

15 Mascha Time, Dutch Electronic
0 Art Festival 2000, Peter Weibel
Rotterdam 2000

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CHRONOCRACY
(2000)

S. 150-176

Time Market is inscribed above the entrance to information society.

"The reality of time has been replaced by advertised time."
(Guy Debord, 1967)

The turn of the millennium was a boom time for time. Time was pregnant with countless models: biological, cosmological, physical, astronomical and many others. In contrast to the popular philosophy of time, this study will focus on a single model of time: the social construction of time, time's economy. For we believe that the economic construction of time is the only relevant one, since it is the one from which all the other forms of time are derived. Our task will be to develop a theory which outlines the dialectics of the concepts of free time and production time, labor time and consumption time, and which explains how these concepts structure and dominate the whole sphere of life. We propose therefore to explain the functioning of society by means of a theory of time. This theory of time does not begin with natural conditions, however, but with specific social and economic conditions. This movement from natural to social time can be clearly observed in the function of the clock.

In the beginning, real events were counted and measured: the movement of the sun and the clouds, the burning down of a candle. The water clock and the grandfather clock counted and measured real, visible and physical things. Our clock, which is based on the movements of the stars in the cosmos, measures the length of the interval between two successive culminations of one and the same fixed star. This is the equivalent of one rotation of the earth,

one day, 24 hours, 1,440 minutes or 86,400 seconds. The time measured by the clock is thus incorporeal and abstract.

A clock counts only a certain class of events. It measures the length of an interval of time which remains constant. This enables us to tell the time of day. What is measured in the flow of time is thus not real events, but abstract entities like seconds, minutes and hours. The introduction of time was a process of abstraction. The intervals and lapses of time measured by the clock are of an abstract, formal, indeed mechanical nature. The clock has made time abstract and mechanized. Time is measured and represented by a machine, a technical mechanism. In truth, however, our concept of time itself is already abstract and mechanical. I can only represent the passage of time by a mechanical clock because our concept of time is itself already mechanical. Time is transformed by the act of measuring it. The measurable concept of time is the counting of hours and events. Numbers rule time. The moments of measuring time and counting the hours enable time to be expressed in terms of numbers. This is the basis of capitalism, which has recognized that time is not only countable but also profitable.

Under the pressures of countable and profitable time, time itself is reduced to mere production time. Where nothing is being counted (because no work is being done), time just stands still. Time begins passing again once the flow of money is resumed. If you are making money, you are also making time – producing it, in fact. Anyone who is involved in production is therefore in a position to buy time – in the form of credit, that is, which is a grant of time for a fixed period of labor time and life time. This is why it is also called a loan.

Only when time is considered in light of the unity of labor and time is it possible to speak of a waste of time, which is simply time during which no work is being done and nothing is being earned or otherwise acquired. Consumption, leisure time and idling are all time lost. Under capitalism, all non-renumerative activities are a waste of time. Money has been the real clock for quite some time. Every bit of time has its price. The worker sells his or her time, work time and liv-

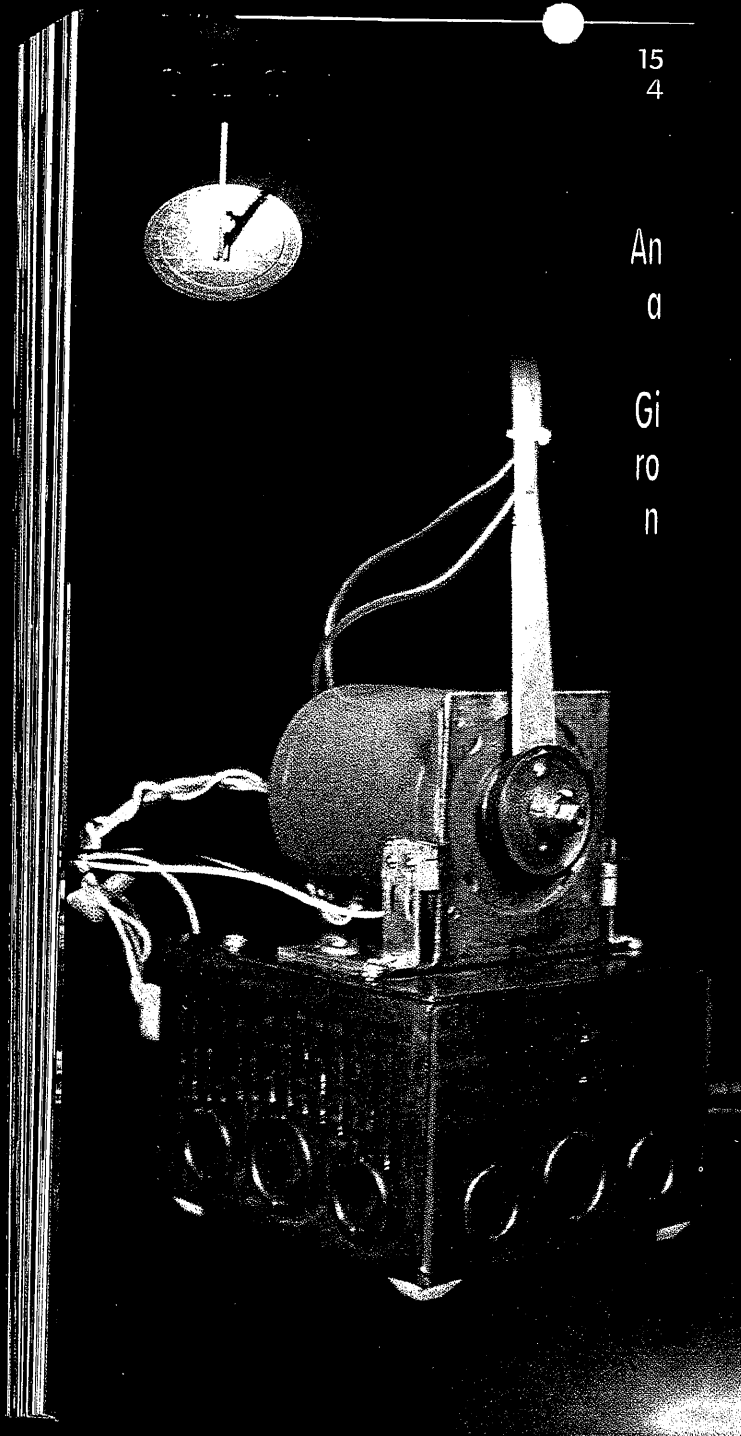
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15 ing time. The currency of payment is time.
2 One who is paid for one's time pays with
one's life. One pays for the time one has
C worked. Money buys the time that someone
H is willing to sell in the form of labor. Time
R becomes capital. Ever since time has been
O measurable, expressible in numbers and
N mechanized by the clock, it has been
O impaled on the stopwatch, rigidly con-
trolled (for every second costs money) and
expressed in time notes: time is
redeemable. Time rings out in the cash reg-
CR isters. Correctly translated, the adage "time
AC is money" means "time is a number" or
Y "money is the commodity form of time."
Value is brought into being by countable
time. Time's value is variable; from the
unskilled laborer through to the expert,
time has a different price. How are values
converted into prices? The famous transfor-
mation problem of economics finds its
answer in time. For time is expressible in
monetary and figures and numerals.
Ricardo defined labor as value and time as
its measure. Price is thus nothing more than
the temporal form of value, and money is
the value form of time. This is why values
can change into prices, or rather why forms
of value change into general money com-
modities, in whose use value the exchange
values of all other commodities are
expressed. Ricardo suggested this approach
when he wrote: "I may be asked what I
mean by value and how I come to judge
whether or not a commodity has changed
its value. My answer is that I know of no
other criterion for judging whether a thing
is cheap or expensive than the sacrifice of
labor necessary to preserve it. Everything is

originally acquired through labor" (quoted 15
in Piero Sraffa, *Warenproduktion mittels* 3
Waren, 1976, p. 159).

As Ricardo's successor, Marx Pe
defined commodity value in terms of the te
number of hours worked: "Money as the r
measure of value is the necessary manifes-
tation of the immanent measure of com- W
modity value, which is labor time" (*Capital*, ei
vol. 1, 1962, p. 109). Time as a unit of labor be
measurement becomes the sole measure of
value. Homo economicus is a creature of
time. Space too turns into money for homo
economicus, for space is merely the repre-
sentative of time. In one of Raymond
Chandler's novels, a landlord says to a cus-
tomer who has been sitting at a table too
long, taking up space and consuming too
little: "Man, this is money space." First, time
is money, and now space is money as well,
for space too has been succumbing to the
value form of money for quite some time.

"Time for sale" is posted above the
entrance to industrial society, and trading
in time is the business of the information
society. Chronometry, or the measurement
of time, is the precondition of a market
economy in which money is the highest
form of commodity. Thus when Frederick
Winslow Taylor (*The Principles of Scientific
Management*, New York 1911) and Frank and
Lillian Gilbreth (*Fatigue Study*, London 1916)
started time-and-motion studies as produc-
tion engineers, they did so in the correct
assumption that time was the most precious
metal, the one invariable measure of value.
The time-and-motion studies conducted
around the end of the nineteenth century
accompany an industrialization of time and



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Much of modern life has come to depend on the accurate measurement of time. With the development of the Cesium Atomic Clock, we can now keep time to one millionth of a second per year. As technology has developed we have intervened in nature's time-keeping process with the ultimate goal of improving on its perceived imperfections. In so doing, we have abstracted our sense of time from nature - what we live with today is predominantly a technological time.

Artificial Time is an interactive telerobotic installation for the web that explores our concepts of and relationship to time. A robotic arm, which consists of an armature with a halogen light, is connected to the web and acts as a light source that revolves above a sundial. By controlling the movement of the robotic arm, one is able to control the shadow on the sundial, thereby controlling the representation of time.

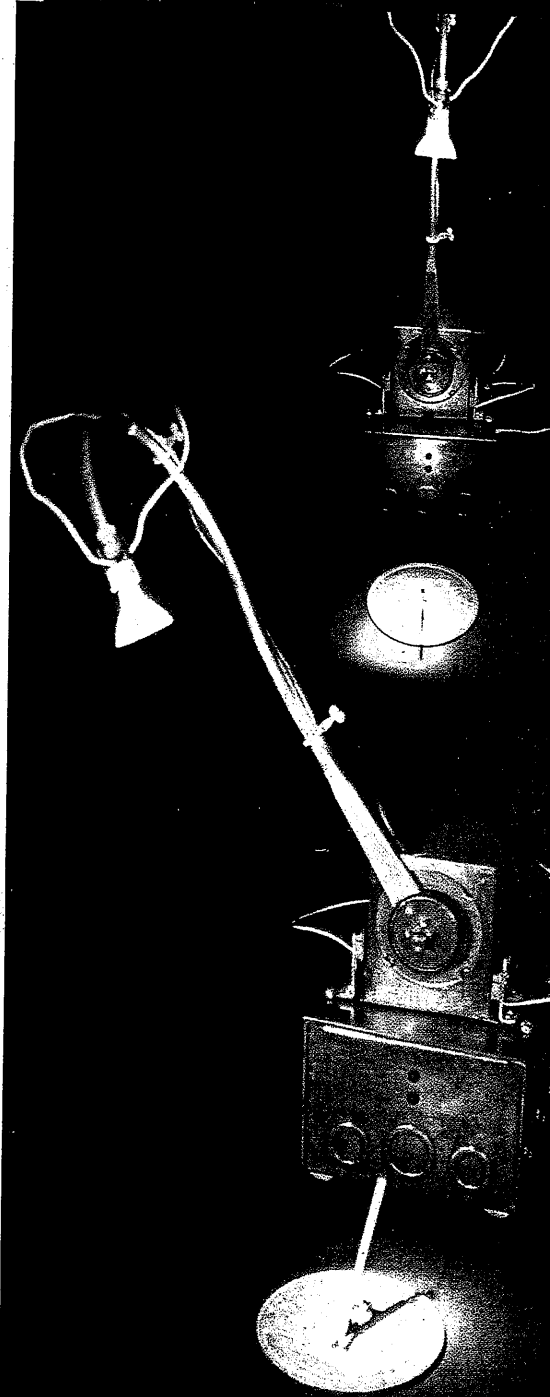
A video camera transmits the image of the sundial on the web. While multiple viewers can see the sundial, only one person can control the robot arm at a time. When one gains control of the arm, the time and location set on their computer is sent to the server which positions the robot accordingly. Anyone else who is connected at that time is able to see the location of the Exclusive Client as well as the initial time they connected. A second window with a Time Map is also part of the web site. It is a record of the last 24 connection times drawn in shades of gray from black to white where the last connection is in white.

The project, installed at a gallery, is being manipulated remotely.

are proof of the beginning
of time's control.

Timesmiths Taylor and Ford recognized that real power, the true bomb, is time. Time comes as a time bomb. The coming of abstract time coincided with the achievement of the abstracted labor of the conveyor belt, a labor stripped down into parts in the factory - dislocated, distanced and estranged.

Time-and-motion studies were explorations of capital, of the abstract value form of money, and they prepared the way for the subtle capitalism of post-industrial society. The process of abstraction initiated by exchange value, which gradually transformed objects into commodities and commodities into signs, this process of the dissolution of objects, has been so intensified in post-industrial capitalism - which is a feudalism of time - that money itself is disappearing because it still betrays too much of its origins in the object or commodity. In the course of the conversion of space into time by the faster machine, labor itself was turned into



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time. Not only did movement become independent of space, but the value of labor and the price of value thrust themselves forward as absolutes. This led to the independence of prices and the commodity of money, to the abstraction of money circulation, which became almost immaterial and unreal.

The stock market, stock market transactions, stocks and shares, forward exchange and foreign currency dealings, where money is exchanged for money and profits are created, not by some form of productive work but from mere differences in time (!) are testimony to this accelerated abstraction of labor which is wiping out labor itself. The pure money market is liquidating money – just as in the age of space space is disappearing. The emergence of the bank card, which has displaced money to such an extent that in the USA a person offering to pay with cash rather than with a card is immediately suspected of being a criminal, confirms the extinction of money as an object or a second-order commodity and verifies its promotion to absolute immateriality. After labor and time, money too has now become so abstracted that it not only vanishes as an object twice removed but, by a truly paradoxical twist, even becomes a gauge of poverty. The rich do not have money anymore, at least not in their pockets: they carry cards. The bank card contains a graphic notation of the hierarchy of wealth. It will be recalled that the multimillionaire Howard Hughes never had money in his pocket. In the better hotels in the USA you cannot get a room for cash: only a card will do. Only the poorest

Only those present at the gallery can see the actual source of light. Artificial Time confronts both the exhibition visitor and the Internet user with the simultaneity of different time zones and experiences. Spinning in a continuous time loop, the shadow on the sundial oscillates between the local time and the virtual time of a remote location, which in itself is the local time of a telematic visitor.

<http://www2.sva.edu/~ana/Time>

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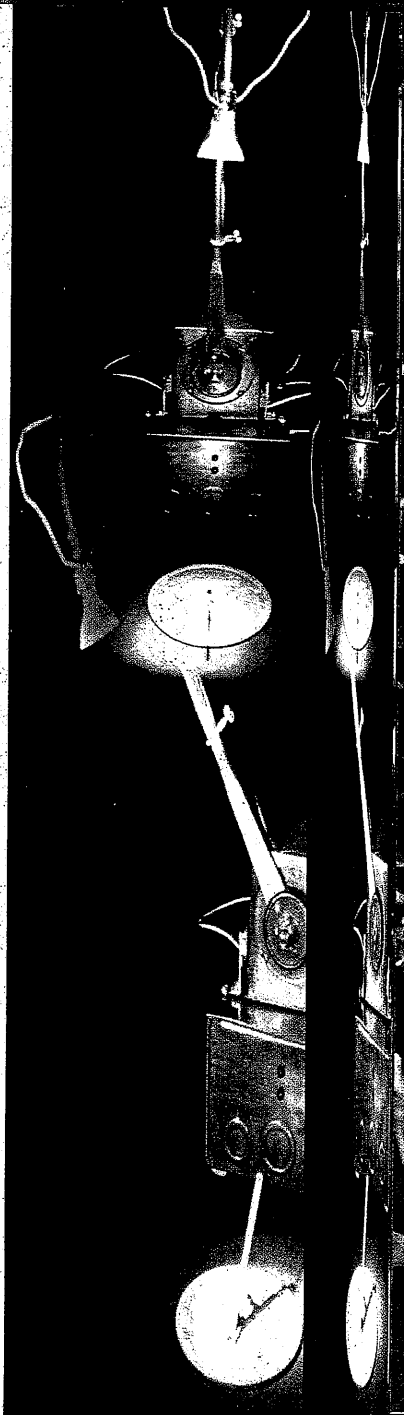
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people actually have ready money. In the age of the bank card, which is the age of temporalized money, the person with cash is actually broke. Dematerialized money is the currency of the poor. Checks and credit reveal capitalism as a trafficking in time, as the product of the progressive abstraction and mutual independence of labor, value, time and money. Originating in exchange value, this process of abstraction has transformed the theory of value into the theory of price. The process has abstracted labor to the point of superseding it, so that within "economic calculation" (Charles Bettelheim) there has been a shift from the production of commodities by labor to "the production of commodities by means of commodities" (Piero Sraffa, 1976). Under the capitalist mode of production and the circulation of capital, indeed, the economics of prices has become so detached from the reality of labor that Sraffa found himself compelled to turn to this structural mathematical model in order to explain the laws of the market. The economy, too, operates in a virtual mathematical space. Under the diktat of time and chronometry, the economy is becoming an eco-metry.

The final stage in the abstraction of labor is the present production of time by means of time. The economy subsists on the sale and investment of time (in the form of work time) by those who work in order to earn money to purchase their free time (in the form of commodities, leisure and the means of subsistence). Time is what is invested, bought and sold. This is why so-called options or futures offer the most lucrative deals. The highest, most abstract



15 form of capitalism is the monetarization of time. This the
8 logical consequence of the equation in which labor time and
value time, time value and labor value were posited as the
C same. Even Marxism has failed to avoid this fatal prospect.
H The inflations and crises of capital are caused by implosions
R of time within economic calculation. In *L'atelier et le*
O *chronomètre* (1979) Benjamin Coriat described the begin-
nings of chronocapitalism in Fordism.

N The Taylorist atomization of the work process and its
O Fordist mechanical reconstruction in large factories led to a
speeding up of productivity, in particular of the mass pro-
duction of standardized commodities. A crisis of overproduc-
CR tion would have occurred had there not at the same time
AC been mass consumption of commodities cheap enough to be
Y purchased by workers. This is why Ford made the well-known
statement that "our workers should also be our customers."
Within a kind of self-regulating market, the workers were to
a large extent also the consumers of the commodities they
produced. On the basis of this mass production and mass
consumption, huge reserves of capital were accumulated
and the great American fortunes were made. However, once
the household, the most important market for such mass
products, became saturated with mass-produced goods, this
self-regulation entered a crisis of overproduction. The prob-
lem of overproduction was exacerbated drastically by the
replacement of people by machines in the automated pro-
duction process, which was the second source of faster pro-
ductivity. The workers made redundant by automation were
left on the one hand with an superabundance of time at
their disposal, and on the other hand no purchasing power
since the profusion consisted merely of time in which to
stand idle. A divide began to open up: the production of
mass commodities was sped up and the mass of workers
capable of buying them simultaneously decreased. One and
the same cause, the machine, was responsible for both the
rise in productivity and the decline in purchasing power,
since the machines led to the dismissal of workers. The more
machines produced, the more workers were "released" by
mechanically automated production, and the more com-

modities there were, but also the fewer workers were earn-
15 ing enough money to buy and consume those goods. The
9 contradiction is best formulated in monetary time. The work-
ers were the consumers of the time they produced. However,
Pe once automation began to produce more and more time, the
te workers had less and less time to consume it. The result was
r overproduction not only of consumer goods, but also of time.
This is why trade unions now no longer fight for a reduction
of working hours, which was their original historical goal, but
W on the contrary, against the reduction of the working week
ei being forced through in the industrialized nations by
be increased automation. The program now is neither the abo-
lition of work nor the reduction of the number of hours
worked, but the preservation of work time and work. The
unions are using their power to bring time to a halt, to put
it on ice. The problem of the consumption of goods only
serves to conceal the problem of the consumption of time,
the overproduction of time. The economic equilibrium, the
self-regulation of economic growth, was thrown off balance
by quickening time. The labor-value-commodity-time-money
economic equation was destabilized by the time factor, by
the mechanical speeding up of time.

In fully automated factories, inside the neo-Fordian
work process, the speed of production is completely
detached from the speed at which human beings work. Just
as movement and time were once detached from space, and
price from value, so now time is detached from labor.
Exploded time (independent production speed) inserts itself
into the game and dictates the rules. Just as space and time
have entered into a new relationship in temporalized tele-
technetronic society, so too have labor and time. Fordism's
goal of using machinery to produce more and more goods
in less and less time has blown labor apart, releasing the
nuclear power of time. Taylor's atomized time was indeed
the atomic bomb of time. Automation has produced too
much time. It is an overproduction of commodities and time.
What has been set in motion, therefore, is a complex juggling
act of labor time and released time (analogous to the
"released" worker, as a worker without work is euphemisti-

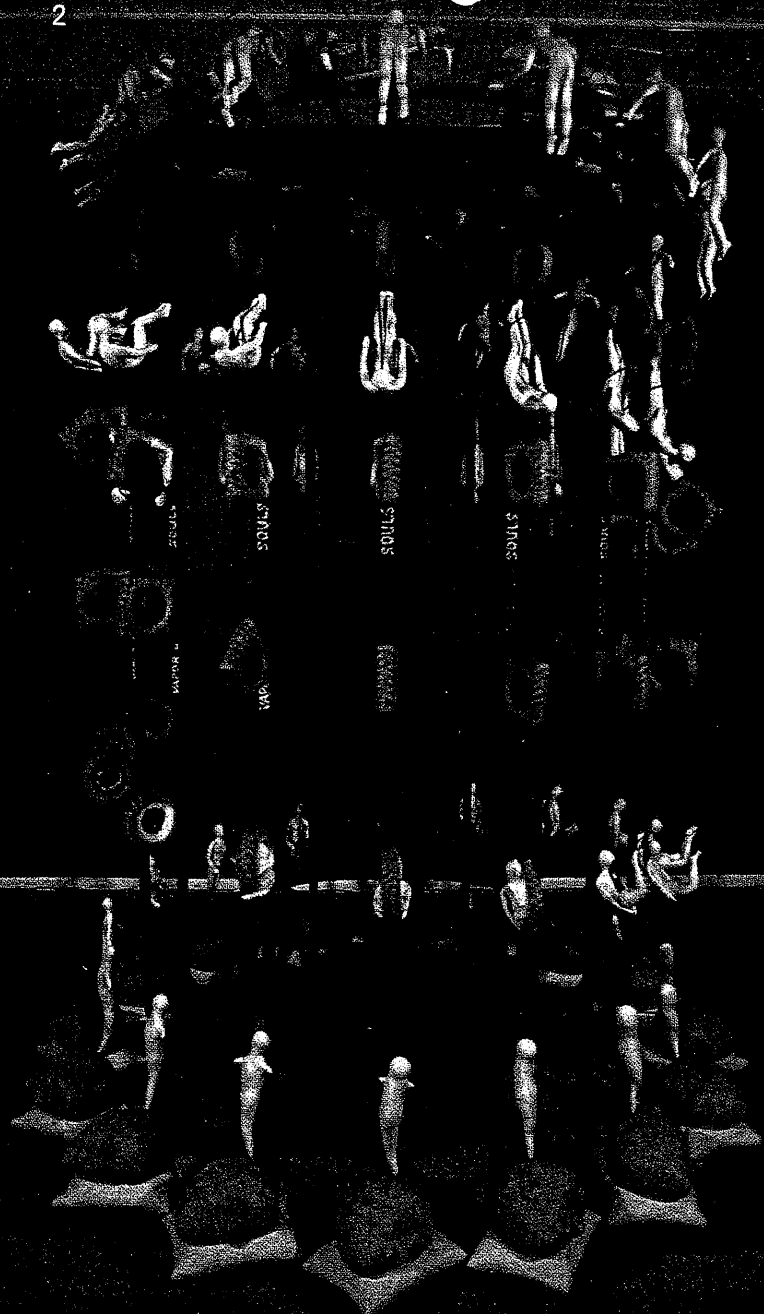
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O cally referred to nowadays), of spare time
and free time, and of production time and
consumption time. If time is money, then
C besides counterfeit money there is also
H counterfeit or simulated time; in the light of
R the practices described by R. Alquati in
O *Sulla Fiat e altri scritti* (1975), one could say
N "Fiat time." Protected by their unions, the
O Fiat workers very often absented them-
N selves from factory work in order to get
O hold of some "free time." And this was also
CR necessary, because wages were not high
AC enough to finance the steadily increasing
Y amount of spare or leisure time. For during
this "free time," the absent worker could
undertake work in the black economy
somewhere else. Thus Fiat hit on the idea of
hiring its own absent workers to work
"black" in their own factories and paying
them under the counter for the work they
were performing on the side while they
were supposed to have been at the factory
anyway. This is tele-presence, simultaneous
presence and absence, economic far-near-
ness. All parties have an interest in restor-
ing the profitability of supposedly free time.
It was at least cheaper than not producing
anything and paying the workers in their
absence, for these union-protected workers
could not be fired and replaced. The time
stored in the machine could not be made
profitable without labor. The time saved
became money again by giving the workers
a little more money, even if it was money
paid under the counter.

The new aim of Fordism is thus to
produce a maximum of time (consumption)
with a minimum of time (production) in
order to avoid overproduction (of commodi-

ties and time). The theory of "human capi-
tal," which makes everyone a producer (or
artist), has represented the neo-conserva-
tive conception of homo economicus from
Gary Becker (*Human Capital: A Theoretical
and Empirical Approach*, 1964) to Joseph
Beuys (*Kreativität alias menschliche
Produktivität als Kapital*). When an individ-
ual becomes a producer of commodities,
the value of those commodities is then
measured by the amount of time the indi-
vidual spends enjoying and consuming
them. They are counted as consumed time.
In a consumption-oriented society whose
vector is the elimination of overproduction,
it is no longer labor that is the only true
source of a nation's wealth, as it was for
Ricardo, but consumption. At least to the
minds of the neo-conservatives.

The signifier "individual as produc-
er or artist" masks the inversion "consumed
time." For the reality is different, precisely
because it is time that produces commodi-
ties, and thus consumed time, and precise-
ly because time is the sole factor in the pro-
duction of commodities, so that the degree
of abstraction is reached in which – as
already indicated – time is produced by
time. A perpetuum mobile of time is the
unredeemable core of neo-conservative
economic theory.

For to make time, individuals must
earn money, for time is, of course, money,
and money is time. To earn money individ-
uals must devote a portion of their time to
labor. To prevent this time of labor from
getting too long, and to ensure that he or
she gains time from the production of com-
modities (consumption time), the individual



has to build machines that
 accelerate the process of
 production. That is to say,
 he or she must acquire
 knowledge. Again, this
 costs time; machines are
 thus stored and saved
 time. But in order to store
 this time, in order to shorten
 the period of labor by
 the use of machines, in
 order to save time with
 machines which produce
 commodities more quickly,
 the individual must first
 lay out or invest this time.
 In other words, he or she
 must both delay and cut
 back on consumption
 time. In reality, this gives
 rise to a new asceticism,
 an immense pressure of
 time. In order to acquire
 the high income that
 apparently promises more
 goods and consumption
 time, the individual must
 devote a major portion of
 his or her time to earning
 the money to purchase
 those machines that allow
 more time to earn money.
 On the other hand, if this
 individual's time is worth
 nothing, and his or her
 wages are already too low
 anyway, he or she will
 have more and more time
 to consume less and less.

Gregory Borsamian

My work of the last ten years allows the ever changing contours of sculpture to exist in time. I sculpt the materials but then I flash them before the eye at the hypnotic rate of thirteen sculptures per second. The effect is compelling ... cinematic ... surreal. As a special effect it is similar to the perceptual tricks in painting and cinema.

I use animation to bring these fabricated images to life. In a darkened room I present sequentially formed sculptures on a rapidly spinning armature. A synchronized strobe light supplies the illumination. The images exist in real-time and viewers are able to share the same space with them. The conflict between sensory information and logic recreates the state of dream reality. The scientific basis for the visual illusion is called the persistence of vision. In this process a series of gestalts is knit into a coherent (or incoherent) whole. Our minds have an overwhelming desire for order. We create the order. What I find fascinating is the nature of that order. It defines us. Just as the viewer's visual cortex completes the illusion, so the viewer's mind completes the sculpture through personal interpretation.

The title of *Die Falle* (*The Trap*) was suggested by the double meaning of the German word "Falle" which means both trap and bed. A small body spills out of the head of a sleeping man (this is the artist's face). As it rises, the body transforms into a round tire, then into a square tire. By the time it returns to the form of a body again, it has climbed to a new height, and finally jumps into a bed that is shaped like a mousetrap. The liquid image of the character

The Trap

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4 Loss of time for some and loss of commodities for others are the consequences of the division, of capitalism's subsumption of the totality of time. Those whose time is expensive because they are "experts" will have to work more and more. Others, the unskilled workers, will be less and less able to work at all. This is the true face of the accumulation of time, as distinct from the accumulation of capital. "Capital accumulation will be for the individual nothing more than an increase of the number of commodities that save him the trouble of taking the time to consume them" (Eric Alliez and Michael Feher, *The Luster of Capital*, in Zone 1/2, New York 1986, p. 352).

Money is turned into time in two ways. Money crystallizes time as production time in the form of payment. Money earned is then time saved. As capital, money stores the time of commodity consumption. Capital becomes the bestower of time, time's provider (Gonzague Pillet, Roland Leinsburger, Aline Bourrit, *Les donneurs de temps*, 1981). Absolute chronocracy, the rule of time, has thus already begun. It is a new feudalism of time, in which there are time slaves and time masters, chained to each other in the common desire to make time profitable. Tele-technological acceleration (by machine) has made the most radical impact on the economy, creating monetarized time and temporalized capitalism.

Just as eleventh-century feudalism was a society of underfed poor and overeating rich, so the new feudalism consists of more and more consumption time (which is of course money stored and saved) for the rich and steadily less con-

sumption time for the poor (which is the equivalent of "free time" or time made redundant). If you do not have time in the sense of time as money saved, purchasing power, you can buy yourself some time. But what do you do if you have no money to buy yourself time and your desire for time stems precisely from the fact the you have no money? You simply sell your time. But how is this possible, given that we started out from the assumption that you have no time? In the age of the politics of space, you could borrow against your land. In the age of chronocracy, you can borrow against your time. The person whose present stock of time is insufficient sells his future time. He mortgages his future time, which is a time that will only mature as future. He takes out a loan or credit. He barter his time. The individual buys himself time now, consumption time, enabling him to buy straight away the goods he wants to consume and enjoy in selling future time. The time slave must naturally pay interest – interest on time. He will usually have to invest in, produce for, or pay the future a third more time than what the commodity would have cost him now. The individual thus loses time, life time, in this exchange of time in the form of a loan. You borrow time from the bank, mortgaging your life time to that bank – which for its part insures itself against your premature decease, your death before time, and you pay for that too – which enables you to buy now products you cannot yet afford because you have not yet worked enough for them, not yet earned enough money or produced enough time. The dual luster of

brings to mind the detailed shape of Rodin's "Gates of Hell" and contrasts a "disarrayed irrational dream" with "the pleasures of slumber," alluding to the conflict between the mind and the body.

Gregory Barsamian

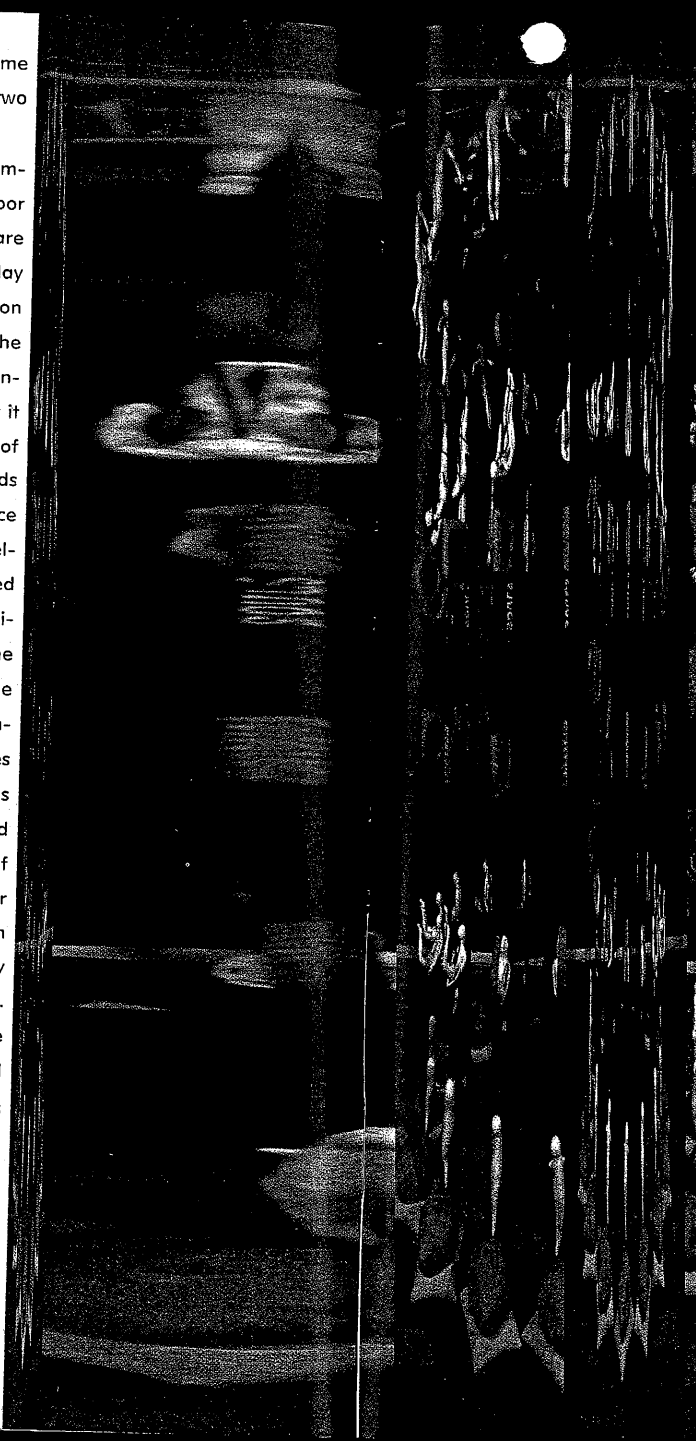
The Trap



16 capitalism, time as the production of commodities and time
6 as the consumption of commodities, has been split into two
independent parts in the chronocratic society.

C Borrowed and loaned time are to some extent sim-
H ulated or counterfeited time. Today the actual wage of labor
R is loaned time. We can judge the extent to which we are
O already living under chronocracy from the fact that today
N everyone, private individuals and businesses alike, lives on
O loans and credit. Credit cards and the credit system are the
C signs of a "tele-economy," a "controlled economy." An econ-
R omy which has reached such a degree of abstraction that it
A lives on time, and in which time is produced by means of
CY time, must also be capable of manipulating the time worlds
as plural time, rather in the way that it manipulates space
and tele-space as plural space. Fractalized, movable, accel-
erated and decelerated time – time purchased, borrowed
and earned – is the sign of the borrowing and lending uni-
verse of the chonocracy, the new rule of feudal time, of the
time aristocracy, where everyone, from the individual to the
great concerns, lives on bought, sold, borrowed, lent or sim-
ulated time. In this economy the present no longer suffices
to produce the amount of time required: everyone needs
more time than they have. That is why time is bought and
borrowed for immediate consumption at the expense of
future life time. Everyone offers life time as cover for their
debts. The economy is ruled by surrogate time. Fixed-term
debt identifies debt-burdened time as the new inflationary
virus of the world economy, which is an economy of time.
This is the real reason why chronological time, historical time
and natural time – the visible forms of time – are past and
gone, and why the techno-time of the electronic media is
now the legitimate artistic form: the electronic media artic-
ulate the simul-time of the new feudal society, its character
as a place defined by the borrowing and the granting of
time, for, in place of the spatial depths of classical visual
representation, the electronic screen is capable of imaging
the virtually infinite depth of time, capitalism's apparently
inexhaustible resource.

"Tempus fugit" necessarily predicates "Time is




money." The chrono-analyses of time management, the
industrial structurations of time, time-and-motion studies
(from Marey to Ford) have produced not only the enormous
speeding of telecommunications, but also time and speed as
the sole invariable measure. The teletéchnotronic instantane-
ity of ubiquitousness has abolished all physical dimen-
sions and all spatio-temporal distances. For the "annulment
of time and space" (Carlo de Benedetti) by modern technol-
ogy facilitates a new globalization, which no longer
emanates from local conglomerations of production – topo-
graphical concentrations of an industrial sector, such as
Detroit and Turin as car-makers – and their global sales
networks, but from the concept of "flexible specialization"
(Michael J. Piore and Charles Sabel, *The Second Industrial
Divide*, 1984), in which not only mass consumption but also
mass production are globally dispersed.

This is one answer to the crisis of the overproduction
of mass commodities. Since the local work force is no longer
numerous enough to buy the commodities it has produced,
mass-produced commodities have been internationally stan-
dardized for transnational sale. This next necessary step was
to transfer production from a local to a global setting: in
another place, for example, the workers could be made to
work faster, making it possible to produce more, and there-
fore cheaper, commodities in a shorter period of time. This
led to the flooding of the market with East Asian products
(from Taiwan, Singapore, Hong Kong, etc.), from shirts to
electrical goods, manufactured under American and
European license. The transnationalization of capital, pro-
duction and consumption, the global market, ties together
the strategies of the time technocrats. Michael J. Piore
describes his concept thus: "The industrial world is in transi-
tion from a mode of production dominated by mass produc-
tion to a mode which Sabel and I call flexible specialization.
The underlying idea of mass production is the achievement
of technical progress through dividing the process of pro-
duction into a series of discrete tasks," just as the elements
of a single movement were broken down into a series of dis-
crete images. These specific, discrete tasks were carried out

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8 by specialized machinery and by workers who were specifically trained for this one operation. "The main economic problem with this was to create markets large and stable enough to keep these highly specialized resources fully occupied. At the micro-economic level this gave rise to monopoly or oligopolistic industrial concerns, and at the macro-economic level to the Keynesian welfare state." This economic equivalent of a cinematographic montage has been described aptly by Piore: "The characteristic institutional structures of mass production are fragmentizing and hierarchical. Each operation is isolated ... and only acquires its meaning (economic and social) when (graphically) integrated back into the product it of which it forms only a small part." The coordination required for the reintegration of these differently produced parts was naturally at first easier and cheaper to achieve from the beginning if "all operations are carried out in close physical proximity to each other, and we see how the mass-produced car is historically connected with urban conglomerations such as Detroit and Turin." In principle, however, standardized parts can in the long run also be integrated into a geographically "highly decentralized production process." Due to the recent new developments in tele-technology, "transportation and communication costs have fallen, and for this reason mass production has shown a tendency to be dispersed across very large geographical areas." Geographically dispersed production in the tele-technetronic topology versus the centralized production of the mechanical era expresses the distinction between industrial and post-industrial society, between the second communications revolution and the third. Constant product innovation is require to maintain the technological momentum. "Flexible specialization, which backs multi-purpose tools and equipment (poly-technology), and broadly trained skilled workers, against rather narrowly specialized workers and machines is, therefore, invading the domain of mass production. Flexible specialization is a technological mode of operation that deploys very general, multi-taskable resources to produce short-term specialized products. In extreme cases they are tailored to meet a single specific


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9 requirement" (all quotations from Piore in Zone 1/2, pp. 432-433). Thus, the historical, mass-produced commodity (car) was built in a closely integrated physical and spatial environment (conveyor belt, factory, city). The mass-produced commodity of techno-time and techno-space comes into being in a decentralized, spatially and temporally separated and displaced production process because, along with the tele-technological cost-benefits, lower wages, lower employers' contributions and higher work rates easily offset transport costs. In this way, the political and social asynchronicity of third-world countries destroyed by colonialism is once more exploited. Economically speaking, the disappearance of space means that space has become cheap and the transport of goods costs almost nothing. Space and transportation are at least cheaper than time. Carl Sagan's definition "speed expands time to the degree that it shrinks space" throws instant light on the economic significance of speed. Hence the distribution of the mass production of commodities, from radios to television sets to cars, over large geographical areas. The parts of the "world car" are produced in different countries, and even on different continents. So not only mass consumption but also mass production is globally dispersed, for by destroying old natural scales, such as human work time, locally situated raw materials, spatial distances, weather conditions etc, modern technology has created a whole new economy of scale.

The diffusion of the space of production through tele-technology extends from the global macro-production of the transnational concerns down to the local micro-production of home-workers. A gigantic social "factorification" has taken place in which life in the city and life in the factory are rendered indistinguishable, and where the boundary line between work at home and work in the workplace has been erased. Together with the concept of "flexible specialization," information technology and telematic homework, this development has brought about a rebirth of the small and medium-sized factory. It is a sort of micro-business or underground economy whose earnings, despite their marginality, make a sizeable contribution to the functioning



of the economy as a whole, because they actually do comprise "free time" (low taxes, etc.) and are therefore strong producers of consumption time, of time as the power to purchase commodities, whose scarcities and deficits are the new form of inflation. The danger of talking about time as "human capital" and measuring everything in turns of human time is that it blurs and dissolves the boundary between paid work and home-work, work time and free time (this is already implicit in the "Everyone an artist" model), so that the whole of society becomes a single great factory, where the totality of private time is identical with capital time. For a discussion of the theme of human time, see Theodore W. Schultz *The High Value of Human Time: Population Equilibrium* (Journal of Political Economy, vol. 85, March-April 1974, p. 58), which complains of the asymptotic curve of the development of production time and consumption time, and Charles Busch, *La sociologie du temps libre* (Paris, 1975).

The destruction of the local mode of production of mass commodities by conveyor belt and factory, around which the masses of workers created cities, also destroyed those cities. The decentralization of mass production has also decentralized the cities, transforming them into suburbs. Another inversion is now added to those produced by speed which we have already looked at. First the fast machines produced the city, the cinematism of the city, but then acceleration became so great that it replaced distance with its instant ubiquitousness, so that space and local topology, the preconditions of the existence of the



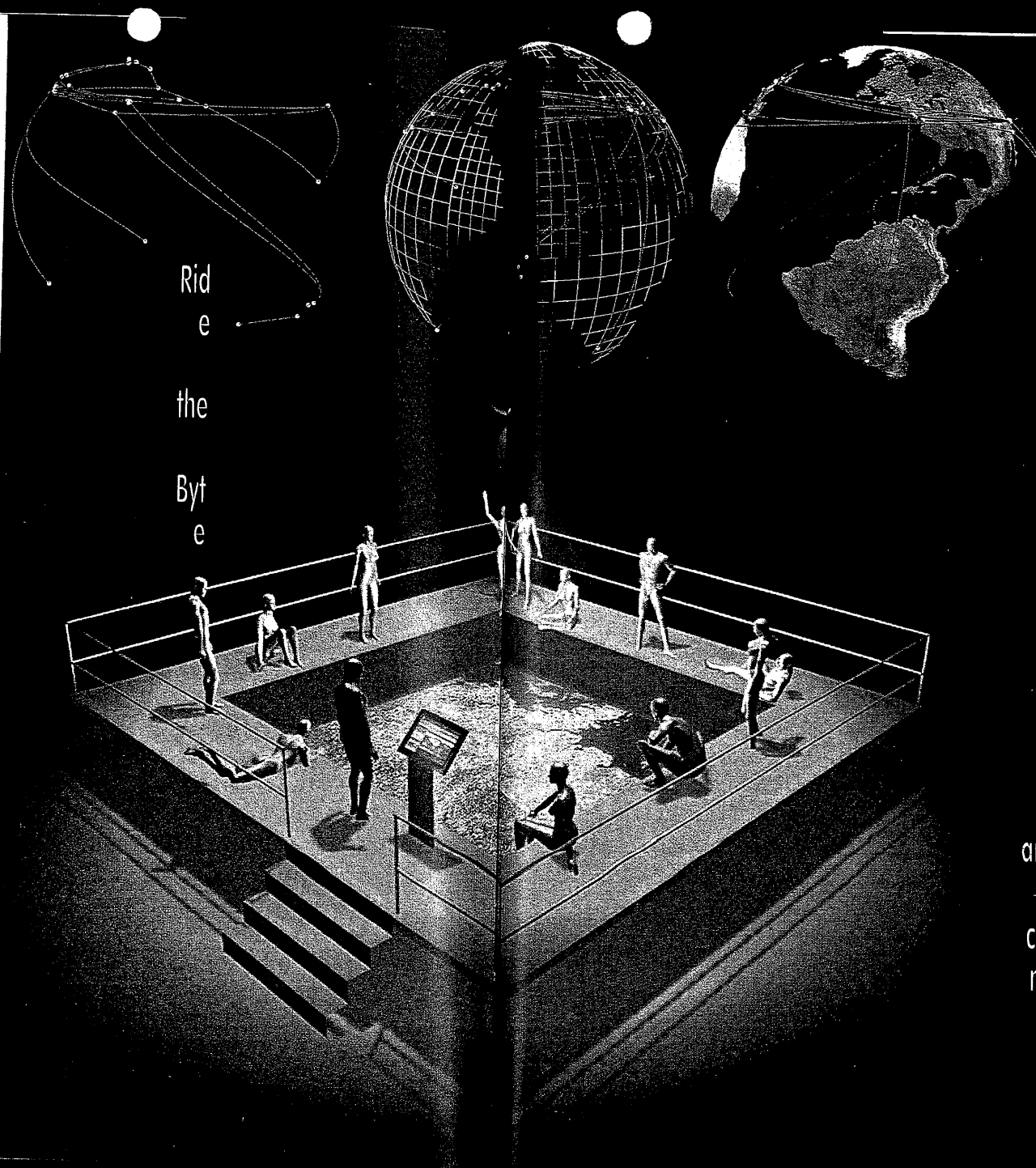
city, were destroyed. The Industrial Revolution produced the city; post-industrial society deterritorializes, depopulates and destroys the city. The tele-montage of global mass production, flexible specialization and the chronocracy of capital have enforced a process of deurbanization. Time management has finally wiped out topological accumulation; the city as the architectonic form of capital accumulation is gone. The decentralization of production, the transnationalization of capitalism have turned living around the conveyor belt and the factory into history – which is why hopeless armies of unoccupied workers are to be found sitting around Detroit today: "A sort of residing without residence" (Paul Virilio) is produced, rather like feudal nomadism from the eleventh century onwards. If then there was nowhere enough food, today there is nowhere enough work and (consumption) time. So today's nomad is constantly in search of them, particularly in the USA. Rendered obsolete by tele-technology, the material city dissolves into global electronic suburbs "where the Man without Qualities, lives as a nomad without even an identity" according to Marc Guillaume, co-author with Jacques Attali of *L'anti-économie*, in Zone 1/2, p. 439.

The decline of the cities marks the failure of scientific management and direction. With the dematerializations of tele-technology and electronic topology, with deurbanization and the disappearance of the cities, architecture entered a critical situation, whose neo-conservative solution was the emphasis of the facade. If spatial architecture and the city are disappearing,

17 the facade at least must be
2 kept intact. "The appeal to
history suggested by some
of the experts of postmod-
ernism is merely an excuse
for ignoring the question
of time, the régime of tran-
shistorical temporality pro-
duced by the technological
ecosystem," writes Paul
Virilio in *L'espace critique*
(Paris, 1984). The transfor-
mation of urban topology
into electronic topology
has outdated traditional
architecture, like certain
forms of agriculture,
reducing it indeed to a
mere facade.

Technological, synthetic
space-time allows material
architecture no more than
the scope to play with
facades and to juggle with
the history of urban ele-
ments.

We are living in a
new feudal society of time,
where time is conferred,
bought and sold. In the
age of time's dominion, the
lord of time is the lord on
high. Everyone is involved
in the struggle to domi-
nate, possess, conquer and
master time, from sur-
geons to bankers to arbi-
trageurs. The arbitrageur
earns his profits from buy-



The Internet is an infra-
structure of networked
computers for the trans-
mission of digital data.
The lines and cables that
connect these computers
are not evenly distributed
over the whole Earth, and
the way in which the
data travel through them
is not instantaneous, nor
do the packages always
take the shortest routes.

Ride the Byte offers an
impression of the com-
plex structure of the
Internet by visualizing
the trajectory of individ-
ual data packages
(bytes) sent from the
exhibition site to another
location on the globe.
Looking down from a
platform, visitors can see
a projection of the Earth.
On an LCD display, the
visitor chooses one of a
number of pre-defined
Internet pages. A data
package is sent to that
Internet site and the
route the data take is
graphically depicted as a
trace route, as a clearly
visible track on the large-
scale image of the Earth.
The route is marked by
the geographical loca-
tions and IP addresses,
the unique addresses of
each computer on the
Internet, of the servers
through which the data
are transferred. At the
end of the data's trip
through the Net, the cho-
sen Internet page is
shown. As these trace
routes accumulate in the
course of the day, the
pattern of the Net is
woven onto the surface
of the planet.

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The transmission time of
data on the Internet is
strongly dependent on
the speed allowed by the
nodes and cables and by
the amount of data traf-
fic; as there is always a
limit to available band-
width, high data traffic
can effect a slowdown,
while temporary failure
or congestion at certain
nodes can necessitate
the rerouting of data.

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4 ing stocks and bonds, foreign currencies
and commodities on cheap markets and
selling them almost simultaneously on
C expensive markets. The arbitrageur thus
H takes advantage of the price differences
R obtaining on different markets at the same
O time, which are in principle time and place
N differences of the tele-economy. Power no
O longer lies with the ruler of space, but with
CR the ruler of time. Time is money and power.
AC The philosophy of first strike which came
Y into being during the Cold War in the 1950s
clearly articulated this change. Dominance
over time rather than territorial conquest
was the new goal of politics. The Strategic
Defensive Initiative (SDI) follows directly
from this philosophy of first strike. Since the
terrestrial terrain has become unimportant
in the age of chronopolitics, it is simply
abandoned, and the theater and place of
war switches to the heavens and goes into
orbit. The idea is to be so fast that the
enemy can be defeated in the air before
landing on the ground. War in the space
age is a war without space. Terrestrial war-
fare, which is a warfare of space, becomes
a warfare of speed and time. The strongest
is the fastest. SDI is only the belligerent
form of the chronopolitics and chronocracy
that have already dominated society for
some time.

Those who control time while it is
being measured also control events taking
place in it. They control the worker who is
paid according to the measurement of his
time. The feudal ruler of time, the owner of
time as capital, lends out the time of his
employees. Precisely in the information
economy, where the commodity is relatively

Ride the Byte visualizes
the ever-changing spa-
tio-temporal structure of
the Internet, indicating
both its massive size and
its technical idiosyn-
crasies.

Ride
the
Byte

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17
5 immaterial, and where specialists and
experts have a high time value because
their special knowledge cost a lot of time to
Pe acquire and was paid for by the firm to
te whom they belong, employees are loaned
r out on fixed term contracts to firms that
cannot afford to train their own permanent
experts. Trading in futures with human cap-
W ital is the face of reality, you Beuys - and
ei Beckers. There is a new court society of
be time, with time masters and time slaves.
Socially unconscious though it may be, the
dominant form of society today is the court-
ly culture of time. The chronocrats are much
cleverer at exploiting their slaves than the
machines ever were. From machine slave to
time slave is a small leap in the feudalism
of time. The quickened journey's end is "the
Court of Time." For this reason, it seems to
me that a revolt of the slaves is called for in
the society of feudal time, like the one that
has already begun in culture.

Today the accelerated images must
be made accessible to the masses. For, like
the railway barons of earlier days, today
there are the computer czars and princes
who heap up quick millions with accelerat-
ed image machines. The price of high-per-
formance computers must come down, as
electricity did in the past. The bondsmen of
time rehearsed the revolt using cinema, the
proletarian art form of time, but it failed
because capitalism is still in possession of
its double time. The cultural struggle
around speed continues, however, while the
chronocrats sit in the opera houses and buy
paintings - for on their own admission, they
prefer an aesthetics of stillness, stasis, sta-
bility, and an art that is "timeless" - the

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6 slaves enjoy the moving pictures. Painting has become part
of the court-and-salon culture of the chronocrats who,
because of the logothetic masking of the contrary signifier,
C must naturally repudiate the art of the present time. If you
H are living at the center of time, everything else may be rele-
gated to the periphery of time. The timelords of the jet sets
R and the databases, who swindle time's slaves out of their
O time with spare time in which they sell them what they them-
selves produced themselves in their labor time while the
N nobles of the chonocracy took it easy, are creating new sub-
O urbs, which are no longer urban spaces but suburbs of time,
the first circles of time.

CR Time and acceleration have become the driving
AC social factors, from artificial insemination to artificial image,
Y from the economy to art, for the tele-technetronic speed-up
has laid hold of all social vectors, so that time is monetarized,
space is teletransported, capital is temporalized and images
are digitally accelerated.

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