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Zombies of the Revolution

Abstract: Although the body of cybernetics died in the 60's, some of its parts live a ghostly (or uncanny) existence in New Media Art discourse. Cybernetics once promised so much: a new ontology closing the gap between animate and inanimate; a new unity of arts and sciences (or at least the two cultures); the reconciliation of subject and object and what else not. And little machines were built for the Epistemology Fair. Some people called this the ›end of philosophy‹, the ›end of the myths of art‹, the ›end of history‹ or the ›end of ideology‹. And some people thought that playing around with the latest technology is just fun and didn't bother about such old European issues. Considering the phenomenon of well-funded and established New Media Art over the last 20 years it seems that such differences got lost sometime and historical memory became blurred. Is New Media Art discourse just a farce of the (somehow tragic) cybernetic discourse of the 50's and 60's? What elements of cybernetics had to be forgotten, suppressed or altered for New Media Art to be successful?*

To a cursory observer of my generation New Media Art equaled for a long time that which one got to see between the mid-80s and mid-90s, i.e., interactive installations involving expensive computer equipment in the environment of which the prefix 'cyber' was regularly being mumbled. The comparison with an extremely fashionable piece of clothing where it is hard to tell admiration and embarrassment apart does not seem all too wrong to me here. However, I spent some time on the study of the history of computer games and cybernetics, and from this rather marginal perspective I would like to present some kind of idiosyncratic collage, lossely arranged around the key terms New Media Art, interactivity, and cybernetics.

1. Interactivity

European computer art was not interactive. It started in the 60s with a strict division of the triad of input, processing, and output.[1] The works of people like Nake, Nees, or Mohr were developed serially on huge plotters purloined from computer centers or land registries, which were controlled by self-written printer drivers and programs in ALGOL or assembler on punch cards. During these machine processes interaction was taboo, except for the removal of errors.[2] Computer art was inter*passive*, but philosophically charged: The semiotic status of the 'algorithmic symbol' was analyzed, the concept of the 'work (of art)' was dissolved, the role of art in the age of technology was determined, the author was buried, and much more. The accompanying information aesthetics was bare, rationalist, and international like mathematics, at

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1 For more on the topic of periodization, see Martin Warnke, *Der Zeitpfeil im Digitalen*, Stuttgart (Alcatel/SEL) 2004.

2 This is described in Frieder Nake, "Und wann nun endlich 'Kunst' – oder doch lieber nicht?", in: Claus Pias (ed.), *Zukünfte des Computers*, Zürich (diaphanes) 2004, pp. 47-66.

the same time, however, it was full of commitment and a pathos of departure. Max Bense's impassioned Cartesianism had transferred George Birkhoff's experimental-psychologically based and algebraically formulated concept of beauty[3] to the post-war period of information theory and stochastics, and had turned it into an avant-garde theory that measured the 'aesthetic value' according to the relation between improbability and banality. And according to Abraham Moles from Strasbourg, museums were to be closed now and – thanks to the computers – could be turned into aesthetical laboratories.[4] The art historian was to become the 'aesthetic', whose disciplinary competence was to be located somewhere between engineer, scientist, and artist. The artists themselves would have to become 'programming artists' within an experimental science that would create algorithms and 'metacreations', but no works. However, in this context, too, there was hardly any talk of interactivity.

Recently, the interest in early computer art has increased again. Exhibitions are being organized and doctorates are being written. It seems that all this had to be forgotten for one or two generations in order to be heard again everywhere today. In the field of interactive art, which preferred the prefix 'media' instead of 'computer' (thus referring to video, fluxus, and happening while at the same time very successfully repressing their memory), things look differently in the meantime. 'Interactivity' is sometimes just as awkward as the slim yellow leather tie people liked to wear when colorful fractals were in fashion and chrome-plated balls bounced around the screens. Meanwhile, one dares to say that one has had enough of this. In his extensive account, Hans-Ulrich Reck speaks of a “boring” if not “reactionary” “aesthetics of experience”, for which “kitsch” is too mild a term.[5] The products from the mid-80s to mid-90s seem to have become more stale the closer they have tied themselves to the rapid expiry cycles of hard- and software. The bigger their effort to impress, the sooner their historical ridiculousness. Today's commercial computer games show up the experiences in yesterday's media art centers, because the latter had agreed to the competition. We no longer want to go to a darkened museum to push buttons. However, applying the methods of *appropriation art* to computer games will only help in the short-term.[6] The full institutional success of interactive New Media Art is accompanied by an apathy towards interaction.

The future promises of interactive media art from the mid-80s onwards would indeed be worthy of a little anthology, which I won't even try to provide here. One is always wiser after the event. A belated and matter-of-fact version might be:

> “It is the motive of the recipients' continual and playful reorganization of information. Multiple perspectives, non-linear narrative forms, semantically open structures, and an observer who is no longer in a position of distance towards the world are topics that can be implemented most convincingly by use of interactive media. [...] The cybernetic principle of the computer renders the standard distinction between inside and outside, reality and fiction, cause and effect obsolete for the fact alone that no one can assume an external role anymore. [...] This opens up a space for a new kind of sensuality and poetry in art, which aims directly at the recipients' emotions.”[7]

One might call this the liberation thesis. It is commonly spread and confuses the observer's logic of the “open work of art” with the technical imperative of joining in. (Apart from a rather reduced concept of

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3 George D. Birkhoff, *Aesthetic Measure*, Cambridge, Mass. (Harvard Univ. Press) 1933.

4 Abraham A. Moles, *Informationstheorie und ästhetische Wahrnehmung* [1958], Köln (DuMont) 1971; —: *Kunst und Computer* [1971], Köln (DuMont) 1973.

5 Hans-Ulrich Reck, *Mythos Medienkunst*, Köln (König) 2002.

6 *Games. Computerspiele von KünstlerInnen*, exhibition catalogue Dortmund 11.10.-30.11.2003, Frankfurt/M. (revolver) 2003.

7 Söke Dinkla, *Pioniere interaktiver Kunst*, Karlsruhe/Ostfildern (Hatje-Cantz) 1997, p. 229.

cybernetics, which I will discuss later on.) Interaction appears here as liberation, while at the same time inventing a history of bondage: The observer is freed from his passivity, the work of art from its form, the observation from its being stuck in temporality, the artist from his authorship, etc. This allows to tell a history of progress. The more technically polished the control mechanisms, the more liberated the observer appears in this narrative. Pushing a button is less free than simply moving about and being registered by *gesture recognition*. It is a strange case of confusion where more freedom is suspected under more subtle surveillance, just because the equipment's resistance has become less importunate. In everyday life (or just as readers of Foucault) we would protest against such a prospect.

Along with this comes the immersion thesis, which also tells a history of progress. According to it, interactivity, accompliced by increasingly powerful computer graphics, produces a higher and higher 'realism' that lets us more and more forget the apparatus. The phantasmagoria grows, as it were, and semiotics may wrinkle their brows: as if realism effects did not always simply result from the difference towards previous representations that used to be considered as realistic. Increased immersion is measured on the basis of what was regarded as high immersion in the previous generation of appliances. This is, for example, the logic of the computer games industry, where each product cycle is celebrated as a new breakthrough. Within the framework of such narratives of progress, immersion could be integrated into an art historical masterplot. From baroque ceiling painting and 19th century panoramas to cinema, everything suddenly appeared as being a technically inferior preliminary stage of an approaching immersive completion through New Media Art. That makes the former more stupid than it ever was and ennobles the latter beyond all measure. With this limitation to observer and image, art history not least of all relieved itself from having to deal with technical standards and (sensing the institutional threat from the visual and media studies) legitimized its academic competence.

2. Cybernetics

As you know, cybernetics developed as an epistemological and technological large-scale project from the fields of neurology, computer construction, information theory, and behaviorism, based on the claim that it was able to reduce processes of communication and control of animals and machines, i.e., social, psychological, technical, and cognitive systems, to a common, theoretical denominator. This was, on the one hand, heading towards a new universal science, on the other hand, however, it was also an anthropological and philosophical challenge of the greatest significance which – in the course of the swarming out of cybernetic epistemes – was able to preoccupy at least the following decade. Martin Heidegger, for example, declared the end of philosophy and appointed cybernetics as its successor.[8] Gotthard Günther called for a multi-valued ontology in conjunction with an at least three-valued logic as the 'finale' of Hegel's reflexive metaphysics.[9] Arnold Gehlen saw in cybernetics the beginning of an objectivization of mind, which seemed tantamount to the last, technical step in the history of mankind.[10] And Pierre Bertaux predicted:

8 "'Nur ein Gott kann uns retten.' Martin Heidegger im Interview mit Rudolf Augstein", in: *Der Spiegel*, 23(1966), p. 209 (reprinted in: *Der Spiegel*, 46(2002), S. 136f.).

9 Gotthard Günther, *Das Bewußtsein der Maschinen. Eine Metaphysik der Kybernetik*, Baden-Baden (agis) 1963. Cf. Herbert Hrachovec, "Gotthard Günthers Geltung, oder Die Grenzen der Geduld" in: Claus Pias (ed.), *Cybernetics/Kybernetik. The Macy Conferences 1946-1953*, vol. II, Zurich/Berlin (diaphanes) 2004, pp. 263-276.

10 Arnold Gehlen, *Die Seele im technischen Zeitalter*, Hamburg 1957, pp. 14-22.

> "The people integrated into these apparatuses must necessarily become different human beings. They no longer fit the present concept of 'human being'. The mutation of mankind is an inevitable concomitant of the apparatuses' appearance. [...] It is the transition to a new, fourth organization form of matter – after mineral, plant, and animal kingdom: a kingdom in which man may play an important role during the interim period, but may as well only participate in a phenomenon the consequences of which go beyond him."[11]

The list of examples of such endgames and/or unified perspectives in the 1950s could be extended considerably.

Michel Foucault's famous image of man "disappearing like a face in the sand on the seashore"[12] has in any case a cybernetic history, and that is, a ground in the history of science and a date in the history of technology. According to Foucault's diagnosis, in ending the question of absolute knowledge and at the same time opening the question of "What is human?" with Kant's "analytics of finitude", the critical project had ventured the dissolution of an illusion that cannot be dissolved. Kant used the term "*Illusion*" to describe the functioning of "*transzendentaler Schein*" [transcendental illusion], which is (other than, for example, the "*logischer Schein*" [logical appearance]) inevitable and "natural" and keeps reason itself able to work.[13] The dissolution of the 'transcendental illusion' was thus only available for the price of an 'anthropological illusion' under the conditions of which the human sciences would operate from then on.[14] So, according to Foucault, in order to wake philosophy from its 'anthropological sleep' there was need for an "uprooting of anthropology", a "rediscovery of a cleansed ontology", or a "radical thought of being".[15] At any rate, the return of such a beginning of philosophy would only be possible on condition of the end of man, which means that we would have to refrain from taking man as the starting point of getting to the truth and from speaking about his mastery or liberation, but to engage in "anti-sciences" instead, which call the human sciences in question; it means looking at positivities; it means formalizing instead of anthropologizing; it means demystifying instead of mythologizing; and, finally, it means thinking without instantly thinking that it is man who thinks.[16]

It seems to me that this is precisely the starting point of cybernetics – just two decades earlier, though. And its putting the alarm clocks of an anti-science into operation was not out of a radical thinking of philosophy but out of a radical thinking of technology. McCulloch's design of neural nets beyond the differentiation of men, machines, and symbols; Wiener's common space of the "communication and control in the animal and the machine"; or Shannon's statistically generated speaking of the language itself are only the most prominent examples of formalization, demystification, or of scenarios where one is not compelled to think 'the human' anymore.[17] However, cybernetics neither was a return of the classical *epistemes*, but claimed the large format of another epochal threshold. In other words, when life, language, or labor had before found their unity in the 'human being', they now meet, beyond human limits, in

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11 *Maschine – Denkmaschine – Staatsmaschine. Entwicklungstendenzen der modernen Industriegesellschaft*, Protokoll des 9. Bergedorfer Gesprächskreis, 25. Februar 1963 (Typoskript).

12 Michel Foucault, *Die Ordnung der Dinge. Eine Archäologie der Humanwissenschaften* [1966], Frankfurt/M. (Suhrkamp) 1971, p. 462.

13 Immanuel Kant, *Kritik der reinen Vernunft*, ed. R. Schmidt, Hamburg (Meiner) 3rd edition 1990, p. 334-338.

14 Michel Foucault, *Thèse complementaire pour le doctorat ès lettres: Introduction à l'anthropologie de Kant*, Université de Paris (Faculté des Lettres et des Sciences Humaines) 1961 (to be found at: University Library of the Sorbonne); on the anthropological illusion cf. pp. 124ff.

15 Foucault, *Die Ordnung der Dinge*, p. 411.

16 Foucault, *Die Ordnung der Dinge*, p. 412, 461.

17 Vgl. Stefan Rieger, *Kybernetische Anthropologie. Eine Geschichte der Virtualität*, Frankfurt/M. (Suhrkamp) 2003.

control circuits of information, Boolean algebra, and feedback. And we might ask ourselves, following Foucault, how and where the new 'critical' project of the end of the anthropological illusion is paid for by the release of a cybernetic illusion.

3. Interactivity revisited

Let us leave the heaven of abstractions. For as extensive as the whole thing had once been laid out, as quickly did it shrink to a commensurable degree again. It were probably the *Computer Sciences* themselves (*Informatik* in Germany) that put an end to the lofty dreams of cybernetics.[18] As soon as 1965, W.A. Rosenblith, when visiting the TU Berlin, reported that in the US nobody liked to call himself a "Cyberneticist" anymore.[19] Industry, military, and administration needed operative hardware and software and thus competent *computer engineers* instead of epistemological speculators. What followed arose in fact from a split relationship with the computer. There were fears of competition and automation on the one side, and hopes of partnership and symbiosis on the other.[20] The first position claims that the new 'electronic brains' that popular cybernetics proclaimed would control the automation of minor and repetitive tasks so that man would be free to devote himself to other things. As to the question of what these might be, one answer from 1964 was: 'yet undefined human tasks'. The leisure society requires training first. The second position says that we are stronger with the computers than without or against them. Hence, it is important to develop "partnerships" or "symbioses", i.e., to connect man and computer to *one* machine (in the Deleuzean sense). This is where interactivity comes in. Once the connections of the heterogeneous parts of the machine have been established, the surplus value will come automatically.

This is, more or less, the starting point of as often quoted pioneers as Joseph Licklider, Douglas Engelbart, or Ivan Sutherland. All three work towards profit increase, rationalization, and speeding up of work processes – whether for the military, social planners, economists, at a single work-place, or in cooperative groups. And all three play an important part in the fact that the 'epistemic thing', which cybernetics saw in the computer, became a 'technical thing', which can be used as a computer. I'd like to state this more precisely with regard to Sutherland, since his *Sketchpad* is mentioned ever so often with reference to media art.

Although Sutherland had added a brief appendix entitled "artistic drawing" and had even considered the possibility of animated film, the whole point of his undertaking was in full accordance with the framework sketched out by the theories of the likes of Licklider and Engelbart. The interactivity of *Sketchpad* was simply meant to help the effectivation of engineering work processes. The operations introduced by Sutherland, like *cutting, copying, pasting, rotating, shrinking, or grouping/ungrouping* of graphical elements (which still are part of any drawing program) make things easier for electrical, mechanical, or civil engineers. And intelligence spreads out insofar as the computer was to evaluate the designs while they were being entered. The purpose of interaction is not the symbol but the simulation. Someone who is drawing a circuit diagram should know immediately if this circuit is really working. And someone

18 Vgl. Wolfgang Coy, in: *Cybernetics/Kybernetik*, vol. II, pp. 253-262.

19 Hans Lenk, *Philosophie im technologischen Zeitalter*, Stuttgart 1971, p. 72.

20 On the periodization of interaction metaphors, see: Jörg Pflüger, "Konversation, Manipulation, Delegation. Zur Ideengeschichte der Interaktivität", in: Hans-Dieter Hellige (ed.), *Geschichten der Informatik*, Berlin/New York (Springer) 2004, pp. 367ff.

designing a bridge should be allowed to know instantly whether it will collapse. The graphical interactivity of *Sketchpad* was not aiming at drawing pictures, but at integrating the previously separated work processes of designing, drafting, and testing into one working environment, and at the same time speeding them up exorbitantly. In the Cold War period, which was deeply imbued with the thought of a race of technology, this was not unimportant. Of course, there was just as little talk about this as there was about staff cuts. What was called up instead was the release of a 'creativity' that was supposed to enable us to entirely new and innovative solutions. That's how human the disposal of humanity comes round.

It seems that even Nicholas Negroponte, who transferred interaction in architectural design in the beginning of the 70s, had already been taken in by this mistake.[21] Thanks to graphical simulation, everybody was to become an architect now. Just make a rough sketch of how you would like to dwell, and the computer – as the embodiment of the entire expert knowledge – will tell you if this is technically feasible and socially reconcilable. This is the ideological freedom of the West that Daniel Bell or Edward Shils had conjured up.[22] In any case, while the origin of such rationalizations is still clearly apparent, interactivity now becomes a promise that by playing with the computer anyone is able to produce something and thus unfold his diffuse creativity. Interactivity is no longer confined to only "technical thinkers" (Licklider), but is open to the dumbest assumable user, who can 'do' something at the machine. And somehow this made interactivity enter the field of art (more or less): as a highly restricted playing opportunity to entertain the informatically illiterate at expensive and effectively exhibitable (though hard to preserve) installations. What remained were the future mortgages of the ambitious cybernetic hopes and the utopian rhetoric of promises that was assumed to be available without the rationalization from which it historically sprang.

4. Conclusion

Let me conclude with some observations and questions.

1. Two tendencies become apparent at this conference: One is that the beginnings of media art are repeatedly dated to the 60s, and the other is the attempt to open the concept towards products of earlier centuries. For reasons of precision, I would rather side with the 60s party. However, the question of what this beginning means remains open to me, especially if you think about it in connection with the final of the first wave of cybernetics. The employment of art takes place only at the moment when epistemological things slowly turn into technical things. This is not art's fault. But we may ask: Does New Media Art maintain that experimental status which disappears from cybernetics, or does it just use its ready leftovers? And what conditions does this heritage impose that was supposed to be so highly effective and free of ideology? Will it turn into "a dynamic art that will radically overturn and transform the parameters of classical art"[23] (Peter Weibel), or can it only become "Demo-Design"[24] (Peter Lunenfeld)?

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21 Nicholas Negroponte, *Soft Architecture Machines*, Cambridge/Mass. 1975.

22 Daniel Bell, *The End of Ideology. On the Exhaustion of Political Ideas in the Fifties*, Glencoe/Ill. 1960; Edward Shils, "The concept and function of ideology", in: *International Encyclopaedia of the Social Sciences*, New York 1968, vol. 7, pp. 66-76. Incidentally, both were participants of the famous "Congress for Cultural Freedom" (Milano 1955), where (unnoticedly financed by the CIA) the Western ideological abstinence was agreed.

23 Peter Weibel, "Transformation der Techno-Ästhetik", in: Florian Rötzer (ed.), *Digitaler Schein*, Frankfurt/M. (Boer) 1991, p. 246.

2. Talking about cybernetics one has to remember the numerous little apparatuses built by Shannon, Ashby, Foerster, Beer, Grey-Walter, and others. Simmon Penny already considered that they are neither art nor ordinary engineering. I would strongly underline this, suggesting that the typical cyberneticist was a kind of philosophical engineer and that his objects are embodiments of an "experimental epistemology" (McCulloch). On the the other hand one has to remember that cybernetics not only had an impact on visual arts but (even more) on music, games, poetry, aesthetic theory and (as Fred Turner has brilliantly shown) on the whole field of techno-utopian counterculture (i.e. drugs, be-ins, alternative communities, etc.). Bringing this together, I wonder what kind of science might be responsible for this or (to be more precise), for what reason art history claims to have a privilleged access.
3. It would be interesting to give historical background to some of the 'new' questions we are asking and the topics we are dealing with. The dream of a recociliation of knowledge (or the 'two cultures') already was a cybernetic dream, as well as the ideas of a fusion of philosophy and engineering, of anthropology and technology, of individual freedom and dynamic control were cybernetic ideas. At least the whole posthuman perspective is a cybernetic one. So what does it mean that we are still fighting with intellectual issues of the 1940's and often enough declare them as 'new'. Are we dealing with Zombies? Or are we just (to paraphrase Walter Benjamin) live in that kind of tomorrow, yesterday was dreaming of?

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24 Peter Lunenfeld, *Snap to Grid, A User's Guide to Digital Arts, Media and Cultures*, Cambridge/Mass. 2000.