From Hot/Cold to Analog/Digital

Automation as the Limit of McLuhan's Media Anthropology

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"Automation: Automatic control of the manufacture of a product through a number of successive stages; the application of automatic control to any branch of industry or science; by extension, the use of electronic or mechanical devices to replace human labour" (Oxford English Dictionary).

"Any new medium, by its acceleration, disrupts the lives and investments of whole communities" (McLuhan, *Understanding Media*, 111).

1.

One aspect of McLuhan's *Understanding Media* no longer appears to enjoy great popularity; this is his distinction between "hot" and "cold" media. Other distinctions have been more successful, first and foremost of course the differentiation between analog and digital media, which – despite the wealth of borderline cases and problems – continued to shape the debate on media until fairly recently. The A/D distinction plays no role for McLuhan in *Understanding Media* (1964) – even though the computer is referred to as a medium¹ and the "digital computer" is mentioned in passing. At first, this seems fairly easy to explain. McLuhan writes that media are extensions of ourselves: even if these extensions, the media, set the standard for all further perception, they nevertheless remain human derivatives, originating in the individual human body and its abilities. This anthropological basis of McLuhan's media concept has often been emphasized (cf. e.g. Tholen, "Platzverweis", 114-115). By contrast, the differentiation between the analog and the digital emerges around 1946 in cybernetics, where the boundary between human and machine was being challenged. There the concern was less with technology derived from human beings, but rather with the fact that the behavior of both humans and machines follows homologous principles. In the years following *Understanding Media*, this distinction increasingly gained prominence (for a general overview, cf. Schröter and Böhnke, *Analog/Digital*; also cf. the contributions on this topic in Warnke, Coy and Tholen, *Hyperkult II*). The distinction A/D refers more closely to forms of saving and transferring information – through analog signal values or discrete codes – that open up different processing options, independently of the question of the human body. While McLuhan at certain points also mentions the media's ability "to store and translate" (McLuhan, *Understanding Media*,

¹ Cf. McLuhan, *Understanding Media* on the computer as a medium of communication and Höltschl and Boehler, "Ich bin mein eigener Computer" on the computer as an electronic medium.

65), the reference to media as forms of perception remains dominant. This is also where we need to locate the distinction between hot and cold media.² McLuhan's definition is as follows:

"There is a basic principle that distinguishes a hot medium like radio from a cool one like the telephone, or a hot medium like the movie from a cool one like TV. A hot medium is one that extends one single sense in 'high definition'. High definition is the state of being well filled with data" (McLuhan, *Understanding Media*, 24).

By contrast, "cold" or "cool" media are poor in detail and invite the subjects using the medium to fill in the missing details or, as with the telephone, to join in and – at least this is how McLuhan occasionally puts it – actively engage all of their senses. "Hot media are, therefore, low in participation, and cool media are high in participation or completion by the audience. Naturally, therefore, a hot medium like radio has very different effects on the user from a cool medium like the telephone" (McLuhan, *Understanding Media*, 25).

According to McLuhan, hot media tend to have a disruptive, shock-like effect on their given cultures, as particular senses are addressed in a particularly concentrated manner. Even though similar aesthetic connotations were occasionally linked to the analog/digital distinction – for example the introduction of the first commercial "digital medium", the CD player, was accompanied by the lament that CDs sounded "colder" than analog vinyl records – it does not seem possible to create any systematic relationship between these two differences: in the eyes of strict followers of McLuhan's theory, the telephone's mode of addressing, its "cool" character, will hardly have changed, even though its technical structure has long since moved from analog to digital. Television, McLuhan's prime example of a "cool", detail-impooverished medium – quite understandable, given what television was like in his day – by now has become considerably higher in resolution (keyword HDTV). Almost as if he had foreseen this, McLuhan answers the question of "whether all this would change if technology stepped up the character of the TV image to movie data level" explicitly by asserting that "'improved' TV [would not] be television" (ibid. 342). *Technological change only changes the medium or translates it into a new medium if the way in which perception is addressed changes*. Thus McLuhan's concept of media refers explicitly to human aisthesis. I will not go further into the debate on whether the distinction hot/cold is actually a useful one, nor discuss whether groups of media rather than individual media should be referred to as hot or cold; nor will I pursue the question of what McLuhan's idiosyncratic mention of hot or cold cultures means. *Initially* I simply want to note that the two distinctions between hot/cold and analog/digital do not have much to do with one another. The one distinction refers to the media users' perception, the other to the predominant technical *modus operandi* of a given medium. However, it is an observable fact that one distinction referring to the media users' aisthesis has failed to prevail over another distinction which does not do this. This will form the subject of our discussion. In other words: we are here concerned with the question of why the distinction between analog/digital has asserted itself over the distinction hot/cold.³

² Even though McLuhan often uses the word "cool" in the chapter dealing with this distinction, its title is "Media Hot and Cold" (McLuhan, *Understanding Media*, 24), so that use of the term "cold media" seems justified. Whether the terminology "hot/cold" (which is probably used for the first time in McLuhan, "Popular/Mass Culture: American Perspectives", 38 and 40) derives from the hot and cool jazz of postwar America is another matter that I will not discuss further here.

³This question ultimately was left open in Schröter and Böhnke, *Analog/Digital – Opposition oder Kontinuum*.

2.

In the following, I want to investigate a medium that implicitly introduces the question of digitalism to McLuhan's discourse: the medium of automation. As is well known, the chapter on automation is the last one in *Understanding Media*, and in it McLuhan refers to "computers" several times. The first paperback edition of 1965 contains a small additional introduction that starts out with the distinction between hot and cold, automation and its relationship to "jobs". McLuhan writes: "But the slang term 'cool' conveys a good deal besides the old idea of 'hot'. It indicates a kind of commitment and participation in situations that involves all of one's faculties. In that sense, one can say that automation is cool, whereas the older mechanical kinds of specialist or fragmented 'jobs' are 'square'" (McLuhan, *Understanding Media* 1965 edition, v/vi). For McLuhan, automation thus is a cool medium, as it requires participation. He writes: "With automation, [...] jobs [...] disappear, and complex roles [...] reappear" (*Understanding Media*, 378). Obviously McLuhan is writing about the process of using digital computers in the world of work, which was only just beginning at the time that *Understanding Media* was written, and the concurrent first indications of work rationalization (on the history of automation in the USA, cf. Noble, *Forces of Production*). At several points he mentions the "withdrawal of the present work force from industry" (304), "'labor-saving' devices" (39), and at the beginning of the book explicitly writes that the elimination of routine labor is a "negative result" (7) of automation.

My thesis is that in the chapter on automation, the "cybernetic collapse of the expansion hypothesis" (Pias, "Die kybernetische Illusion", 59) occurs – as Claus Pias aptly notes. The digitalism of the programmable machines and the cybernetic means of control that thus become possible and stand behind automation – McLuhan sometimes speaks of "cybernation" (*Understanding Media*, 269) – erupt traumatically into McLuhan's discourse, rendering the question of whether a medium requires a "low level" or "high level" of "personal participation" irrelevant. The electronic industrial robots based upon digital technology simply eject human beings from the production process, even if or especially if they are seen as an expansion of the "central nervous system" (ibid. 384). For why would one need unruly and cost-intensive human central nervous systems when artificial ones are available? For many individuals, automation does not mean they are able to participate using all their abilities; far from it: it means they are no longer able to participate at all. The old "mechanical" jobs can be as "square" as you like – it is still better to have one of those jobs than none at all.

The question of the role that automation plays in destroying work and what the effects of this are on societies that center upon work and money remains controversial to this day. In the following, a kind of worst case scenario will be presented to bring the line of argument into sharper focus.

McLuhan's premonition of the "the specter of joblessness and propertylessness in the electric age" (ibid. 380) has its basis in reality. At the time that *Understanding Media* was written this could not yet be discerned clearly. The debate in the Federal Republic of Germany serves as an example of this. For instance, in 1965 the then president of IG Metall (Industrial Union of Metalworkers), Otto Brenner, was still able to write: "In the Federal Republic, we have had full employment for years, in spite of automation and technologization [...]. The Unions are certainly not among those who anticipate that automation and other forms of technological progress will inevitably lead to mass joblessness" (Brenner, "Automation und technischer Fortschritt in der Bundesrepublik", 16, 22).

However, even at this point there were already inklings of what was to come: “The last year was a particularly successful one for the German industry. Production rose by 8.3 percent. However, the number of employees only rose slightly” (ibid. 26). As computers became increasingly cheap and small in size, productivity indeed rose at the expense of employment – a process that only truly set in in the 1970s: “The automation of the metal industry is considerably harder due to the complexity and differences between the different production stages, and only begins on a massive scale in the mid-1970s following the introduction of the microprocessor as a cheap controller unit” (Coy, *Industrieroboter*, 64). Thus it hardly came as a surprise when these inklings gradually took on concrete shape and form. In 1983, IG Metall published a study on technological mass joblessness which carried the speaking title “Maschinen wollen sie – uns Menschen nicht” (“They want machines – not us humans”). It emphasizes that the “visible abuse of new technologies against workers [...] has completely destroyed the more or less positive attitude we had so far towards new technologies”, and that “the risk of losing one’s job has thus increased hugely” (Industriegewerkschaft Metall, *Maschinen wollen sie – uns Menschen nicht*, 8, 25). Similar opinions were suddenly voiced elsewhere, too. In 1977 the philosopher Günther Anders wrote in his book *Die Antiquiertheit des Menschen* (“The Outdatedness of Human Beings”), the second volume of which is titled *Über die Zerstörung des Lebens im Zeitalter der dritten industriellen Revolution* (“On the Destruction of Life in the Age of the Third Industrial Revolution):

“Well, the majority of workers today do not belong to the category of the servants of automation yet. But this trend is unstoppable: predictions say that by the year 2000 most workers will be automation workers. Of course this does not mean that all of those ‘willing to work’ will work at or in automations. For there is the cast-iron rule of the *inversion of proportions*, which states that *a rising number of automations leads to sinking numbers of workers required*. In other words: it is inevitable that, as a ‘secondary product’ so to speak, automations produce a huge mass of millions of jobseekers” (Anders, *Die Antiquiertheit des Menschen*, 94).⁴

Accordingly, cybernetic technologies by no means turn many people into the “servomechanisms” (McLuhan, *Understanding Media*, 384) of an extension of man, or even into the “sex organs of the machine world” (ibid., 51); they simply render them *superfluous*. McLuhan’s claim that a “cool medium, whether the spoken word or the manuscript or TV, leaves *much more for the listener or user to do* than a hot medium” (*Understanding Media*, 348; italics J. S.) no longer applies to the supposedly cool medium of digital automation: there is in fact far less to do. In 2005, the world’s largest 200 businesses encompassed more than 25% of global economic activity, but were only able to employ 0.75% of humanity (cf. Kurz, *Das Weltkapital*, 81).

As a matter of course, McLuhan invokes rather vague “decentralized [...] forms of work” (*Understanding Media*, 182) as the solution – something that has not changed much to this day. The “service economy” or “knowledge economy” are frequently portrayed as allegedly new job miracles. But in this day and age, does anyone still buy their train ticket from the surly railway company employee and rather than online? Does anyone not do their banking online? Does anyone not order their books, CDs and DVDs from Amazon? Does anyone not do business on eBay? The spread of

⁴ Before Anders, John Maynard Keynes and Hannah Arendt among others had already warned against imminent technological unemployment.

commercial services on the internet in particular razes jobs in the service sector.⁵ The jobs created in the computer industry itself – McLuhan also places his hopes in “the work of learning, and [in] the programming of computers” (ibid. 305) – cannot compensate for even a fraction of the positions lost.⁶ If the sentence “the hot form excludes, and the cool one includes” (ibid. 25) is true, then automation is not cool at all, but is rather scorchingly hot: *reversal of the undercooled medium*. Seen in this light, McLuhan’s famous slogans, that the medium is the message and that a medium’s content is always another medium, are apt: if we turn our TV on today, most of the channels are covering mass unemployment – which is continuing to grow despite all so-called “reforms”⁷ – and its effects, such as a shrinking domestic economy, loss of tax revenue, the shortfall in public budgets, the enormous national debt which can never be repaid,⁸ capital flight to the last more or less profitable tax havens, and so on. The scorchingly hot medium of automation, or rather its destabilizing effects, have become a key topic of television (and radio). Here, McLuhan’s claim that the “future of work consists of learning a living in the automation age” (*Understanding Media*, 378) takes on a cryptic and uncanny deeper meaning.

3.

When describing our current situation, the question quickly arises of why McLuhan’s “Pentecostal condition” (ibid. 87) – in the “final phase of the extensions of man”, the “creative process of knowing will be collectively and corporately extended to the whole of human society” (ibid. 3) – has not really been fulfilled. Well: the ominous “society” makes an appearance in the last quote. Our hypothesis could thus be that the potentially magnificent effects of an “automated plant” (ibid. 388) – that human beings simply have to work less and have more leisure and “resources of self-employment” (ibid. 390) at their disposal – founder because of that “society”, or to be precise: because of the

⁵ Fully automated video rental stores already exist, and fully automated restaurants are already on the horizon: “Classic waiters have already been done away with in his restaurant’s *Baggers*. Instead of serving staff, next to every table there is a steel spiral, which is connected to the kitchen via two parallel shafts. From there, the dishes (“organic beef in buttermilk”, “bratwurst in puff pastry”) glide to the customers’ table, drawn by gravity. [...] Clients order the dishes using the touchscreens that each guest has in front of them. A computer system turns the entire restaurant into a network: while the customers’ orders are registered upstairs in the kitchen, a screen in the storeroom shows imminent supply shortages. While all of this is going on, the programme calculates the expected time of delivery for food and drink [...]. [...] ‘We can save billions of euros on staff’, the restaurant’s proprietor reckons” (Tadeusz, “Bratwurst auf der Rutsche”).

⁶ McLuhan (*Understanding Media*, 287; italics J.S.) also knows that “with the computer, *the work effort is applied at the ‘programming’ level*, and such effort is one of information and knowledge.” Once programmed, software can be easily copied – both by the supplier and, to his or her chagrin, by third parties. But in order to produce two cars double the amount of work was needed (at least until the beginning of industrial robotics). These technologies, which were not called “Fordist” by chance, were the carriers of the long-since past and aptly named “economic miracle”. Cf. also Wiener (“Moral Reflections of a Mathematician”, 757), who was under the illusion that all redundant ‘simple workers’ could rise to higher management or programming tasks through “some sort of upgrading” – as if the number of these were not even smaller. In 1952 Kurt Vonnegut’s dystopian novel *Player Piano* was published; it described a future society in which due to automation no one has any work apart from a tiny elite (Vonnegut, *Player Piano*).

⁷ And occasional economic upwards bulges, which the media celebrate every time as a “trend reversal on the labor market”, despite the fact that they are simply risible compared to long-term trends.

⁸ In the case of the Federal Republic of Germany (all public budgets), national debt is at c. 1561 billion euros at present and growing by 32 euros a second (according to a conservative evaluation), cf. www.staatsverschuldung.de/schuldenuhr.htm (last accessed: December 2007).

historically specific social *form*. McLuhan himself notes vaguely that “automation forces [...] some relation to social facts” (ibid. 386) to be created. One of these social facts is the existence of other media. According to McLuhan, “no medium has its meaning or existence alone, but only in constant interplay with other media” (ibid. 28). Consequently, automation has no meaning or existence in and of itself, but has to have some reference to another medium. The key role played by this medium in all modern societies is symptomatically ignored in the placid and orderly, equal-ranking list of different media in the contents of *Understanding Media*. This medium is of course money.

Automation, which McLuhan also refers to as “cybernation” (ibid. 269) can only develop in relation to a society fixated upon the “fetish medium of money”.⁹ Sixteen years before McLuhan’s *Understanding Media*, Norbert Wiener already knew that the third (he calls it the second) industrial revolution would result in the large-scale rationalization of workplaces due to cost-cutting competition and (as McLuhan is also aware) “competitive fury” (ibid. 455). In his 1948 book on cybernetics, Wiener wrote of the coming potential of the “ultra-rapid computing machines”:

“The automatic factory and the assembly line without human agents are only so far ahead of us as is limited by our willingness to put such a degree of effort into their engineering as was spent, for example, in the development of the technique of radar in the Second World War. [...] It may very well be a good thing for humanity to have the machine remove from it the need of menial and disagreeable tasks, or it may not. [...] It cannot be good for these new potentialities to be assessed in the terms of the open market [...] There is no rate of pay at which a United States pick-and-shovel laborer can live which is low enough to compete with the work of a steam shovel as an excavator. The modern industrial revolution is similarly bound to devalue the human brain, at least in its simpler and more routine decisions. [...] taking the second [industrial] revolution as accomplished, the average human of mediocre attainments or less has nothing to sell that is worth anyone’s money to buy” (Wiener, *Cybernetics or control and communication in the animal and the machine*, 26-28).

This passage shows that Wiener knows something that McLuhan (writing during the heyday of the Cold War) no longer really wants to acknowledge: that the “automated plant” does not exist in and of itself, but only in relation to – as Wiener puts it – the “terms of the market”. Put differently: what is still apparent in Wiener’s 1948 text is the *distinction between the forces and the conditions of production*. A hundred years before McLuhan, Karl Marx wrote in his *Grundrisse* that when a person only behaves as “a watchman and regulator to the production process”, then (for most people at least) “labour [...] cease[s] to be the great well-spring of wealth”. The less production depends on “direct labour time spent” than on “the general state of science and on the progress of technology”, the more “production based on exchange value breaks down” (Marx, *Grundrisse*, 705).¹⁰

⁹ One would have to echo Marx: “It is clear that this mediator now becomes a real God, for the mediator is the real power over what it mediates to me. Its cult becomes an end in itself. Objects separated from this mediator have lost their value. Hence the objects only have value insofar as they represent the mediator, whereas originally it seemed that the mediator had value only insofar as it represented them. This reversal of the original relationship is inevitable” (Marx, “Comments on James Mill”). To the extent that the mediator becomes the ends, it is money that should be seen as the leading medium of our time (not television or the computer). Also cf. Winkler (*Diskursökonomie*, 36) on money as a “social universal signifier”.

¹⁰ The difference between the conditions of production and the forces of production is the most interesting aspect of Marx’s approach (besides the fetish theory), and still remains current today (it is more important

There could thus be a fundamental conflict between the cybernetic forces of production of automation and the *pecunio-centric* conditions of production, whose only purpose is to increase value in the form of money.¹¹ While the individual capitals are constantly forced to withdraw labor from the production process in their “bitter competitive battle” (McLuhan, *Understanding Media*, 272) on the market in order to remain cost-effective and thus competitive, this process is sawing off the branch on which money-focused societies sit: for if labor is reduced to zero, then no money is earned, no products can be sold and no taxes levied (cf. Kurz, “Die Himmelfahrt des Geldes”; *Das Weltkapital*).¹²

Incidentally, the conflict between the forces and conditions of production¹³ have nothing to do with the sleepwalking mentality of an instrumental understanding of media. Marshall McLuhan himself differentiates between “institutions [as] extensions of social man and of the body politic” on the one hand and “technologies [as] extensions of the animal organism” (*Understanding Media*, 388) on the other. This should be stressed: for McLuhan, there are both “institutions” and “technologies” – both conditions and forces of production. In McLuhan, we thus see reappearing, through the back door as it were, that economic reproduction of society *needed to maintain those bodies of which media are supposed to function as extensions*. Why should these different extensions, and thus media – elsewhere McLuhan speaks of a “social machine” (*Understanding Media*, 258) and of “society as a single unified machine for creating wealth” (ibid. 387) – not be able to come into conflict with one another? He explicitly refutes the archaeological working hypothesis that things must be viewed in isolation and emphasizes that “the interplay among media is only another name for this civil war that rages in our society and our psyches alike” (*Understanding Media*, 53): a very special kind of intermediality.

Actually the author claims that with the emergence of electricity, the old, mechanical, hot media will gradually be displaced by cooler ones – according to McLuhan himself, money is a hot medium.¹⁴ In his chapter on money, he relates it to the age of electronic automation and makes two statements that appear to exclude one another: first, he writes that “[e]ven in the electronic age [money] has lost none of [its] power” (ibid., 145), while only a few pages later he states that “[t]oday, electric technology puts the very concept of money in jeopardy” (ibid., 151). In fact, this is by no means a contradiction, but matches the reading suggested here exactly.

than class struggle, which ultimately is immanent, or even than historical teleology). Above all, it is interesting that “technical” and “social” elements are seen as irreducible. Neither of these elements is able to exist without the other, but their relationship is one of tension. The overcoming of the division between the “social” and “technology” which Bruno Latour repeatedly calls for (Latour, *Reassembling the Social*, 75-76), could link to this point.

¹¹ Marx’s concept of “capital” as an “automated subject” describes precisely this neverending movement of the self-propagation of value in the form of money. By “capital”, he means neither merely the creation of a hoard, nor a group of persons (such as the aggregate of all “capitalists”), cf. Kurz, *Das Weltkapital*.

¹² That the tendency is for work to disappear is also evident from the simple fact that literature on this phenomenon is constantly growing, cf. Rifkin, *Das Ende der Arbeit und ihre Zukunft*; Geisen et al., *Zukunft ohne Arbeit?*; Bürmann, *Die Gesellschaft nach der Arbeit*.

¹³ This conflict can also be seen in the tension between the lossless copy (often cited as a characteristic of digital media) and the still extant copyright legislation. Increasingly, attempts are being made to preserve the commodity form of digital data, through technical processes (copy protection) and legal measures (threat of imprisonment), cf. Meretz, “Der Kampf um die Warenform”. Cf. McLuhan’s prophetic statement on the “censors” who should attempt “the suppression of media as such” (*Understanding Media*, 419-420).

¹⁴ At least twice he links it explicitly to the equally hot printing, cf. McLuhan, *Understanding Media*, 145, 146.

To the extent that McLuhan, following the tradition of classic economics and Marx,¹⁵ *on the one hand* defines money “as a store of work” (ibid. 149),¹⁶ automation and the increasing abolition of work it entails indeed call into question the concept of money. The author himself emphasizes that money serves less and less as such a store: “Automation, which is electronic, does not represent physical work so much as programmed knowledge” (ibid.). McLuhan invokes the “image [of a] credit card” (ibid.) – which now is a symbol of the ever-increasing excessive borrowing of private households (particularly in the USA) and of states, which use credit to compensate for the decrease in the accumulation of capital in real terms. To cite just one current example: in real terms, wages in the USA have now decreased to the level of the 1970s – but in order to maintain the (culturally) “normal” level of consumption, households go into debt (cf. a statement on the US housing crash made in an interview in August 2007 by Robert Frank, who as one of the US’s star economists is certainly no Marxist, cf. Frank, “Die Mittelklasse leidet unter Konsumdruck”); much the same goes for states.¹⁷ The decoupling of irregular added value from labor can be described as a kind of self-abolition of money (cf. Kurz, “Die Himmelfahrt des Geldes”; *Das Weltkapital*, 114-125). *On the other hand*, we all remain servomechanisms of money – as there has been no change to the basic structure in which goods can only be acquired as wares in exchange for money. Money retains its power as a social form, but at the same time abolishes itself. Or, as McLuhan puts it: “The avid desire of mankind to prostitute itself stands up against the chaos of revolution” (McLuhan, *Understanding Media*, 266).¹⁸

When McLuhan speculates elsewhere on the “disruptive impact of a hot technology succeeding a cool one”, this can be linked to automation, which is precisely not cool, but ultra-hot, and money, which is relatively cool by contrast. There are authors – such as Moishe Postone (*Time, Labor and Social Domination*) – who see the conflict between “cybernation” and money as the beginning of the end of money-centered forms of society. Not that another world will just arise on its own, but this one here and today slowly but surely stopped functioning. According to Postone, the downfall of so-called socialism in 1989/90 was by no means the victory of a (capitalist) system over another (socialist) system, but only the beginning of the end of all pecunio-centric systems organized around the cycle of work-money-consumption – it was simply that the weakest variants died first.¹⁹ So is

¹⁵ Whose “Critique of Political Economy” is also a critique of labor in and of itself.

¹⁶ As is well known, the theory according to which value is based upon labor has long since been rejected by neoclassical economics, cf. Gernalzick, “Medium Geld”. For criticism of the untenable neoclassical critique, cf. Kurz, *Das Weltkapital*; Ortlieb, “Marktmärchen”; Hüller, “Des Bäckers umwerfende Theorie vom Gleichgewicht”, and Büttner, “Die Nutzlosigkeit der neoklassischen Nutzenlehre”.

¹⁷ Also cf. Winkler (*Diskursökonomie*, 43): “And thirdly, capital – as easy as it is to forget this – is a store of past labor”. We can add that today, the link of the value that capital accumulates to labor is not “forgotten”, but intentionally *suppressed*, and has been for some time. Otherwise we would be forced to admit that the enormous debt of both private households and states is *impossible* to ever pay off. If money had no connection at all to work, then these debts could simply be covered by new credit, *ad infinitum* in a kind of Baudrillardian simulation. That this obviously is not the case is evident for example in the tortured debate on how the Federal Republic of Germany’s national debt could be reduced.

¹⁸ Cf. also McLuhan, *Understanding Media*, 211: “The notion that self-interest confers a keener eye for recognizing and controlling the processes of change is quite without foundation, as witness the motorcar industry.”

¹⁹ Shortly before the disappearance of real socialism, the predominance of state-regulated Keynesian economic policy in the West was replaced by “neoliberal” and monetarist models (Thatcherism, Reaganomics) – which supports the theory that they were similar formations in principle. Their political spheres were quite different (although both systems purported to be “democratic”) and in the West distribution mechanisms

there no way out? Who knows? One of the few individuals capable of thinking beyond the medium of money was once again Norbert Wiener. He wrote in 1948: “The answer, of course, is to have a society based on human values other than buying and selling” (*Cybernetics or control and communication in the animal and the machine*, 28). If automation and the organization of society in the form of value reproduction expressed in money conflict with one another – then there would only be two solutions: either we would have to forego technological progress – an absurd idea, given the human constitution as a deficient being – or indirect reproduction in the form work-money-consumption as an ends in itself would have to be abolished, for example in favor of production that is mediated by *direct communication*, and thus precisely not by the state.²⁰ This “radical [...] alternative to a planned economy determined solely by utility value” (Heinz and Hörisch, “Einleitung”, 9) may seem pure madness, even scandalous, to today’s readers – but be that as it may: the preface of McLuhan’s *Understanding Media* also states that the text is concerned with investigating the “contours of our own extended beings in our technologies” with the aim of “win[ning] an understanding of these forms that will bring them into orderly service” (6).

It is all the more surprising that the conflict of which McLuhan already had a premonition and which Wiener envisaged between the potential of computer technology and the pecunentric form of reproduction of society, automation and money does not appear at all in the current debate on cybernetics (cf. Bergemann, “Von Schiffen und Schotten”) – despite the fact that this conflict is probably the *most crucial* effect of the programmable technologies connected to the science of cybernetics. For example, in an excellent text on cybernetics’ utopian potential, Claus Pias writes:

“For the – definitely problematic – theory of non-deterministic teleology carries huge political implications that impinge not only upon ideas of how a society where cybernetic technologies have been installed is able to bring itself into the desired form more or less on its own (though by which means is unclear) and stabilize itself in that form. [...] Cybernetic compositions are able to capture every aberration and render deviant unrest productive for their purposes. Cybernetics are a government that thrives on disturbance and permanent crisis, for this is how it stabilizes itself” (“Unruhe und Steuerung”, 323, 325).

The possibility that cybernetic compositions, their knowledge and the digital media connected to them could actually have a destabilizing effect on the pecunentric form of society – which neither Pias nor McLuhan define more closely – is not taken into consideration.²¹ By contrast, Norbert

tended to be organized along market lines (although not exclusively) and in the East organized through state planning (although not exclusively). However, both were based upon the same reproduction mechanism of work-money-consumption.

²⁰ This would be a sensible way of using the internet for a change, cf. Bockelmann, “Abschaffung des Geldes”. Wiener already contributed to “planning”, cf. “Man and the Machine”, 715-717.

²¹ Here the “balance doctrine” of neoclassical economics seems to be returning (cf. Hüller; Ortlieb), in that the description of the “cybernetic government” in Pias’s text is very similar to the self-regulating market in neoclassical theory. Wiener was already critical of this: “There is nothing which will automatically make the automatic factory work for human good, unless we have determined this human good in advance and have so constructed the factory as to contribute to it. If our sole orders to the factory are for an increase in production, without regard to the possible aspects of this new and vast productivity and without regard to the problems of unemployment and the redistribution of human labor [sic!], there is no self-working principle of *laissez-faire* which will make those orders redound to our benefit and even prevent them from contributing to our own destruction” (Wiener, “The Brain and the Machine”, 688).

Wiener writes: “[O]ne thing is clear: that we are living in a less stable environment than any of the past and that this instability shows signs of increasing rather than decreasing” (Wiener, “The Machine as Threat and Promise”, 677). In contradiction to Wiener, the “redundancy of utopia” (Pias, 2004, p. 325) can only be diagnosed if one is *not yet* affected by this destabilization.

4.

“Whenever any new medium or human extension occurs, it creates a new myth for itself”, writes McLuhan (*Understanding Media*, 274). Perhaps his centering of media around the individual human body with a tendency (sometimes unintentionally ruptured) to subordinate the “social complex” (ibid. 4)²² is precisely such a myth – prompted around 1964 by automation as the newest “extension” of the time. This myth – through its exclusion of the tension between the two different types of extension that we catch a glimpse of in McLuhan – allows us to construct reassuring theories about the “the folly of alarm about unemployment”, as soon all men and women will become “teachers” (ibid. 383). Incidentally, McLuhan was by no means the only one to do this. In 1968, J.C.R. Licklider and Robert Taylor proclaimed in their oft-cited text “The Computer as a Communication Device” that “[u]nemployment would disappear from the face of the earth forever” (31). Today, 40 years later, there can be no question of this. In certain areas, digital and programmable technologies seem not to form a prosthetic extension of humans, but instead render them superfluous. This insight is certainly anchored in the cultural subconscious, as films such as *Terminator II* and *The Matrix* demonstrate in a displaced manner. Displaced because the real problem is *not* that the machines “replace” us or “supplant” humanity as a whole (posthumanist phantasm). Far more important is the fact that they reduce *work*, work which since round about the 17th century has been one of the constitutive definitions of the “human being”, in the field of what Michel Foucault in *The Order of Things* called the modern episteme. To one again cite Norbert Wiener: “the revolt of machines against man [...] is in its essence nothing but a revolt of man against man” (“The Machine as Threat and Promise”, 678).

While McLuhan first uses the hot/cold distinction around 1960 (“Popular/Mass Culture: American Perspectives”, 38, 40), its first significant appearance comes in 1964 in *Understanding Media*, two years after the Cold War had nearly turned into a hot one in the Cuban Missile Crisis.²³ Man against man – only this time with nuclear weapons. The atom bomb is yet another phenomenon besides automation that the question of more or less participation cannot really come to grips with. How the atom bomb is to be seen as an “extension” of man – unlike bow and arrow, for example – does not make sense (also cf. Derrida, “No Apocalypse, Not Now”). Automation is the last chapter in *Understanding Media*, while a chapter on weapons is the penultimate one. It seems as if these two chapters not only coincidentally mark the end of the book, but also demarcate the limits of McLuhan’s discourse in general. Ultimately, *digital* computer technologies are linked both with the atomic bomb and with automation. These seem to conclude a chapter. The abovementioned Michel Foucault had worked out that the “human” appears as a central figure in the modern episteme (cf.

²² The supplanting of “society” in McLuhan can be seen in statements such as: “Today, in the electronic age, the richest man is reduced to having much the same entertainment, and even the same food and vehicles as the ordinary man” (*Understanding Media*, 145). Even when reduced to the Canadian or American context, this statement is simply absurd.

²³ The Cold War appears repeatedly in McLuhan’s work, cf. e.g. *Understanding Media*, 371.

The Order of Things). Reflection on the “machine being in the light of physiology” begins in the 19th century along these lines (cf. Carus, “Das Maschinenwesen im Lichte der Physiologie”). This figure is taken up in the works of Kapp, Freud and Gehlen – up to McLuhan, who, overshadowed by automation and nuclear weapons, gradually begins to lose his hold on this centering of technology around the human. And thus we finally come to the answer to the question this approach entails: due to its fixation on human sensory perception, the distinction between hot and cold is unable to grasp the displacements mentioned; indeed, perhaps it even serves to suppress them. The difference analog/digital was probably able to establish itself as it is a description of the basic mechanisms of media-technical operations and is thus not forced to refer back to the human body as its standard measure. Accordingly, it does not become embroiled in the contradiction of having to reconcile the real displacement of human beings from the labor process and the real threat to humanity posed by the atom bomb with the theoretical centering of these phenomena around precisely this “human”.

Films

James Cameron, *Terminator II: Judgment Day* (1991).

Larry and Andy Wachowski, *The Matrix* (1999).

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