



# Body and Time

Bodily Rhythms and  
Social Synchronism in the  
Digital Media Society

*Edited by*  
Bianca Maria Pirani *and* Thomas S. Smith



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**CAMBRIDGE  
SCHOLARS**

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P U B L I S H I N G

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This book is dedicated to the memory of Professor Ivan Varga





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## PREFACE

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Body and time represent a binomial, a bond which is not easy to dissolve. Each body is collocated in a time and this means a continual resistance in terms of confrontation, challenge and struggle. When all is said and done, this temporal dimension must be recognised as having an advantage over the body precisely because of its non corporeity. The consumption of time has a character which is opposite to that of the body: the former is an uninterrupted sequence and therefore destined to last, at least as long as there is no need to measure it, make calculations or define the range of its limits expressed in units of seconds, minutes, hours, days, months, years, centuries, millenniums and so on. Besides, time *per se* is not capable of self-measurement, the Bergsonian conception of *durée*, of imagining its end, of comparing itself with other forms of temporality. This is not the case for the human body (including animals); it is fairly aware of its precariousness, the passing of time, the possibility of death and the relative risks there are to existence.

This asymmetrical rapport between body and time, however, allows the former to control the latter and not the contrary. At this point it is difficult to establish where the greater power lies. Clearly time outlives the body and not vice versa. In such a *concordia discors* all the fascination of *interplay* between the two variables is to be found, perennially in dialogue (from generation to generation).

The body shows signs of aging - the drying of the skin, wrinkles, lack of elasticity, and there are other indicators as well - or resistance to the 'insults' of time. The latter continues along its path 'imperturbable' without any substantial differences of note: the month of March, 2013 in Rome was not very different from the month of March, in 44 BC, the ides of March, when Julius Caesar met his death; or the mangled body of a dictator for life no longer exists today, but time continues to flow, 'indifferent' to the events and the many bodies that have passed through history for a brief moment and then vanished.

Even the group of academics who for many years have been working in the *International Sociological Association* following the same process designed by the double binary of the body and time factor: some of them have left their significant mark, but are no longer with us (above all the contribution of Ivan Varga, comes to mind - the promoter who, from the start, had a leading role in the *Working Group 03 'The Body in the Social Sciences'* and then the *Research Committee 54* within the *International Sociological Association*). We continue to hold the flag while waiting to pass it on to others, in particular, to other subjects and other bodies who will carry on the corporeity struggle of academics aboard the trajectory of unstoppable time.

The body-time couple is part of a series of constant connections in informal language and in sociological analysis: length-width, heaven-earth, black-white, yes-no, man-woman, life-death, heart-mind, Christmas-Easter, night-day, near-far, zero-one and so on. It is a question of bijective relationships - two parts of a couple, each with its exclusive identity, directly in juxtaposition with the other to which it is connected.

One could also speak about a situation in which an inversely bidirectional parallelism reigns in that if the direction of the body trajectory goes in one sense the temporal variable goes in a diametrically opposite sense. And yet the two directions remain complementary to the human experience, one unique profile. In other words, if the body is destined to consummation, to become dust and, therefore, to annihilation, time does not undergo the same process; it follows its own trajectory in an uninterrupted sequence, always towards an indefinite future, if not, infinity. Such an ambivalent situation between body and time collocated within the same existential river-bed does not produce irreparable contradictions, but rather gives rise to compensation and recovery, to equilibrium and synergies, to convergences and co-optations.

To a hypothesis of this nature, the contrapuntal progression in *The Art of the Fugue* by Johann Sebastian Bach (1685-1750) appears emblematic and allusive – so much so that it continues even today to inspire and excite numerous social actors. It was the intention of the great eighteenth century composer to distance himself from contemporary fashion and to emphasize the ups-and-downs of the human character, its advances and its withdrawals, its accelerations and its slowing downs, its sharp and hard tones, but nonetheless, harmonious and pensive; all are well conveyed by the diverse movements of the two hands over the keyboard of the harpsichord or the organ (or the pianoforte of more recent times); a tight dialogue is woven between themes and contrapuntal, subject and context, leading instrument and instruments of accompaniment, exactly like the

rapport between body and time in which rule and imagination are stretched to their extreme consequences.

Recourse to *rectus* and *inversus*, (almost the two sides of the same coin), proves nothing more than the duplicity of human experience, balancing between joy and suffering, a sense of omnipotence and the realization of impotence, the experience of freedom and the conditioning of context. There is a certain mirror image, a symmetry between body and time, almost giving further evidence of the influence of mirror neurons producing exchanged glances of intentions and objectives to reach.

The non homogenous progression of body and time respond to current criteria that can, in effect, be surpassed and wiped out. In the end, however, it is time which remains in the game, guaranteeing the *continuum* in progress.

Today's executor of Bach's *Art of the Fugue* is none other than a trained and expert body that re-proposes the contents of a first class artistic experience after 250 years; a time lapse, therefore, with a substantial separation from the aims of the long-gone composer who signed the final fugue of the cycle with a fragment of the 239 beats, ending in B flat, A, C and B major, that is the notation in German corresponding to the letters B, A, C, H; the composer himself wanted to seal his existential artistic bow with a more than eloquent signature.

The Canadian, Angela Hewitt, today's most faithful and attentive interpreter of Bach, uses the essential corporeal elements – her hands – and above all, her mind, to organize and implement the development of the musical execution, bringing the art of Bach to life after centuries, thus breaking the diachronic barrier of temporal distance, and recreating atmosphere and messages of great efficacy.

It is worth remembering that Johann Sebastian Bach's infirm and confined body was no obstacle in leaving another trace of his musical message, particularly through the choral work 'Before Thy Throne Oh Lord I Stand' dictated to his son, also a composer; an extreme act of devotion from a body ready for death, but still capable of projecting itself in time, and beyond corporal survival. It is in this manner that the body is victorious over death, going beyond the limits of the final event. The body, in other words, after the predictable defeat bound to the end of existence takes its revenge over time.





# INTRODUCTION

BIANCA MARIA PIRANI  
AND THOMAS S. SMITH

In this age of information technology, distances collapse, worlds collide, and time is transcended. Or so goes the story of the evolving information revolution. Yet there is another way of observing this technological shift—a way that makes us wonder whether this shift might not be interfering with the inborn clocks – biological, physical, social and natural—with their own rhythms that manage our physiology. They respond to the unifying pressures of the information age in different ways. Circadian shifts, for example, have been wired by evolution into human physiology. The onset of night produces neurochemical changes in our brains that prepare us for sleep, and sunrise produces effects which awaken us and bring us to a state of alertness. Yet, these same inborn shifts are under pressure when night and day become irrelevant to the storage and processing of information. Pathologies of health and well-being have been observed in those who work by night and sleep during the day. Other effects appear in the fragmentation of families and communities.

For these and other reasons, there are strong pressures in our physiology and in our social life to synchronize bodily and social clocks. But how and when this happens are very complex questions. Some of this complexity is now better understood than it was until a few decades ago. One conclusion backed by research in the biological sciences is that a basic characteristic of all living matter is rhythm, and this is true for no matter what level of organism, tissue, or cell we focus on. Biological rhythms are marked by both continuous and periodic variation, and have evolved enabling the individual to better adapt to the environment.

The history of this, physiologically embodied adaptation, is an evolutionary record of the memory of the human species. Biorhythmic principles have a genetic base; it is assumed that they formed in human beings millions of years ago and have continued to develop through the evolutionary process. Genes, cerebral organization and culture all support

a very complex network, one that ultimately generated the brain of *Homo sapiens*.

Like all living organisms, the human body is organized according to a specific time structure, where all vital functions show a temporal variability which can be described by periodic functions ranging in the length of their cycle from milliseconds to months, years, or even decades. The importance of this time structure for normal functioning has been established in many branches of human physiology. A classic example is the dependence of a normal reproductive function on the pulsatile secretion of sexual hormones. Another is the rhythmic influence of sensory, motor, autonomic, and hormonal oscillations on normal sleep activity. More recent research has even begun to describe in detail how multiple oscillators work together to regulate blood pressure. Extensive mapping of the time structure of humans is presently underway as a preliminary step for the detection of the earliest changes associated with health and disease. In human bodies, biological clocks keep track of seconds, minutes, days, months, and years. The “timekeepers” involved are as different as stop-watches are from sundials. Some are accurate and inflexible, others less reliable, but subject to conscious control. Some are set by planetary cycles, others by molecular rhythms. In humans, as well as in less cognitively sophisticated organisms, many biological rhythms follow the frequencies of periodical environmental inputs, while others are determined by internal “timekeepers” independent of any known environmental counterparts. External influences are always present, however, they are not simply superimposed on the endogenous rhythms generated by our biological “timekeepers.” Instead, these influences are modulated by them, a process which is essential to the most sophisticated tasks the brain and body perform.

The following chapters move beyond the time of clocks and calendars in order to study time as it is embedded in social interactions, social organisation, social practices and knowledge, in artefacts, in the body, and in the environment. They look at the many different ways in which time is experienced in relation to the various contexts and institutions of social life. Among the topics discussed are time in the areas of health, education, work, globalisation, and environmental change. We have approached this complicated subject not with answers but with questions:

*First*, can we understand the appearance of modern information technologies from the same perspectives that have been brought to bear on other technological changes?

*Second*, what methodological and conceptual challenges arise and how are contemporary theoretical frameworks useful in their analysis?

*Third*, what can be drawn from related questions raised in other disciplines? For example, modern non-equilibrium approaches to the complexity of physical systems (Prigogine 1980), along with modern network theory, may have a bearing on the analysis of the coupling and nesting of bodily and social clocks. What, if any, are their implications?

*Fourth*, what are the dysfunctional effects when the synchronisation of bodily and social clocks fails? How are these related to challenges posed by modern information technologies?

We see the first question as part of the general story of other technological changes over the course of human and social evolution, while the social use of biological rhythms is an underdeveloped subject in the understanding of modern temporality. It is this missing link in the research that has supported the widespread and commonly held notion that there is an inherent opposition between “cyclical time” and “linear time,” between time as a “receptacle of events” and time as it is considered in modern scientific philosophical thought. “Cyclical time” expresses the regularity of biological cycles that social scientists have described as the “eternal return”—a notion that acknowledges the periodicity, recurrence, on-again-off-again, isochronal character of intersecting social worlds. Linear time, on the other hand, is about planning, about instrumentality. Hand in hand with it comes intentionality, an orientation towards the future and the pursuit of goals. Ultimately, the alliance between science and modern technologies has gaining power over nature as its objective. Relative to the massive shifts in social organisation brought about by settled agriculture and the appearance of written language, the effects of modern information technologies are still difficult to gauge. Nonetheless they are present. We know that every important advance in technology has been associated with significant changes in personal and social organisation, and some of these advances have been as much out of sync with bodily and social clocks as are the current changes in the processing and storing of information.

In their deep evolutionary roots, social clocks and bodily clocks were first tuned to light and darkness. But over the centuries, this connection has weakened. Fire opened up the night, torches and candlelight shifted day from room to room, and electricity illuminated whole communities. In the following chapters, most of the contributors address this connection indirectly. Their work, for the most part, does not reach into the physiology of social life, but rather, focuses on the enumeration and description – sometimes with an explanation of the observable bodily and social rhythms ranging across a diverse empirical terrain – from dance, music, sports, calendar structures and collective behaviour seen in

congregations and assemblies,. Not only the time structure of real world systems is considered, but also cultural systems in which the transcendence of time is of paramount importance – for example, in theatre, movies, literature, myth, and religious practices.

The social use of biological rhythms is an underdeveloped subject in the study of modern temporality. Science has typically been aligned with the linear conception of time. In the hands of modern technologies, it has had as its ultimate objective the conquest of power over nature.

The contributions in this publication have been organised into three sections. Part One challenges the argument that tradition performs a limiting function on bodily and social rhythms. But is it possible to ascertain how deeply tradition or culture can reach into evolutionarily conserved physiological rhythms? Illustrations of instances where physiology resists cultural controls are numerous, and a few will be considered here. Pertinent to the issues of this subject, for example, are arguments concerning bodily boundaries. For example, the reigning paradigm of development and growth in the social sciences has privileged the autonomous individual. Individual development is assumed to move towards increasing autonomy from parents and carers. Yet, there is remarkable variation among individuals in how much developmental growth they complete.

There are two important caveats to this school of thought. One reminds us of interindividual variability – some subjects remain at emotionally immature levels while others grow increasing in strength and capacity towards independence and self-support. The second caveat forces us to recognize a fact about human life that flies in the face of the argument that individual development occurs centripetally – that growth is always measured in units of differentiation and separation from other subjects. What is the most natural condition for human beings? It is not separation. Rather, it is attachment – that is, they function as part of a dyad, a family, or a small network. The extreme state of human separation is illustrated by the lives of hermits, ascetics, and saints, men who spend their lives in isolation without contact with others, without sociability, without significant personal relationships. Like the child whose mother has taught it that the real world is dangerous, alive with pathogens, with potential threats on all sides, such subjects eventually withdraw into a world of illusion and fantasy. Eternal solitude is the road to pathology, both emotional and intellectual.

The default state for humans is always the dyad. Raise a person's anxiety, and they will look for parenting; this is normally unconscious. Moreover it occurs at rates that are inversely related to a person's

emotional and intellectual maturity. The paradigm for this default state is, of course, the infan-carer dyad – the first relationship in every person’s life. How this first relationship functions – whether as a matter of secure attachment or as one marked by anxieties and avoidance – sets the emotional level of all subsequent relationships in a person’s life. Persons are all “prisoners of their childhood,” to borrow a phrase from the clinical lexicon. We reproduce patterns in our adult interactions that were present in our infant-carer relationships. In classic psychotherapy, this repetition is called the ‘transference’ a term originally used in the early work of Freud and subsequently undergone various kinds of generalizations. Perhaps the most important of these is that many clinicians now speak of transference as an ubiquitous phenomenon in everyday interactions, choices, and attachments. In addition to unconsciously attaching ourselves to others who are reminiscent of significant others in our past – a parent, a teacher, a mentor, a coach – we find ourselves in relationships with others who are of comparable functional levels to our own; that is, they are similarly separated or differentiated from their parents as we are from ours. The explanation for this is given in the principle of ‘assortative mating,’ a concept developed on the basis of clinical evidence in family therapy, particularly family systems theory (see Bowen 1966, Kerr and Bowen 1977). Attachment to someone who is far less mature makes us a parent and is burdensome. And, vice versa. Attachments to others who are far more mature makes us the child, the dependent, the burden. Seldom can separation from others be sustained over long periods without giving rise to anxieties and crippling fears. The worst of these is the fear of abandonment, the fear that one is left behind, outside of the family circle, in an unfamiliar place, vulnerable to injury and suffering. In some subjects, this fear alternates with another fear, that of ‘engulfment.’ Engulfment is the sense that our own boundaries are breaking down, that we are experiencing what Erikson called identity diffusion. Among subjects diagnosed with “borderline personality disorder,” this can become a cyclic switchover, one fear dominating only to be displaced by an other, and for this rhythmic cycle to recur again and again ad infinitum .

Part Two opens a cross-cultural perspective on the social construction of bodily rhythms. For example, rhythmic patterns associated with sexuality and age-grading have been widely described in the literature of the social sciences. Part Three focuses on synchronisation as a powerful means of ruling time. Strong illustrations of this are found in the ritual practices of social life including the movement from memory to action — from previous experiences stored in memory to the execution of action. Furthermore, we also take up the implications of the synchronisation of

subjects in social interaction for the purpose of understanding social integration which requires us to analyse the temporal features of infant–carer interaction. Synchronising the interaction and attachment of parents and newborns ultimately has the effect of raising the comfort level of families and of others linked to them in social networks. The same comfort enhancement occurs in whole communities when synchronisation has been successful.

Perhaps readers will find our book academic in style, nonetheless it makes a sizeable body of scientific literature available to the non-scientific audience. Empirical illustrations range from studies of working memory in problem solving to attention deficit disorder; from sensory inscribed vs. rhythmic body to innate mechanisms in synchronization and interaction. It is through focusing on the complexities of social time that we explore ways of keeping together what social science traditions have taken apart, namely, time with reference to the personal/public sphere, to local–global diversities, and to natural–cultural dimensions of social life. This time-based approach engages with, yet differs sharply from, postmodernist writings. It suggests ways of not merely deconstructing but also reconstructing both commonsense and the comprehension of the social sciences. The time-structure of our bodies is, after all, only partly within our skins, for we are open systems, unable to detach ourselves from the beats of this nature of which we are part.

It is a book that will attract wide interest especially students, researchers and academics in the social sciences, neurosociology, digital studies and further afield, for example, in health, philosophy, education, and anthropology.