

TRACE APPARATUS THOMAS FEUERSTEIN

REMARKS ON AN ART AT THE APPARATUS STAGE, OR, FROM SEMANTIC CORRESPONDENCE TO STRUCTURAL CONTINGENCY



Doppelhelixstruktur einer DNA (Rastertunnelmikroskopie)

"If we draw the cool conclusion that man is a machine and that in the entire universe there is only one substance which, of course, is modified differently"

J. O. La Mettrie, 1747

Starting with Aristoteles and extending to the current trends of autopoiesis, the contrast between living systems which permit the recognition of autonomy and all other natural things and artificial artifacts, has always been fascinating. Although in the case of Aristoteles, the artificial picture (eikon technete) and the natural picture (eikon physike) are structurally the same, natural things — that is "creatures and their parts, plants and the simple bodies, earth and fire and air and water" (Phys. 192b) are distinguished by the fact that they have the "origin for peace and movement" within themselves (ditto). Technology as well as graphic art is, in this respect, bound to the classical program of imitatio and perfectio, of certain consequences, but cannot bear the last effective cause within themselves. With the dawn of modern times, the perspectivization of "artificial pictures" onto "natural pre-pictures" begins

to reverse. Complex entities are being increasingly projected on a machine picture for the purposes of scientific objectivism. In accordance with this, even long before the Industrial Revolution, the machine found the symbolic anticipation of its later real dominance, which as we know, can be clearly discerned from the discourses of the 16th, 17th or 18th centuries. For example, Vasari used the machine like a metaphor to describe Brunelleschi's domed structure of the Florence Cathedral by praising this as being an "astonishing machine".

From Descartes to Leibnitz, La Mettrie or even, with reservations, Kant, a historical circle for the installation of a machine picture for living beings can be retraced, whereby a rationalistic mechanical term became the ontological guarantor for the recognizability of the world. Descartes's controversial declaration that organisms function like automatons or machines, meant a naturalization of mechanics and a mechanization of nature. "Autonomous systems are mechanistic (dynamic) systems which are specified by their organization", says Francisco Varela (1987, P. 121), whereby the historical circle traced for an installation of a machine picture for living beings in the modified form of autopoietic machine models could be formed.

"Every work, both of nature as well as art, is a system "
Bischof Joseph Butler, 1729

Denis Diderot's frequently quoted example of a fictitious machine which produces pictures like Raffael, expresses an old paradox that exists in the incompatibility of clearly determined fabrication rules with the terms genius and originality, when producing works of art. Neither the machine nor the works which produced such in line with the necessary laws, could have been termed as being "beautiful", according to Diderot. Beauty only arises in art with a sharp differentiation to nature, which is nothing more than a heap of infinitely differently ordered molecules: "Multiply these imitation machines (=machines Raffael, note by the author) anywhere and everywhere. Let pictures emerge in nature like plants ... ; and tell me what has become of your admiration. " (quote acc. Link-Heer, U." 1986, P. 106). And at a place shortly before, Diderot who is walking in the countryside in dialogue with an abbe writes: "If I had a box of dice here, and if I were to overturn this box, and if they would all turn around at the same point, would this phenomenon be astonishing? — Very. And if all the dice had been prepared, would this phenomenon still astound you? — No" (ditto). This passage becomes more topical when it is transported into the context of the calculating machine. "Data is also called dice" writes Friedrich Kittler, "and just as the former aesthetic or ordered cosmos of the philosophers has become a great dice game under technical conditions, data processing can still mess up its sampling values according to all the games rules for mathematical operations, until reality is actually no longer necessary." (1989, P. 69). Consequently, it is no longer only everything that is necessary, but also everything that is possible, that is the case. The dichotomy between the "creatio ex nihilo" and Vasari's fabrication, between the artistic intention and the role of contingency in artistic production, as in the case of Diderot, or between Makers of the work and Making of the stuff, as with Heidegger, disintegrates. The work is no longer the dead mirror which directs nature, posing as realism or naturalism in a timeless immobility and represents apparent reality. It forms its own autonomous reality with its own specific contingency. Perhaps comparable with Eric Drexler's "engines of creations", which imply molecular computers set up from complex structures which can assemble themselves and which can reproduce; art is breaking away from the traditional work of art and its semantic correspondence and is developing independent structural contingencies.

With the exchange of external reference for self reference, from a historical point of view, representation and imitation assumptions in the picture were discarded. Besides the elimination of the present world, for the purpose of independent processing, it called for picture-immanent elements, particularly of a decomposition or division of the picture into its

individual modules. This division and condensation allowed the picture to be condensed into its elements (colour, light, material, etc ...). Before the picture could experience a restructuring, it required a thorough reduction of formal and content aspects. Only the reduction to a few, but then more precisely determined elements, made possible the construction of new artistic structures, further resulting in greater complexities. Since it was no longer sufficient to transform objects into imitations, according to the scheme of *imitatio* and *perfectio*, the development of system-internal criteria had to be intensified. The picture had to prove itself as a unit consisting of individual picture elements in order to be newly devised by the programs created by artists. If we describe the condensation of the picture commencing in the 19th century, on the one hand, referring to photography — every object is allocated a certain number of grains with a certain grey value — on the other hand, referring to Cezanne — the picture is composed of clearly defined elements — as a classical physical one, then with the change of the aggregate state of the picture, for the first time, the introduction of a clearly outlined combination game with distinct elements becomes effective in picture production. If photography, Cezanne's painting, or divisionism can be said to be responsible for the physical condensation of the picture, then the film, the collage, the accumulation, etc. could be understood as being a chemical condensation and the digital code as being electronic condensation. What all condensation processes have in common is that they dynamicize and temporalize the picture. A considerably stronger process, as opposed to the traditional wood panel painting, decomposes the picture into happening states in which the elements are continuously reallocated and reassigned to each other. A static persistence in one state would only be a disturbing inhibition of the process and is just as foreign to the pictures, after changing the aggregate state, as a linear-causal picture transformation. Art is — to take up the said example again — in a comparable state with nano-technology. After condensing the objects into their elements, it is necessary in technology, as in art, to have "engines of creation" to structure elements into new complexities.

Perhaps it would even have been sufficient to simply say that God was able to create immaterial automatons — just as well as he was able to create physical ones, the former representing the latter.
Gottfried Wilhelm Leibnitz, 1710

The picture created its own separate world in order to condense itself into a reserve of pictures established in a possibility structure. It changed its aggregate state by assuming the actual significance of aggregate in the sense of accumulation, making itself independent to form a reserve of imagination, a contingent idea. The natural appearance of things in the world is, in doing so, exchanged in the artificial picture worlds of aggregates for the idea of contingent worlds. Pictures worlds structurally established in apparatus and programs do not consume their medium; they produce and reproduce it with every picture of the new one. The "artistic apparatus" is therefore an unlimited reserve of pictures, the perfect copy (lat. *copia* — reserve). The apparatus, as defined by Vilem Flusser, as a toy simulating thinking, offers a host of possibilities. It is not merely the in-term for the perfect copy but also the in-picture of virtuality. As there is no getting at the artistic apparatus, ontologically, or with categories of classical aesthetics, a division of technical and artistic artifacts becomes superfluous. The polar division between art and technology, between the symbolic and the real, changes into an antagonistic relationship: the work, thing or stuff of classical aesthetics transforms to become apparatus which makes the real appear to be fictitious, and the symbolic appear real.

The basic intention which led to the construction of the "Trace Apparatus", was to design as simple a picture as possible, or a kind of allegory of numerous pictures in one picture - that means, as simple an apparatus as possible, and as extensive a copy as possible. The relationship of the "Trace Apparatus" to the "catalogue" illustrates the relation of structural contingency to catalogue contingency. Following Charles Babbage's idea of a "machine that

bites its own tail" (quote Hyman, A. 1987, P250), that is capable of the passage through the never ending, by dismantling the world into part problems, and this further into a sequence of individual steps, was what we chose as the basic form — a mathematical / (greater than/less than symbol). The construction is composed of simple elements and connections, as are common from the everyday routine of inch scales. The difference to a standard inch scale only consists of the regularly varying length of the elements which differ by one quotient (5cm) in order to achieve the symbolic initial form of /. The mathematical / stands for a section of reality which is present from individual elements cut up into lines, on which again there is a succession of black-white single steps. The result is a wave pattern composed of curves which, depending on the set up of the construction in the space and the constellation of the individual elements to each other, is subject to changes. The apparatus independently produces different frequencies on account of the spatial references which are changed by the installations. In doing so, the world is not simulated by an external referentiality, but is newly created by waves. Perhaps similar to the way Ada Lovelace, who translated Manebrea's article about the difference machine from Italian, thought of using Babbages machine for manufacturing music pieces of every length and complexity, the Trace Apparatus will produce unpredicted combinations which want to be read as waves. The apparatus is not a memory like the former wood panel painting, and not a Thesaurus like the sum of all wood panel paintings in a catalogue, a gallery or a museum. The apparatus is a data processing organism like its recipient, a data processing machine. The breaking away of picture production from the author and the picture making itself independent, creates a separate world which obeys its own laws, or rather the laws of the program. Heinz von Foerster gave during a lecture, the simple and possibly therefore the most illustrative example: "as to whether I should "store" information from a $10_{10} \times 10_{10}$ multiplication table in the form of a 21 x 27 cm book with a thickness of approx. 10 billion km, or in the form of a small hand-operated desk computer, is, I think, quite clear." (1985, P134). The information in the desk computer or in an artistic apparatus is stored in a structural way as opposed to a table or a conventional picture.

"Could man himself not become a kind of parasite on the machines? An affectionate, machine-tickling plant louse?"

Samuel Butler. 1872

What is interesting is that the demand to make the system art into a program does not appear, but rather the individual work of art. It is not a matter of an artistic apparatus making a program of what the system art is or was in its system. The program or the apparatus would then, as Niklas Luhmann describes for "l'art pour l'art", miss the elementary state of affairs, "that autonomy does not stop the relationship to the environment, but rather calls for and regulates it" (1986,P. 626). The artistic apparatus is not a solipsistic operations mechanism, which uncouples the system art from the world, similar to "l'art pour l'art". It must be conceived more to be an effort of a differentiation process progressing further within the system art. A differentiation process which is in an antagonistic and complementary relationship to interventions and appropriation strategies of art outwit its own system. Apparatus, program or structural contingency describes processes and considerations to differentiate and make products of the system art which have until now always been designated as works, more complex. The work of art should therefore change basically from the work — from the fully finished work — to a "small item of work", an idea in flux.

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