came into being not at last through the fusion of technology, science and industrial practices. In the last two or three decades many sociologists, philosophers as well as science studies scholars³ have stressed the meaning of this fusion called technoscience, which started at the end of the 19th century, for knowledge production as well as every day life in contemporary western societies.

In accordance with Donna Haraway and Bruno Latour I will use the term >technoscience< not only to signify our contemporary form of science in which knowledge is systematically produced inside of and intimately interwoven with industrial and technological practices (see Haraway 1995; Weber 1999b), but to signify our contemporary age as an age in which technoscience "designates a condensation in space and time, a speeding up and concentrating of effects in the webs of knowledge and power" (Haraway 1997, 50) and causes a restructuring of contemporary western societies.

By using the term >technoscience< as the signum of our time instead of any >prefix-modernity< one can avoid the implication of an unbridgeable gap between our presence and the past and open a more differentiated view on the ongoing processes of change. This consciousness of continuity is also important for the understanding of technoscientific knowledge production in our century. In my opinion technoscience belongs to and is part of the tradition of (mainstream) modern science with its epistemological and ontological concepts, but gained a new dimension and thereby power and effectiveness by altering and radicalizing certain aspects and tendencies of modern science.

The modification and rewriting of the modern concept of nature with the help of cybernetics, system theory and molecular biology is one of the central radicalizations of modern science. It led to a new quality in the use and production of nature. One radical step towards this new concept of nature was the diachronic interpretation of nature not as a static, unchangeable and perfect >entity<⁴, but as a historical, dynamic and open system, which was developed in evolution theory

³ see Barad 1996; Haraway 1991, 1997; Krohn 1989; Latour 1995; Mittelstraß 1993; Saupé 1997

⁴ „Eine diachrone Betrachtungsweise hat die synchrone, strukturanalytische abgelöst; in ihrer Folge tritt die Natur als

as well as in thermodynamics in the 19th century.

The consequences of this new concept of nature was not only an open and historical concept of nature, but the softening of the borders between human beings and things, between man and animal, between the living and the non-living, which became much more instabile or flexible than before⁵ ().

For example: the first law of thermodynamics states that matter or energy can never be destroyed, but only converted or transformed. This is the beginning of the idea of being as something that is made of similar or identical and contingent components, which can change their form in endless repetition – in organic as well as non-organic forms:

„The concepts of thermodynamics completely upset the notion of a rigid seperation between beings and things, between the chemistry of the living and laboratory chemistry. With the concept of energy and that of conservation, which united the different forms of work, all the activities of an organism could be derived from its metabolism... the same elements compose living beings and inanimate matter, the conservation of energy applies equally to events in the living and in the inanimate world.< (Jacob 1983)

In order to understand and to bring nature under control, modern science achieved to produce nature by creating and generating nature a second time. Listen to Kant in one of his scientific writings: „... gebet mir Materie, ich will euch zeigen, wie eine Welt daraus entstehen soll.< (Kant 1961, p.46)⁶

This new idea of matter induced by thermodynamics and evolution theory does not correspond to the idea of production as generation and creation but to the idea of production as conversion and processing - which can even be performed between human beings and machines (see Seltzer 1992:172)

This new idea of nature still is very distant from the paralellization of physical-mechanistic and organic processes. This parallelization is the basis for the biological-technical construction and production of *living* organisms by technoscience in the last decades of our century. I can mention only some of the developments central to this new concept and use of nature in the age of technoscience: I am thinking of the mechanistic imitation of organism by cybernetics, the development of system theory, the enforcement of molecular biology with its miniaturization and concentration on innercellular processes which allowed the physicalization and mathematization of biological objects and the invention of autopoiesis theory which defined life as an autopoietic system or a machine in terms of informatics. In late twentieth century the biological body is

Naturgeschichte auf, als gewordene und sich wandelnde. Nicht mehr wird sie als perfektes, absolutes System angesehen, sondern als offener, relativer Prozeß; denn was garantiert, daß das angeblich konstante, ... Sonnensystem – Paradigma des geschlossenen invarianten Systemtyps – nicht in Wahrheit das Endprodukt einer Entwicklung oder auch nur die Durchgangphase eines permanenten Veränderungsprozesses des Universums ist.“ (Gloy 1996, 223f)

⁵ see Haraway 1991, Latour 1995, Seltzer 1992, Singer 1996, Scheich 1989

„symbolized and operated upon, ... as a coded text, organized as an engineered communications system, ordered by a fluid and dispersed command-control-intelligence network ...“ (Haraway 1991, 211).

And this application of communication as well as system theory especially on the level of innercellular processes of the biological body makes the production of living organisms possible. This leads to a new quality in science and its technological and industrial practices.

In the age of technoscience the grand narrative of science is changing from the story of the modern scientist as a demiurge, who created artifacts by using the >laws of nature<, to the story of the continuation of nature by its >own< means. The claim of technoscience not to create but to continue the work of nature by rebuilding, converting and perfecting it, gives the border between nature and culture its chimerical character. The capacity of technoscience to design living organisms, to overcome the border between the material and the immaterial, between bodies and machines and to produce cyborgs or chimeras in an unknown extent (Latour) is the result of this new concept of nature, but is effectively and powerfully translated into action by this intimate and dependent relationship of the scientific, technological and industrial practices⁷.

This diffusion of the border between nature and culture is the key figure in the diverse and multiple confusion of categories in the age of technoscience, in which these new and >unheimlich< hybrids are going to be materialized, disseminated and popularized.

Being aware of the diffusion of the border between nature and culture by technoscience, I become even more sceptical of the contemporary enthusiasm for the theoretical strategy of >dematerialization<. While postmodern theory is occupied with deconstructing Humanist categories to get rid of naturalist and biologist ideologies, technoscience itself is already through with nature in its Humanist sense - undermining what was once regarded as natural or organic architectures. The understanding of nature as static, unchangeable and prediscursive, which contemporary theory attributed to Humanist thought, obviously is out of date.

This does not mean that the so-called givenness of nature would not still be used for the legitimation of the ventriloquist practices of science. For example: if you examine today's school text books as well as many discussions in the media concerning genetic engineering, you will find the claim that contemporary biotechnology only does what nature always has done. Suddenly nature has always been a genetic engineer itself. This naturalizing strategy of technoscience Donna Haraway characterizes very well:

⁶ >Give me matter and I will show you how to create a world out of it< (Kant 1961, p.46; my translation, JW)

⁷ on the technologization of science and the scientification of technology and the omnipresence of technoscience see Gamm 1997, Haraway 1991, 1997, Krohn, Mittelstraß

„Nature in technoscience still functions as a foundational resource but in an inverted way, that is, through its artifice. In a gesture of materialized deconstruction that literary Derrideans might envy, the technoscience foundational narrative inverts the inherited terms of nature and culture and then displays them decisively. ... How does the story work? Precisely as fully artifactual, the nature of no nature gives back the certainty and legitimacy of the engineered, of design, strategy, and intervention. The nature of no nature is the resource for *naturalizing* technoscience with its vast apparatuses for representing and intervening, or better, representing *as* intervening (Hacking 1983).“ (Haraway 1997, 102f)

On one hand technoscience is through with nature in the Humanist sense but uses the theoretical strategy of naturalization to legitimate its claims on the other. This strategy of naturalization became popular already in modernity, when discourses like philosophy and theology lost its binding power and the discourse of science was seen as the decisive one for the production of truth (Foucault). This >truth< gained its powerful status by pretending that science only witnesses the processes of nature while being itself objective, universal and free of interest.

So what to think of all these confusing strategies of re- / naturalization, denaturalization and dematerialization circulated by the different discourses of technoscience?

I think, that the postmodern strategy of denaturalization insisting on the sociocultural construction and linguistic *mediation* of categories and entities is quite helpful to analyze the ongoing processes of the transformation of nature in contemporary western societies and to deconstruct these dubious politics of representation performed by modern science as well as technoscience.

In contrast to denaturalization I see the strategy of dematerialization as a perpetuation if not legitimation of the politics of representation practised by technoscience. There is no difference between the claim that nature is an ideological artifact which is produced by culture and technoscience's constructivist concept of being as made of interchangeable and contingent parts – which includes everything in the realm of nature and of culture. In both cases the difference between nature and culture is eliminated. This dubious politics of representation pursued by dogmatic forms of contemporary theory as well as legitimating practices of technoscience produces an effect which is very well described by Michel Callon: >To speak for others is to first silence those in whose name we speak.< (Callon 1986, 216, cited by Star 1991, 40). While technoscience integrates its new constructivist concept of nature – its >nature of no nature< - in the well-proved modern politics of representation, contemporary theory overhauls technoscience by declaring nature to be the product of culture and thereby ignoring its beloved insight that we are always acting in the theater of representation.

It is obvious that this politics of representation perpetuates technoscience's claim that there is no decisive difference between nature and culture. The obliteration of nature produces an effect which is well-known from the history of Enlightenment called >hyperproductionism< (Haraway) and

which is typical for cultural monism: that there is nothing beyond the order of reason, of >man<, of society or discourse. As the possibilities for the production of living organisms by technoscience improves, more and more theorists are convinced that everything is the result of human production and nature is nothing more than an ideological artifact. This is a quite interesting stance at a historical moment when:

>Our developed powers over nature have brought about a situation in which we are today far more at the mercy of what culture enforces than we are subject to biological dictate." (Soper 1995, 326)

Bearing this in mind, I think we should not deny nature, but strengthen our attempts to understand the ongoing uncanny changes concerning this enigmatic category and problematic entity in our theater or representation.

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