FleshFactor
Gerfried Stocker

Das Tiefste, was der Mensch besitzt, ist seine Haut.
Paul Valéry

The appearance of a new machine — the computer, the information machine — on the scene in the Western World has been followed by the development of a dynamic force which has left no sphere of life untouched. This invasion of a new technology has been accompanied not only by the marketing strategies of the corporations involved in it, but also by the active participation and tremendous enthusiasm on the part of artists. To a considerably stronger and more deep-seated extent than was the case with the Industrial Revolution which preceded it, the Information Revolution was, from its very inception, a matter of intense concern to art and culture, which not only reflected this process of change but were also fundamentally transformed and redefined by it.

It has not been the computer itself, nor the peripheral hardware it has gathered around it, which have been the object of artistic fascination, but rather the computer's suitability as a vehicle to transcend the boundaries of our imagination. The vision of technical possibilities, in the hands and minds of artists, is a particularly appropriate means to provide a description of the world, as well as to deliver explanatory models of process which lie beyond our knowledge or the limits of our direct experience.

In the almost two decades of Ars Electronica's existence, its central thematic focus has continually been on these emerging visions of the future. New branches of knowledge and groundbreaking innovations have been introduced into the cultural discourse. Enormous strides have been made to encompass new topics and encourage new modes of perception. However, most of the utopias and visions of the future upon which the majority of artists, art theorists and philosophers have oriented their confrontation [and coquetry] with the new information technologies have, in the meantime, been completely overtaken by the current state of technological and social development. Even if, in many cases, we still have a long way to go to achieve broad-based integration or full industrial implementation, these large-scale designs have nevertheless become a part of our reality — several, indeed, boding ill to the extent that they have gone aground in the recognition of their erroneousness.

The future has changed direction to a certain extent; it is coming right at us, or even collapsing upon us and upon a society that is [still] unprepared for this encounter. This became particularly evident in what has subsequently been referred to as the "Dolly effect" or the "Dolly trauma" — the events which occurred in the wake of the public disclosure of the successful efforts of Ian Wilmuth and his staff. All sides were forced to acknowledge that the process of legally regulating genetic engineering had failed to take into account the possibility of cloning a mammal, much less a human being, a matter which had not even been considered with respect to patent law, to say nothing of an examination of its ethical dimensions. Hastily-convened expert commissions were everywhere — trying to perform damage control in the media, making assertions and counter-assertions, advising us to rest assured ... For the first time since the Middle Ages, a legal limitation upon the technically-scientifically possible is being called for — not merely on the form of its application, but rather on the research process itself.

But let's get back to the digital revolution as a motor of leading-edge models of the future of our society and of mankind itself, as an "ars electronica." The mastery of the biological basis

of life which has been made possible in the wake of this revolution and the digital technology-based methods of neuroscience — such as the scanning of brain functions by means of Positron Emission Tomography, Magnetic Resonance Imaging and similar technologies which enable real-time observation and control of the function of even an individual gene in our brain — increasingly turn our attention from the machine to mankind itself. The idea of being able not only to form the body on the level of the flesh-machine but also to be able to elaborate it as to its facilities and talents demands a new reflective perspective upon its ultimate boundaries: its social and metaphysical constitution.

The technological link-up of the human brain and the computer — a basic plot element of all cyborg fantasies — is still far off in the future; and furthermore, as scientist Peter Fromherz discusses in his paper for this year's symposium, it is a highly speculative matter at best whether this will ever become a reality. Nevertheless, the theoretical conjecture of a technological outfitting and enhancement of the human body by means of biomechanical and neurobionic prostheses has initiated an ongoing discourse, inherent in which is a deconstruction of our social order as one necessarily based upon the hierarchies of natural law.

The Information Society has become a real organizational form of Western Civilization. Its repercussions in the wake of network-linkage on a global scale — in capital markets, for instance — are realities which have long since exerted an influence upon the circumstances of life of even those human beings who do not themselves have either a computer or online access. The Information Society's socioeconomic structure, its working and living conditions, and its system of norms and values all exhibit signs of the erosion of central control systems accompanying the shifts taking place between the public and private spheres, and are characterized by the abandonment of an organic, hierarchical conception of order legitimated by natural law. The classic Western model of the individual as an autonomous, inwardly-oriented entity is being dropped in favor of a hybrid, networked subjectivity, whereby we comprehend ourselves as dynamic interfaces in a social communications network.

In 1996, with our festival theme "Memesis" — a reference to the term "meme" coined by Richard Dawkins to characterize cultural units of information analogous to genes — we focused upon models of events and theories of cultural transformation processes, their description, and the analysis of possible conformities to laws governing their behavior. Over the course of this discussion, it quickly became evident that the consideration of this topic — in a more precisely stated form — would have to be resumed and carried on. "FleshFactor" is dedicated to this endeavor — focusing the global, cultural perspective taken in "Memesis" from the collective down to the individual level.

The point of departre for these considerations will be the relational and orientational strategies of those two antipodes — man and machine — in the mutually interdependent process of adaptation and assimilation, whereby the human being as well as the components of the technical systems surrounding him are reciprocally determining variables. The environment upon which we humans orient ourselves is, to an increasing extent, an artificial, completely network-linked and [although the term must be used with caution] intelligent system of high density and complexity; consequently, we are now able to relate to this environment only with the support of an equally intelligent environment of machines and media as a subset of this system. To the extent that the membranes of our body and our thinking are penetrated by the elements of a network-linked, intelligent environment, an ever more substantial magnitude is assumed by this environment, such that we find ourselves in a relationship of such intensive intimacy that a clear separation in the sense of a subject-object differentiation is no longer

possible. And in this process, the qualification of our partner in this relationship with respect to its natural or technological/artificial attributes becomes a matter of secondary importance.

A conceptual model has been put forth, according to which scientific revolutions proceed in two phases: first comes the discovery or invention; then, its cultural introduction into our world and the changes which emerge therefrom. To which a third must be added: that of cultural assimilation into society, the phase in which these implements establish their nature as a cultural one. It is this moment that is the truly evolutionary one during a technological revolution. Of course, this has nothing to do with any inherent powers on the part of the implements themselves; this comes about simply as a result of their use — the reciprocal process of adaptation and assimilation, in which the morphological strangeness of new components is integrated into the design of our living spaces and our everyday lives. In their ubiquitous presence, they become transparent, something taken completely for granted, perceived as a familiar and rather mundane aspect of our day-to-day existence — the way we now regard electric power, the telephone, radio and TV.

In this way, the boundaries between man and machine, nature and technology become increasingly difficult to perceive. Up until now, the decisive criteria of differentiation have been based upon a "technomorphology" in which technology comes across as a world of devices which surrounds or lies outside of us. In the camouflage and mimicry of industrial research campaigns to develop "wearable computing," "thinking things" etc., attributes which permit us to discriminate between man and machine become somewhat fuzzy. Seamless, unencumbered interfaces are to replace the manual ones. Instead of being faced by the inconvenient task of learning about functional capabilities and operational details, it is hoped that mankind in the future will interact with a technological environment whose intelligent agents, trained in the algorithmic and empirical interpretation of our individual actions, will be able to anticipate our desires before we know them ourselves. Now, we can only welcome our liberation from the substantial burden of hardware. After all, why should it only be the human body which is perceived as an encumbrance when, as far as intelligence is concerned, the realm of devices still has a lot of catching up to do in order to even come close to living up to the hopes to which it has given rise? Nevertheless, it is a questionable expenditure of innovative effort to achieve this amalgamation of humanity with its technological environment if sensory perception as the decisive quality is not the ultimate goal of these strivings, and if devices and strategies are not developed whose objective is to make us aware of — or to enable us to consciously experience — the reciprocities between real, physical manifestations of our actions and virtual, telepresent ones as a process of communicating with and relating to the technological ambiance of applied devices.

The customary conception of the relative ergonomics of an interface refers to its user-friendliness, whereby the way a device functions can well remain hidden but the method of using ought to be obvious — imperceptible, invisible interfaces smoothly adapted to us and making our lives easier. That seems to make sense in many respects, such as being able to leave a supermarket through doors which automatically open and close. And, it would also surely be desirable to have an intelligent car which could recognize that its legal owner, loaded down with shopping bags, is approaching it and immediately opens the trunk for him automatically [and perhaps even reminds him that he forgot to buy milk]. It is a matter of indifference whether the hidden mechanisms are easy to recognize and understand. However, when such processes take place within more complex systems and the transition from a person's real actions and presence to a virtual action/consequence or presence cannot be consciously experienced and perceived, then this will directly result in decisive deficiencies in the full exploitation of the potential of these technologies. If the whole point is to place

humanity in a position to more satisfactorily and efficiently deal with its environment, then interfaces are required which make possible the sensory perception of this communications process, this transition between the real world and the virtual one, between the physical and digital aggregate state of information. That is one of the possible FleshFactors — the human capability of deriving associations and interpretations from perceptive faculties across the entire sensory spectrum on the basis of an enormous inventory of experiential data. Something that is often defined as a characteristic of human creativity.

There has long been talk of new cultural techniques that are adequate to these changed conditions. The capability of dealing with phenomena like telepresence and virtual identities [in the sense of a cognitive design of these spheres of action and effect] will increasingly assume decisive significance in this matter. And this for a number of reasons, not the least of which are changed social norms and shifts in economic and political power within a society which is itself mutating into a cyborg as it makes increasing use of the structures of networked digital information technologies for the purpose of its establishment and organization as a social construct.

But it is not our environment alone which is characterized by the complete permeation by ever more tightly-woven networks of technological structures; our bodies have also become an arena of this second nature. The devices press ever closer to our bodies — the monitor which sat on our desk comes to literally embrace us as a helmet or goggles; the keyboard and mouse nestle up against our skin as a sensor glove or suit. By means of retina scanner technology, even our eyeballs become projection surfaces for electronic images; direct contact with auditory nerve cells is being carried out by means of cochlear implants. In experiments with electrical stimulation of the visual cortex, impressions of extremely simple light patterns can be transmitted to blind persons. The accompanying anxiety and distress that the concept of virtuality would surpass the body is the expression of a sense of insecurity which has befallen Western cultures, for the most part, evoked by this offensive thrust against the integrity of the body and the sovereignty of the intellect — "human identity threatened by the decision-making processes of the computer."[1]

Ultimately, however, it is the results of genetic engineering which shake the very foundation of our sense of security with regard to a methodological differentiation between man and machine, between biology and technology, because here the fundamental principles of life are being made accessible to a mechanical, industrial process. The last stronghold in the discourse in which "biological" is defined as something that grows as opposed to technology which is made or assembled, is in danger of collapsing if we are to conclude thereby that a genetically manipulated tomato is a machine [because its basic substance was constructed according to a plan] whereas one that evolves as software inside a computer with the help of genetic algorithms is something biological [because it has not been programmed, but has actually grown].

Or perhaps we ought to adopt the position of the Vatican, which seems to have resigned itself to the fact that Creation has ultimately become an object of industrial engineering, and is now occupied with the effort to at least rescue the soul as the last bastion of God.

"Human cloning would not result in identical souls because only God can create a soul, a panel set up by the Pope has concluded. The Pontifical Academy of Life said the spiritual soul, "the constitutive kernel" of every human created by God, cannot be produced through cloning."[2]

Welcome to the FleshFactor, welcome to the happy cloning party!

1 "I have observed with tremendous satisfaction how traditional, White, Western, male philosophers are suddenly identifying with the body, with the animalistic, when they see their human identity threatened by the decision-making processes of the computer."
[Donna Haraway: Lieber Kyborg als Göttin! Für eine sozialistisch-feministische Unterwanderung der Gentechnologie, 1984]

2 "Human cloning would not result in identical souls because only God can create a soul, a panel set up by the Pope has concluded. The Pontifical Academy of Life said the spiritual soul, "the constitutive kernel" of every human created by God, cannot be produced through cloning. The panel's reflections were released yesterday by the Vatican, which has long forbidden any kind of artificial fertilization or human cloning to create new beings. The panel expressed concern that cloned humans would pay the price psychically for being aware of the "real, or even only 'virtual' presence of his 'other.'"
The academy called for cultural, social and legislative efforts to stop any human-cloning project." — Associated Press