

The New Boundaries  
between Bodies and Technologies



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Edited by

Bianca Maria Pirani and Ivan Varga



Cambridge Scholars Publishing

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This book first published 2008 by

Cambridge Scholars Publishing

15 Angerton Gardens, Newcastle, NE5 2JA, UK

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

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ISBN (10): 1-84718-499-5, ISBN (13): 9781847184993

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# PREFACE

ROBERTO CIPRIANI

## **Body and Society**

There is a peculiarity of the human body that makes it an entity in between something natural and which perpetuates itself following the basic rules of common life: human body can reproduce itself on and on (as it has been happening since some million years, as witnessed by the female hominid fossil, named Lucy, which was found in East Africa, and early hominids which date back to 6-8 million years), and for some more years it will keep on reproducing, thus giving way to the most meaningful among human activities.

Given such premises, the subject of the following essays concerns the metaphoric value of some expedients which give importance to the body in its relation to new technologies, taking into consideration the fluid boundaries between bodies and ultra-modern technologies.

A medium such as the camera can easily preserve dead bodies in life with the re-presentation or iconic representation of their human profiles, no more as social actors but as indirect protagonists, so to become a sort of social bond and referring examples for (in the name of) their ideas and main issues. In a sense, the passed away do not really 'pass away' thanks to the newborn vitality that comes out from printing the images of their life.

As a matter of fact, as Francesco Faeta reminds us (2000: 163), 'the pictures of the "passed away" state, in their objectivity, a mutation and a closing in time experience, because they are an operating activity and hold parts of the essence and constitution of the subject, therefore they are a good means for eidetic reconstruction'.

The 20th Century was defined as the century of the body according to the major attention paid to all the aspects of corporeality, so to make of it a sort of religion of the body. Besides, the media and the new means of diffusion for the works of art have highly contributed to the increase of such a new phenomenon.

Also on a linguistic level there is something undefined and vague in the Italian language: the term '*salma*' (corpse) is a highly undetermined one because it can be '*soma*' (again an imprecise word which refers to the old Greek term for "body") in the sense of the carried luggage but also to the corpse (object of cultural rites), to the dead body, without neglecting the possibility of remanding to the living body as an imperfect part because of its materiality. On another hand, speaking of '*salmerie*' (baggage train) means referring to useful materials for survival both from a 'grocery' point of view (eating supplies) and from a military point of view (for munitions, both for defence and salvation).

*An historical and sociological approach to the body*

In France, more than in Italy, the issue of the body was widely explored, as witnesses the major work of Alain Corbin, Jean-Jacques Courtine and Georges Vigarello (2006) on *L'Histoire du corps* (The History of the Body). Some symbolic and tragic reflections in the meantime are those of Primo Levi (1976) in *Se questo è un uomo* (If This Is a Man), where he says, in 1947: 'My body is not my body anymore'. And Varlam Salamov (1995) in *I racconti della Kolyma* (Stories from Kolyma) seems to continue the sentence by writing: 'the bones are freezing, the brains and the soul start stiffing'. Both witness the experience of a dictatorship, respectively the German Nazism and Soviet Communism. Both ideologies consider the body as centre of their sense of reality, completely based on rhetoric, supremacy and triumph of power, which have martyred with unbelievable cruelty helpless people guilty of disapproving dominant ideas or belonging to an 'undesirable' race.

The contemporary trends are different. However, today as well there is an overestimation of the health and powerful body always followed by an humiliation of the body itself, (and even if it does not reach the violence and trials of German concentration camps and that of forced residence and hard labour camps in Russia imposed by GULAG) giving hard proofs to bodies piercing them through, or with perforations and any other kind of harming, thus denying them and considering them abstract instead of material, then passing through them as if without resistance or consistency. This kind of treatment has known no limits and has mummified before its time the body, labelling it as a mail package, branding it as an animal. It is the body exposed and humiliated.

Apart from such examples of disrespect for human body and its vulnerable human nature, the true decision maker of the body is the DNA. With its helicoidally trend tending to left (nobody has still explained why),

it is *de facto* capable of pre-determining diseases and eventual fatal exitus according to a pre-defined and not elidible schedule.

### *The denied body*

The body is often named, invoked, designated, desired, but it is as well blamed, annihilated, denied. The paradox is that the body is at the same time scrutinized, stenographed, enlarged, examined also in the inner part where it was never before possible to enter, *in interiore hominis*, which means in its inner parts. From radiography to endoscope, these are technologies which examine the body in all its elements inscrutable to the naked human eye. This way, scientific discoveries which render all this possible are highlighted and celebrated, as a profound analysis that was hardly believable even a few years ago.

In the meantime, however, the human body is at times banned, or prayed, according to the different ideological trends of secular rationality and earthly immanence, but also on the basis of the religious and confessional perspectives, that can be diverse and opposed to the secular perspectives.

Anthropology has made the body a major subject. Painting, sculpture as well as photography and cinematography have loosened it from tinsels, clothes, costumes that were hiding it. It was made extremely visible, becoming a new object of attention and of ethic-religious discussions. The homosexual movement has led the discussion to the extreme consequences of exhibition that meant as a revenge and provocation with political implications especially in the *Homosexual Front for Revolutionary Action*.

In another aspect, we have to notice as well that nowadays the body is more and more repairable, modifiable, and adaptable. Prosthesis substitutes what lacks or what does not work. 'Soma' (body) is therefore re-programmed. Even death can be postponed, at least partially, thanks to the intervention of intubations, breathing-help technologies, oxygen suppliers. Such 'prolonged-deaths' have important examples in the last days of the Spanish dictator Francisco Franco, of the Brazilian Politician Tancredi Neves, and of Suharto in Indonesia.

Moreover, from a moral point of view, there are issues ranging from eugenics to euthanasia. This means from life to death, endlessly along the life course. But also less dramatic issues are concerned, such as cosmetics, dietetics, plastic surgery, and ultraviolet radiations for untimely tanning, tattoos, piercing, or any kind of mutilations.

From an iconic point of view, the exhibited body has passed from the old barber's calendars (now pieces for exhibitions in museums) given for

free to clients, to the present calendars for men, women or homosexuals, also sold for charity.

We have to remember that the opposite of beautiful, graceful and well-done is highly successful in the arts. Some part of literature, cinema, artistic works, television shows deal with or show what is around of monstrous, hideous, anomalous, corrupt, ugly, beastly and fierce having a great success among people of all ages. This way, the difference and the multiform as the possible impossibility become focus of interest, the booster for commercial actions, and medium for new trends and fashions with traces of ideology and intellectual tendencies.

We have quickly passed from the numbers tattooed on the arms of prisoners in the concentration camps, to the personal use of the skin as a manifesto for exhibiting one's feelings or ideas.

The visibility of the body turns into athletic performance, exhibition, show, that has its apex in the dynamic of torture as a proof that challenges the capacity of resistance of the actor and the subject, but also of the watchers, who can be just occasional watchers or the main instigators. Fakirs act in such a way that strongly provoke the actors implying them at all levels; holding on to the insensitivity acquired in troubled and painful situations, fakirs can cause sceptical attitudes or, on the contrary, feelings of deep respect as well as a sort of veneration, as known by Hindu practising the extreme forms of pain annulment.

### *New dynamics of the body*

A recent text by Hervé Juvin (2006) seems to celebrate the utmost glorification of the human body. New aesthetic plastic surgery, new genetics, new dietetic regimes and new aesthetics have given an important tribute to the ideology of wellness.

In the meantime alternative solutions are being studied, so to give new energy and development to the body industry: issues such as abortion and contraceptives are problems of the past. The new issues are cloning, homosexual marriages, gene banks, artificial insemination, embryo modifications.

Medical assistance is extremely diffused. The body is considered an economic property *sui generis*, sold in parts for transplants, lent for bone marrow transfer (at times, for the same reason, procreation for medical purposes, e.g. stem-cell research, can be performed). In other words, the body is slowly becoming one among the large number of commercialized products. The body is, however, our own product, a private resource, that is giving way to a new form of capitalism: the use of private property in relation to our body (with evaluations in terms of prizes for each single

organ, like kind of a new butcher's window for human pieces, where prizes and items are catalogued as in an insurance contract for compensation for damages).

The present tendency seems to preserve people that are not capable of reproducing itself for age reasons. The search of wellness at all costs keeps relentlessly going on.

### *The conscience of having a body*

In the history of human life, many different attitudes towards the body were alternatively shown; a special attention has been paid to its more vital expression: the blood. In this regard, the writing of Piero Camporesi (1984) on the 'juice of life' is a good example. The blood is only a component of a more complex whole, it is the object of strong and long-lasting feelings expressed at best in the work of arts, which leave deep impacts between generations: the famous *David* by Michelangelo to the one by Donatello, who inspired it; from *Adam* at the Sistine Chapel to the beautiful Riace's bronzes, where the movement of the bodies is translated into elegance, allusions, references, symbols, that propose wide possibilities for reflection on the meaning of life.

Only later, with Rosmini (1926) was the doctrine of the corporal feeling affirmed, according to which any knowledge starts from the body perception. According to Rosmini, founder of a religious congregation, the starting point is the consciousness of one's own corporeity that allows feeling life in all its expressions, therefore, to become aware of the external events. Thanks to the body we can perceive what is external and foreign. The feeling of belonging derives from the body as well as the conception of oneself and of the other. Therefore, experience as *Erlebnis* is linked to the consciousness of the body as *Leib*, and totally different from the nature of the body as *Körper*. The first (consciousness of the body) differs from the second (the nature of the body) in its relation to the degree of consciousness and reflexivity.

Again, corporeality offers an extraordinary supply of meaning. Corporeality is language, meaning, message, in one word it is culture and one can experience it through gesture, communication, intelligence, awareness and consciousness.

Therefore, this question is not useless: 'Do we have a body or rather are we a body?' As a matter of fact, the body is the only real property of human beings for a quite long time. The body is the centre and the meaning of all and it gives sense to the world around.

Finally, from a sociological point of view the most important issue is the social aspect of the body, that is expressed both by sexuality and

fasting or diets, as well as by physical exercises, and as a carrier of social interactions and feelings.

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# INTRODUCTION

BIANCA MARIA PIRANI & IVAN VARGA

The invention and proliferation of microelectronic technologies and the rapid pace of their constant development and application – mostly in the developed world – introduced a new phase not only in the role of technologies in human's life but also brought about serious consequences for almost all aspects of the individual's life and social relations.

We refer to those technologies that are now integrated into everyday life. It also deeply affects the human body. The sensory and cognitive processes undergo a profound change as the authors of this book analyze them. As well, the concept and flow of time also acquire a new meaning. It would not be an exaggeration to compare these developments with the discovery of quantum mechanics. Heisenberg (1959:156) stated the discovery of quantum mechanics changed the concept of reality. He also said that after quantum mechanics reality is not any longer the one experienced by perceptions. Heisenberg was of the view that in quantum theory the law *tertium non datur* (no third possibility) had to be replaced by that of *complementarity*.

The physical world and electronic virtual world are not separate, as much current discussions might lead one to believe; in fact they are intricately intertwined. The present analyses address the links between social constructions of the human body and the growth of completely immersive realities (known as Virtual Reality or VR) constructed through computer software. Human bodies form a basis for social relationships. Although a VE (virtual environment) minimizes ambulatory experience, users interacting with virtual technologies constitute material phenomena engaged in practices. Experiments with users wearing Head Mounted Displays (HMDs) confirm that such technologies exercise important effects on human bodies and brains.

We need to consider the roles of virtual places as well as physical ones, of electronic connections as well as asynchronous encounters and transactions in addition to synchronous ones. Therefore we have now a new economy of presence within which we continually choose among the

possibilities of synchronous and asynchronous communication, presence and telepresence.

The mobility of humans not only tremendously increased but also took another dimension. Since the 1990s mobility has emerged as an important cross-disciplinary research agenda referred to as the *mobility turn* and the new mobilities paradigm. The slippery and intangible nature of mobility makes it an elusive object of study. Yet mobility is central to what it is to be human. It is a fundamental spatial feature of existence and, as such, provides a rich terrain from which narratives can be and have been constructed.

From the first kicks of a newborn baby to the travels of international business people, mobility is everywhere. It plays a central role in discussions of the body and society (Cresswell, 1999, 24, 175, 192). Culture is no longer tied to places, but is hybrid, dynamic: more about routes than roots. The social is no longer seen as bound by customary rules but as caught up in a complex array of twenty-first century mobilities (Urry, 2000). Philosophy and social theory look to the end of sedentarism and the rise of new forms of nomadism (Deleuze and Guattari, 1986).

Mobility, then, is more central to both the world and our understanding of it than ever before. And yet mobility itself, and what it means, remains unspecified. It is a kind of blank space that stands as an alternative to place, boundedness, foundations and stability.

This 'blank space' is the interface between chaos and order that embodies the ways in which messages move from the material to the cultural. In this process, these messages are themselves transformed: they shift from being energies, matters, objects, into thoughts, ideas, cultural artefacts. According to Serres (1995c: 293), 'angels in their multitude are a better metaphor for getting a grip on the circulations and connections of multifarious, heterogeneous entities: humans, knowledge, languages, objects, processes'. Sherry Turkle, a professor in MIT program on Science, Technology, and Society and a leading researcher in this area, observes in her book, *The Second Self* (1984) that computers, and particularly the Internet, are evocative technologies, bringing out latent habits of mind and body. According to her, people relate to computers in two major patterns: master and cooperation. Mastery is seeing the computer as a microworld that one can control in all its aspects. Cooperation is conceiving of the computer as an ally in creating, communicating, and doing other tasks. In *Life on the Screen* (1995), Turkle argues that the Internet gives rise to a postmodern personality that is supplanting the modern persona that has dominated technological culture for the last few centuries. While the modernist personality is unitary, the postmodern

persona is more flexible and playful: it is a 'body on the move'. Contradictory aspects can coexist comfortably in a single *bricolage*, because such complexity reflects a postmodern understanding of reality and our limited ability to map it.

'Bodies on the move', therefore, are both rule and exception. They are the rule because the body movements do not go beyond the physical confines. They are the exception because microelectronic technologies allow a mobility that is not determined any longer by physical factors. Namely, it is the movement of the mind (operating in the virtual space) that does not require any longer physical displacement.

While classical sociology and earlier modern sociologists dealt with structural changes in society, they did not analyze the human body as such. Today, however, sociology has to pay attention to the impacts that microelectronic technologies and the spread of cyberspace cause on the human body. It is always difficult to decide whether the body produces order or disorder, norm-bound regularity or anomalies. These two definitions: 'the body as a temporary site' and an 'ordering machine' are of course not unrelated; in order to be identified as a location, the body must distinguish between an inner and an outer, the self and the other, and this takes place through installing a specific principle of order. This brings us to the problem of identifying the body as linked to a particular life form. Namely, new technologies can and do modify the body. No longer do sociologists complain about the lack of attention paid to the role of the body in social processes. There are multiple intellectual endeavours examining the role of the body in a number of ways. For instance, Brian Turner (1994, 1996) identifies three areas where the body has been treated in some details: the body's symbolic significance as a metaphor for social relationship; as a necessary component in the analysis of gender, sex, and sexuality; and in the context of the study of medical issues. However, as Turner notes, within these various enterprises, the body and embodiment remain illusive and ill-defined. Turner provides the broad outlines of what a general sociological theory of the body would require: a complex account of the idea of embodiment which can incorporate the 'systematic ambiguity of the body as corporeality, sensibility and objectivity' (1994: X-XI); a conceptualization of the social actor as embodied attached to an analysis of how the 'body image functions in social space' (1994: 11). It perceives the body as a thoroughly historical and cultural entity. This outline, highly plausible as it is, omits the discussion on the relation between bodies, embodiment and technologies.

John O'Neill, the noted Canadian sociologist, in his book *Five Bodies: Re-figuring Relationships* (O'Neill, 2004) explores the relationship be-

tween the human body and the social institutions, and introducing the concept of *communicative body* states that it is ‘the general medium of our world, of its history, culture and political economy.’ (2004:4) He also emphasizes that the natural (biophysical) body is intrinsically coupled with the symbolic meanings every society attaches to it. Bourdieu’s concept of *habitus*, too, includes considerations about the body and interpersonal, social communication as well as its symbolic presentation.

A key task of this book is to analyze the complexity of the connections between nature, society and technologies by problematizing the corporeal body as vehicle for the interrelational dynamics amongst creative, informational, physical and virtual processes and flows that are currently reshaping the so called ‘mobility turn’. It would seem that there is a process of disembodiment: certain functions are lifted out of a particular body and invested in a particular technology. Furthermore, however, we might suggest that, within Western tradition, there is a more general ethos of disembodiment. The idea of disembodiment is attached to a notion of progress. This ethos of disembodiment seems always to be undermined by what we call the ‘return of the body’. The point is that it always seems to come to depend upon the body in some guise or other. Many functions of body parts are most obviously delegated to technology. For example, the zip is a convenience because it saves on the complex and repetitive manipulation of fingers and thumbs that was once necessary to use hook and eye fastenings. Machinery and lately robots substitute for human muscle power and recently, computers, together with artificial intelligence (AI) programmes substitute for brain power. The biological, social and machine – or biosoma, for short – paradigm emphasizes the complex nature of a city, which involves these three components, and their interaction with the environment. The machine component encompasses artifacts, from infrastructure to houses from industry to vehicles, from computers to clothing.

Bringing to the extreme the human—machine interactions, David Levy, a renowned expert in artificial intelligence, in his latest book *Love + Sex with Robots: The Evolution of Human--Robot Relationships* (Levy, 2007) predicts that by 2050 both men and women would ‘enjoy physical and emotional bonds with life-like, apparently conscious and remarkably suave robots.’ (Cf. his interview with Siri Agrell, *The Globe and Mail*, 15. November 2007.) Levy, tracing the developments in constructing artificial replicas of natural objects – beginning as early as in the first century B.C.E. when Heron of Alexandria ‘constructed some water-powered mechanical birds, entire flocks of them, that even emitted realistic chirping sounds created by a water-driven device.’ (2007:3) Later, in the 18<sup>th</sup>

Century, the fascination with artifacts imitating natural objects was widespread. In the 20<sup>th</sup> Century, with the development of AI and industrial robotics there were two important results: the repetitive tasks done by robots have the same quality and are not influenced by human errors; as well, the use of robots can substitute tasks in the household normally done by human physical efforts (e.g. vacuuming, lawn mowing).

However, robots endowed with artificial intelligence represent a totally new form, a new age inasmuch as Levy and like-minded scientists claim, the human-machine interaction would include affective, emotional elements.<sup>1</sup>

While it is not entirely implausible that human beings could develop an affective relationship to objects (as to a car), it is highly questionable whether – as it happens in real life – being attracted to, or falling in love with, a particular person for his or her appearance, intellect, wit, taste, (even smell, as recent research indicates), etc. could take place. In other words, we find it highly questionable whether robots could develop the great variety of human feelings and sentiments as experienced in embodied beings. At very least, in order to do justice to the complexity of the connections between nature, society and technology, what is needed is a collective effort at breaching the disciplines (very generally, the natural and social sciences). Incorporating human bodies into the understanding of social relations can make us better comprehend the ways in which the human is not simply ‘tied to’ the social, but also ‘tied to’ the complex web of the technological and the natural. Such an approach provides a broader, albeit continually shifting material base from which theory can develop.

As the introduction of quantum theory in physics revolutionized the concepts of the physical world, the emergence of the cyberworld (or cyborg) revolutionized the communicative processes, mobility and the concept and practices of the body. One could even say that the micro-electronic technologies and the accompanying discoveries (e.g. electronic imaging technologies) have a more direct effect on people’s everyday life.

This book, therefore, focuses on the emerging field of ‘mobility research’ by problematizing the corporeal body as vehicle for inter-relational dynamics amongst imaginative, informational, physical and virtual forms of mobility.

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<sup>1</sup> John von Neumann, one of the founding fathers of cybernetics, in his posthumous book, *Theory of Self-Reproducing Automata* (1966) has already in the early 1950s elaborated the mathematical model of computers that would be capable to improve themselves, thus imitating evolution. However, his model did not involve emotions, feelings, sentiments.

Our bodies are where we locate individual differences: my body is this, yours is another one. They, however, also share operational exchanges: for example, I can sympathize with you and help when you are ill, because I expect the same in a similar situation. Nevertheless, the establishment and operation of spatial differences amongst bodies is unpredictable and relational to other bodies and places. While special transformations are important, in the broader context of social transformation, space rather expresses than reflects society. For instance, the degree of constraints on spatial mobility expresses the openness or lack of it of a society. Also the types of habitat in urban conglomerates are closely related to social stratification. Therefore, space is a fundamental dimension of a society, inseparable from the processes of social organization and social change.

Both the Internet and mobile telephony (which now includes text messages and transmission of pictures) make possible new forms of communicating on the move, at least in developed societies.<sup>2</sup>

One can communicate with places and people around the globe without even leaving one's own home. Thus, physical mobility is complemented or can even be replaced by electronic communication, including teleconferencing, which enables face-to-face communication over space and time. As well, forms of social life become critical sites in which the very organization of space and society are in a state of flux. From a sociological perspective, Barry Wellman (1999:23) argues that the informational city is built around this double system of communication. Accounting for mobilities in the fullest sense challenges social science to change both the objects of its inquiries and the methodology of research. A particular problem requiring additional studies is how the proliferation of micro-electronic technologies affects everyday life. The same people who extensively use this technology are still living their lives; therefore, they have emotions and relations with their loved ones and assume different roles in society and family. In other words, the question is whether this technology could dominate or even conquer the individual's life.

Proximity and connectivity are imagined in new ways – often enhanced by communication devices and very likely being 'on the move' – and this transforms the home and affects the human body. More and more homes are connected by electronic devices to the outside world, privacy is endangered by obtaining personal data through fraudulent or government-sanctioned means and, though they are just preliminary results, MRI scannings indicate that the brain shows distinct reactions during high-tech

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<sup>2</sup> Although mobile telephony is overtaking the conventional telephone network in developing societies, mainly because it is cheaper to install than build landlines.

communication processes. Also, observing people's extensive use of mobile devices (phones, iPods, BlackBerries) in public spaces one can see the impact of the proliferation of electronic communication. The spread and variety of explicit adult web-sites also indicate the expansion of virtual sex. Owing to the public nature of microelectronic communication, it is not impossible that the concept of intimacy is undergoing changes. As we argued earlier, the emotive life of human beings could also be affected: it is questionable whether emotions conveyed by electronic media are equivalent to the ones expressed by embodied persons.

Apart from the aforementioned phenomena, there is a change in sensory perception. Among the five senses only two, sight and hearing, are used in microelectronic communication. It remains to be seen whether this would cause deterioration of the remaining ones. On the other hand, technologies derived from, or enabled by, microelectronic technologies (diagnostic imagination or computer assisted medical procedures, tele-medical procedures, such as helping physicians or nurses in remote communities performing complicated tasks, finding medical advice on the Net etc.) are beneficial for the health of both body and mind.

This spreading and multi-dimensional space is virtual, densely webbed and complex. A vast realm is being accessed through mediations of our imaginative and technical representations and at the same time the existence of space flows is changing our perception of space, time and interactivity. Places move closer in time; time becomes instantaneous ('real time') and social links become decentered. While this entails many advantages, such as immediate access to a vast amount of knowledge, data and information, instantaneous communication, etc., it also creates an illusory reality. Namely, what users of ITCs perceive as reality is not what surrounds them in their everyday life. One does not experience physical pain or have his/her tooth extracted by ITCs. One can see scenes – war, celebrations, crowdedness, and so forth – without actually being exposed to them. Admittedly, it is possible to empathize with their real actors, but this differs from the lived experience.

We have to consider the cognitive consequences of the technological advances and increased mobility. The iconic culture penetrated the culture and learning of late-modern or post-modern societies (suffice it to think of the increasing amount of pictures in social science textbooks, including university ones, at least in North America). It is highly questionable whether this development contributes to the ability of abstract, conceptual thinking, or rather the opposite is true. It is not our intention to minimize the advantages the new technologies have brought about in acquisition of factual knowledge. On the contrary, one can say that they have contributed

to the democratization of knowledge since anyone with a computer can find data, facts and opinions on just about everything. However, these facts do not foster problem-solving abilities or abstract thinking. We are not making value judgments but, rather, we are pointing out probable directions that could counteract the afore-mentioned process of democratization of knowledge. Namely, the solutions presented make people rely upon anonymous authorities whose opinions are often accepted without critical thoughts. Of course, this phenomenon existed prior to the widespread use of computer based knowledge, but the growing reliance on this type of knowledge promotes an uncritical acceptance of the data and opinions provided.

There is another element in the cognitive field: the discrepancy between the scientific and technical insights into the nature of things and the everyday life experience of people. One does not have to know the physics and mechanisms of internal combustion engine to drive a car, nor has to know the codes of a computer program in order to use it (moreover, an average user utilizes only a fraction of the full capacity of the machine). These examples could serve as a prolegomenon to a much more complex problem, namely, the discrepancy between the actual life experience and the ever more intricate scientific explanations of the phenomena experienced. Ilya Prigogine, in his short book, *Temps à devenir. A propos de l'histoire du temps* (1994), states that people seek *certitude* in science. And, we can add, in technology as well. The image of the physical universe, however, does not lend itself to certitude.

Prigogine (1994:10-11) uses the example of *time* and explains that according to many modern theorists of physics 'time as natural successive unfolding does not exist. The universe is there but does not 'become'. The apparent arrow of time is therefore an illusion that ought to be surpassed, eliminated'. According to him, 'our experience of existence is based on time, on the difference between past and future. This is our par excellence existential dimension. We become, we are not' (here Prigogine uses the Hegelian distinction between *Werden* and *Sein*. However, our everyday life experience includes the present as well. Similarly, the directional nature of the time arrow is felt, and all societies mark the passing of time by periodic holidays or festivities, either religious or secular (such as national holidays, carnivals or carnival-like feasts). Prigogine, however, emphasizes that in the 20<sup>th</sup> century the scientific discoveries have changed the concept, and says:

I believe that now one has to believe in a *time arrow*, in an evolving universe, in a universe where there are not only laws but a universe in which there are also events, as in history. There are laws and events. And

the reasons for this radical change of attitudes are unexpected. The first one is the discovery, about thirty years ago, of *the constructive role of time* (ibid. 27-28).

He points to the discovery of rhythmic phenomena in the molecular world and adds that a living being is a whole of rhythms as the rhythms of heart, hormones, brain waves, cell divisions, etc. This is possible because the living being is not in a state of equilibrium. The non-equilibrium is the most extraordinary way nature has invented for coordinating the phenomena and make possible complex phenomena (ibid. 29).<sup>3</sup>

To research into the effects on human beings using digital technologies, the challenge is to learn how the ‘natural’ perception of time (the time arrow) is disrupted by the instant communication (‘real time’ bridging or even eliminating the organism’s responses to the flow of time) and how the rhythms of the body and mind developed during the evolutionary process are effected by modern technologies. There are initial evidences that there is, indeed, an impact on the body and mind rhythms but much more research is needed. What is obvious is that communication of human beings is undergoing a substantive change, and the disembodiment in the communication process is advanced.

It is also observable that the innate creative potential of the mind is being rapidly replaced by technological devices. We have already mentioned the proliferation of means of instant communication. We also see more and more youngsters using iPods, spending more time in front of a computer. And now, toy companies are bringing to the market toys that are pre-programmed to imitate human responses (e.g. talking Barbie dolls) without requiring children to deploy their own imagination. One does not necessarily have to accept all ideas of Huizinga about *homo ludens* (the playful man) without abandoning concerns about the ability to spontaneity of the incoming generations.

Let us return to the concept of ‘mobilities’. It encompasses not only large-scale movements of people, goods, services and capital across the globe, but also the more local processes of daily commuting, moving through public space as well as the movement of material objects within everyday life. Whether it is too little or too much or of the wrong sort at the wrong time, the issue of movement is central to many lives, organizations or governments. Ideas of ‘hyper-mobility’ and ‘instant communication’ drive contemporary business strategy, advertising and govern-

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<sup>3</sup> Actually, Norbert Wiener and the early theoreticians of cybernetics came to similar conclusions, in particular concerning the directions (forward and reverse) thermodynamic takes in nature.

ment policies as well as academic exchanges but also elicit strong political critiques by those who are marginalized or harmed by these developments. Many public, private or non-governmental organizations seek to understand, monitor, manage and transform aspects of these multiple mobilities as well as the new ‘immobilities’: the social exclusion and eventual threats to security of groups.

Many academics also express concerns about the changing relationship between the body, society and technologies. For instance, Andrew Webster in his article ‘Innovative Health Technologies and the Social: Redefining Health, Medicine and the Body’ (2002) airs certain qualms about the intrusive nature of latest medical technologies and says that ‘new health technologies may promise more than is deliverable and make new demands on those who try to deliver them.’ (2002:444.)

We ought to re-formulate and re-interpret ‘mobility’. Traditionally it meant physical displacement of human bodies. It certainly did not disappear. On the contrary, both immigration, i.e. looking for jobs in geographic areas different from the traditional home place, and tourism, i.e. temporary movements for entertainment, enjoyment or broadening one’s horizons, are expanding. However, there is also an ‘instant mobility’ in cyberspace, which entails a tension, or even a contradiction between virtual mobility and physical immobility (for instance, a currency trader can carry out transactions around the globe when sitting at his/her desk).

There were instances in social theory that treated ‘the move’ – downward mobility and marginalization – as an anomaly (in the 1950s mobility studies, especially in the USA, usually dealt with upward mobility) happening in the fringes of society. However, in contemporary society this ‘exception’ does not apply anymore.

Therefore, the first part of the book entitled *Mobility Nodes and Spatial Mobilities* deals with the fluidities of what Zygmunt Bauman (2000) has called ‘liquid modernity’.

Donna Haraway (1989: 49) wrote that in a world marked by rapid, startling innovations in information technology, electronic communications and biological engineering, ‘the boundary between science fiction and social reality is an optical illusion’. This statement has been occasionally criticized for being an exaggeration, but it is right to say that some projections in science fictions, in particular the extrapolations concerning the transformative capabilities of technology and their effects on humans, have become reality. In this sense there is not a great difference between science fiction and utopia, which Ernst Bloch defined as the ‘not-yet-here’. Ilya Prigogine and Isabelle Stengers (1984: 310) said ‘Being and Becoming are not to be opposed one to another: they express

two related aspects of the reality'. Our lives are increasingly transformed in ways, and by devices, that seem to emerge from the pages of speculative fiction.

There is, however, a great difference between science fiction and technological reality. The latter is the result of purposive rational thinking that underlies scientific thought, respectively is built upon previous technological achievements. At the same time, the main tendency of these changes seems to transform the world into a virtual reality-game. How do identities, bodies and real spaces become remade by the textual, aural and visual technologies of screens and keypads that populate mobile phones, Internet cafés and PC-based virtual communities and cities? In Virtual Environments (VEs) users interacting with technologies that create VEs form the material element, engaged in practices. Users wearing Head Mounted Displays (HMDs) confirm a sense that technologies, such as virtual reality, are capable to have a grip on human bodies. A virtual online common, like absolute space, would offer an infinitely extensible grid for the potential re/unification of separate individuals, with plenty of room for commerce as well. Such a digital 'public sphere' could permit imaginative vaulting of Norbert Elias's modern wall surrounding the individual. Nevertheless, the critical spatial separation of user's bodies in 'absolute space' would remain unaltered. Each spatially isolated, distinct individual would become a discrete modern category onto himself/herself. VEs – vision disguised as space – are the ideal public sphere for imaginative subjectivities who believe that 'they' have been virtually freed of bodily constraints. Virtual Environments constitute a privileged psychic variation on contemporary human's homelessness. Divorced from the body's constraining intelligence, the 'fully extensible self' busies itself with the fantasy of building a virtual home in a 'post-symbolic' environment.

At the same time this self embraces the digital means that serve to extend its own psychic disarticulation in the hope to sharpen its ability to control personal meaning by living the virtual experience both as leisure and culture. However, this same person undergoes the biological process of ageing, could suffer from disease, experience the joy over the birth of a child, savour a good meal, etc., etc. – in other words he or she is living in a real, non-virtual world as well.

The challenge for social sciences and psychology is to examine the dialectical relationship in the contemporary world between natural life processes, the reality of everyday life and the virtual reality that is creeping into, and often dominating, people's lives. Similarly, there is a contradiction between the value-neutral nature of the digital technologies

and their use. It can foster ordinary people's participation in the political process by organizing support for a cause or a political party or a candidate for president. On the other hand, it could send messages of a criminal nature (e.g. child pornography) or help organizing terrorist activities.

We live therefore in a fragmented society in which distinctions between nature and culture, biology and politics, law and transgression, mobility and immobility, reality and representation are increasingly blurred.

Thus, far from the 'borderless world' (Ohmae, 1990) and the 'end of geography', owing to the economic advantages arising from ICTs, the current uneven access suggests that existing inequalities will be intensified amongst and within countries, socially and spatially, and while stages of development may be leapfrogged, uneven development will remain.

Despite these stark contrasts, there has been a rapid increase in Internet access in some of the poorer countries, especially in Brazil, China and Malaysia, as cyber centres or corridors are being developed. These centres bridge the digital divide between richer and poorer countries, but simultaneously create even starker spatial and social divisions and contrasts internally as people and places are selectively connected and bypassed. The development of a new multimedia supercorridor in Malaysia indicates how rapidly poorer countries can move directly to the technological frontier.

The digital divide between nations coexists with complex divisions within countries by location, social class, gender and ethnicity. A new urban dualism is emerging from the opposition between 'the spaces of flows that links places at a distance on the basis of their market value, their social selection, and their infrastructural superiority' and 'the space of places' that isolates people in their neighborhoods as a result of their low incomes and lack of connections' (Castells 2001: 241).

New technologies may assist social change but it is by no means guaranteed. Thus while the technologies have progressive potential and in principle could transcend the social relations of its creation, their full progressive capacity remains constrained by the existing uneven social relations. Therefore, at present, while enormous changes are taking place in the lives and bodies of people in different places that are becoming increasingly entwined on a global scale as a consequence of the new technologies, social and spatial divisions are still widening.

Contemporary information and communication technologies have transformed many people's lives in positive ways and have the potential for transforming many more. New ICTs and other technologies possess

great potential for productivity increases and transforming bodies and lives. ICTs allow knowledge and information to spread around the world much more quickly than ever before and understanding of its effects is a necessary condition for change. Yet, it is not a sufficient condition. From an academic perspective new technologies raise questions about appropriate disciplinary boundaries, especially the separation of studies between the developed and less developed world when economic and social processes and people, bodies and places are increasingly interconnected. Thus, the framework proposed in the second part of this book, *The New Boundaries between Bodies and Technologies*, provide some indications of how this might be done. It attempts to grasp, through specific examples, the changes that result in changing the boundaries between temporalities of the bodies and microelectronic technologies. The chapters provide a comparative analysis of the conception of technologies as the work of the 'mind' over matter that contradicts the modern orientation which dominated modern culture up until the second part of the 20<sup>th</sup> century. It also reshapes the modern bodies by the electronic technologies. The 'technologization' of the bodies that we are experiencing today is a new phase in the existence of technology.

This book shows how scientific knowledge both embeds and is embedded in social identities, institutions, representations and discourses. Accordingly, the authors argue, ways of knowing the world are inseparably linked to the ways in which people seek to organize and control it. Through studies of emerging knowledge, research practices and political institutions, the authors offer fresh analytic perspectives on the nexus of knowledge, power and technologies. They show that cyberspace is no mere virtual reality but a rich geography of practices and power relations. Above all, they offer an overview of how top scientists currently understand the processes connecting conscious experience with the world around us.

The authors and editors are fully aware of the immense amount of research to be done with the aim to demonstrate that social intelligence is the ability to get along well with others and to get them to cooperate with you.

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## **PART ONE:**

# **MOBILITY NODES AND SPATIAL MOBILITIES**

# THE SOCIAL BOND IN DIGITAL CONTEXT

PIERRE BOUVIER

**Abstract:** The social contract as we have known it for decades is today in disrepair. Major changes in social relationships have occurred due to the anorexis of the political apparatus and globalization. The ‘corps social’, that is the social ‘body’ or civil society is being transformed. Alternative forms of social interactions, fragile but determined, are being created from below. Endogenous social practices and symbolisms are re-emerging in postcolonial contexts both in the Western world and in the former colonies. These constructs, groups and ‘micro-bodies’ are part and parcel of the interactions that emphasize physical, emotional and symbolic exchanges within society, rather than voluntarist preconditions and eschatology. These groups are obviously in interaction with the institutions that surround them and cut across them, but such ‘micro-bodies’ deconstruct and reshape them. Squats, endoreic practices, new forms of local groups are all postmodern constructs that need to be explained not only through the analysis of timeless social structures but also through the prism of their cultural practices and rites of belonging. They are shaping postmodern social bonds.

**Keywords:** social bond, political body, interactions, socioanthropology, collective practice, micro-bodies, postmodernity.

The question of the social bond and that of the body politic presents some points of convergence. Man is a political animal who can hardly disregard his fellow-creatures. Only hermits and anchorites deliberately choose to do without them. Recluses, prisoners or those who are alone in extreme conditions of incarceration may, against their free will and their wishes, belong to that part of humanity that has no or very few social bonds to others.

The body politic, downstream, involves the notion of an ideal shaping of interpersonal relationships. This comes within the framework of a specific process aimed at initiating the condition of ‘living together’ – of an equally distributed ‘body’. Participation in this body includes several levels, from the most motivating and involving to those requiring little or very individual input.

The social bond belongs to a much wider and more open dimension. While the body politic subsumes a reasoned and rationally organized intention, the social bond appears more ‘immediate’, in other words less

mediatized by *a priori* assumptions, postulates and assertions – those of the body politic that frames it and points it in whatever direction.

This bond depends on the necessary exchange between human beings to both meet their survival needs and reproduce. The family is the main link in the chain. From the interplay between the latter and its human environments, various types of systems, both practical and symbolic, develop. These systems create numerous and varied social bonds, including the political bond, in the Aristotelian sense, with its focus on the city – that reason-based body of specific, regulating relationships. Social order and social peace postulate some organizing of the hurly-burly of human passions.

The social bond, therefore, seems more ‘innocent’ of any specific intent. It expresses itself with such diversity that the plasticity of bodies and minds usually prevails over regulated intentionality.

Its domains are multiple and its range of artifacts has the particular characteristic of being relatively free from the grip of immobility – that which, if not predetermined, is at least predictable and already in place. This plasticity of the social bond has the advantage that it can be a recourse in the face of systems and implications created by the body politic, in any given historical and spatial context.

The questioning raised by the concept of the citizen body, often defined as referring to the rights and the interpretative and active capacities of individuals, remains more or less dependent on a state of affairs that historically precedes it. The values present in this concept owe much to the antecedent and preconditions framing the possibilities of ‘citizen’ expression. Aside from the ‘naturalness’ that this citizen body acquires in democratic regimes – a much vaunted and recommended status – this set-up normally operates by means of institutional apparatuses, or at least in the space between the individual and organizations where an interactive relationship is played out. This relationship often takes on, quite logically, the traits and outgrowths of the various institutions that the state, the political parties or various officials, have legitimized. These vectors carry the capacity for establishing participation between and among the constituent parties.

As Machiavelli underscored, in his *Discourse on the First Ten Books of Titus Livius* (Machiavel, 1952), the organization of the Roman city, over a certain period, approached that balance, sought by the philosophers of antiquity, which blends monarchic, aristocratic and democratic regimes without falling into the errors of these three states: tyranny in the case of the first, oligarchy in that of the second, and demagoguery in that of the third. The consuls exercised ‘regal’ authority, the Senate looked after the

interests of the patricians, and the tribunes looked after those of the people. This representativeness was articulated around categories of social order, under the aegis of religion as the keystone and guarantee of the inescapable and apodictic truth of its assertions. It is what historiography has brought out, for example, concerning a tri-faceted people participating in the symbolic creation of medieval society: 'the medieval individual was caught in a network of obedience, submission and solidarity (...) in general and for a long time these dependencies blended and prioritized themselves in such a way as to bind the individual even more tightly.' (Le Goff, 1982:258). The protests of the citizen body in the early years of the French revolution drew strength from the virulence of the opposition standing in its way. The 'Declaration of the Rights of Man and of the Citizen' (*La Déclaration des droits de l'homme et du citoyen*) of August 26, 1789, postulates in its Article VI: 'The law is the expression of the general will. Every citizen has the right to participate, either personally or through his representatives, towards its foundation. It must be the same for all, whether it protects or punishes. All citizens, being equal in the eyes of the law, are admissible to all dignities and to all public positions and occupations, according to their abilities and without other distinction than that of their virtues and their talents.' Several decades later, the radical declarations of 1789, and of their offspring, had become severely limited. Attempting to respond to this limitation, Charles Fourier presented, in 1808, a 'Theory of the four movements and of the general destinies' (Fourier, 1808). This proposition goes to the furthest extreme of a 'participative democracy', in summoning the polysemy of human harmonies in a theory of the primacy of bodies and passions. It determined a re-formalization of human relationships and social bonds, the breadth of whose spectrum and objectives is amazing even puzzling, to us today. In the prevailing conditions of the beginning of the third millennium, this type of reflection, like others of its ilk that marked the 19<sup>th</sup> century, can appear, for many of those official representatives or players in the instituted intellectual arena, as, at best, wild and dated imaginings.

The weakening or, at least, the dwindling of active and dynamic relationships – in the sense that they allowed expectations to be expressed and responded to – seems to be one of the characteristics of the passage from modernity to postmodernity. This withdrawal is accentuated by doubt about the capacities of everyday democratic procedures to respond to participation. The civic body and the citizen debate may seem like an illusion, in which the orchestra conductor and his musicians are playing only to themselves – that is to say, to a public largely composed of audience-musicians only, repetitively playing virtually identical scores.