

## Summary

### Culture Center, St. Quentin-en-Yvelines Jean Nouvel (p. 30)

The facade on the oval square is a screen, a tool for communication. It is a chameleon, assuming the color of the time of day, of the different epochs (aesthetic, graphic), and reflecting the color of the sky with mirrors (another way to take on the color of the time). The legendary names of the great writers, actors, musicians, directors of our day are inscribed on the facade – and erased again. In a succession of photographic, graphic memories and changing colors which illuminate the oval square, evenings and seasons follow each other. These signs of the time fix the place in memory for the multiplicity of visitors: contradictory images for frequent visitors, set images for the occasional visitors.

This lined, gridded facade is obviously a direct permutation of the video image, t.v., film, as well as of the over-sized advertisements of Broadway, Soho, or Rex: the mythos of the spectacle which emerges from the image and the name of the idol. The architecture becomes a screen, but the image that it presents drowns, disappears, is distanced, immaterial and therefore only fleeting: it carries the trace of its inevitable disappearance in itself...

Modernity of the media, of newspapers and advertising, modernity of the lighted image, of the transitory, of the membrane – hyphen between fictive and real. How is it concretely produced: With reflective glass, behind which are intensively lit advertisements fastened to supports or upon which written characters, signs, letters or lighted newspapers are mounted. The facade can be equipped to integrate different forms of image transmission (fluid crystals, moving images, computer animation...) It is actually a large, technical scaffolding behind a glass wall, which is shielded from glare by a backing of finely perforated metal sheets. Large panels can be set in place with pulleys through the side facades.

The facade on the square prefigures the theater or film programs when viewed from the center of the square and from the facades opposite to it. Moving closer, its proportions become stranger and more unusual, until the second it turns out to be a giant entrance, and the moment its transparency reveals that something is happening inside. On entering, the visitor goes under and through the facade, looks up, and his gaze is lost in the rising, dizzying scaffold, which is filled with projectors, ladders, metal casings. Many visitors would want to climb and walk through this enormous wall of adver-

tising, like movie heroes chasing each other across roofs in the neon advertising scaffolds towering over buildings.

### The Aesthetic of Disappearance Jean Nouvel in Conversation with Paul Virilio and Patrice Goulet (p.32)

*Goulet: What does the word "space" mean to you?*

Nouvel: Space is more and more a secondary parameter.

*Goulet: Because architecture means "allowing a certain quantity of cultural values to enter into what is built?"*

Nouvel: Precisely. Since the beginning of the century, space, like statics and materials, has commanded architects' attention, and a new wealth of forms has been discovered ... free-standing constructions, window strips etc. Once new spaces were discovered, they naturally had to be built! Now that has been done, and there is no reason to be dazzled by such spaces anymore. They have been seen: The problem has shifted. Now it is the meaning and content which is assigned to space... What reason is there to invent a space when you neither want nor need to pull it or twist it around (which already was a fashion). Such exercises are mostly hollow and without content. It is quite rare that anyone really needs an extraordinary, sensational space.

The problem of contemporary architecture is elsewhere: in the "what is the space trying to say?" in relation to a program, to perception, materials, etc.

*Goulet: Now we come to two terms which are more directly related to your most recent work. The one could be called "screen", since it points to something your last projects have in common: work with grids, surfaces which are superimposed on each other and disturb and impede legibility.*

Nouvel: I am trying to respond to a phenomenon which I consider particularly important and very much in the forefront right now. This phenomenon is related to a new, specifically contemporary aesthetic and is especially present in areas dealing with communications, for example in the gridded photographs in magazines, in four-color prints, in video films, etc. The break between transmitter and receiver is everywhere, and I would find it difficult to ignore the aesthetic of its texture. At the moment, I do not see how an image could be structured without making use of this tool, that is, of the grid... and so I keep coming back to it.

*Goulet: All that seriously puts into question Le Corbusier's famous definition: "Architecture is the wise, correct and great play of the volumes under the light of the sun."*

Nouvel: As you well know, I am not very attached to that definition. Among other reasons, because I think that we are moving towards an architecture of tension, of sleekness, and that this architecture will not have shadows, at least not those cast by one volume onto another. I find this definition too reductive, because it essentially emerges from a sculptural concept of architecture which is closely connected with the aesthetic values of a particular epoch. Even though basically nothing has changed (for Le Corbusier, architecture was also supposed to transfer the cultural values of his epoch into buildings) – I think the form has become completely different. Today, we are far from an abstract, precise play of volumes, which very much belonged to the world of cubism and suprematism. Today the games which inspire us are more intellectual than visual.

That is another reason for my interest in the problems of texture, of the cut, of the break. I have always thought that architecture is moving towards progressive dematerialization. Chareau's „Maison de verre“ is a milestone. The „Institut du Monde Arabe“, the ministry of finance or the „Tête-Défense“ are linked to this play of material dissolved in light. In a certain way, I attempt to master and control the application of this vocabulary.

*Goulet: The key word here is „tension“, because even at first glance, there is a fundamental difference between a facade which dissolves, dematerialises and one which pulls together, concentrates itself, tenses itself.*

Nouvel: But doesn't the refinement of a facade, at least its development to a minimal density as with the IMA, also correspond to a process of tension ?

*Goulet: I think there is a contradiction in the ambiguity inherent in the „tensile facade“: superimposition on the one hand, clarity on the other.*

Nouvel: I think we already talked about that with Virilio. The key term here is „interface“, the facade which is part of two worlds, the thickness of which is finally unknown... If there is one thing I am really interested in, and which I consciously play with, it is two-dimensionality. I often work in the surface, in the plane, in the drawing. Here we come back to what we said about the screen, which is connected to processes from graphics, photography, videos.

To close the circle and satisfy you: I think work in two dimensions is just as important and meaningful as work in three dimensions and that it interferes with the latter. Architects have hardly noticed this.

Paul Virilio: I think a word like „interfa-  
ce“ should not be intellectualised. It  
should be used as it is meant: as a new  
scientific definition of the surface. The  
scientific definition makes it clear: There  
are no more surfaces, there are only volu-  
mes, since the thinnest skin can be the lar-  
gest conceivable volume. For example, a  
simple picture tube can show us two diffe-  
rent places in the world instantly. Within  
itself, it contains the entire distance, the  
intermediate space, which separates it  
from the places from which it directly re-  
ceives the images.

In fact, however, the idea extends be-  
yond what you would think from the  
pure definition. It goes beyond the trans-  
mission of images. It makes a concept of  
the boundary as a wall, a limit, a skin be-  
tween one body and another, relative. The  
boundary, ultimately all boundaries, has  
mutated. Once the boundary of the cut-  
ting point has been transgressed, there is  
no behind, everything is contained in the  
facade. The boundary was what separated  
one world from another. Today, the world  
can be completely contained in that very  
boundary! In my opinion, that is the real  
paradox. That is the problem for archi-  
tects.

Nouvel: The boundary solidifies into volu-  
me. A reality which used to occupy a visi-  
ble dimension of a couple of dozen centi-  
meters has now shrunk into a couple of  
millimeters. This precision and density re-  
moves it in a certain way from the gaze,  
from observation. The southern facade of  
the IMA contains the functions of the out-  
side and the inside; everything takes  
place in an extremely thin layer, which is  
full of nerves like a skin in the biological  
sense, and also in that one perceives the  
plexus in it.

Virilio: We should discuss the interval, be-  
cause interfaces only exist in relation to  
it. In a sense, the interface even replaces  
the interval. The interval is what causes  
an object to be separated from another ob-  
ject over a kilometer, meter, a certain di-  
stance. Now, however, distance has lost  
its meaning, it is compressed and conden-  
sed in the skin, in the boundary itself.  
From the moment that all distances can  
accumulate in a boundary which contains  
this world, the concept of the wrap loses  
its meaning.

What is a wrap? A wrap is what sur-  
rounds a machine. The absolute idea of a  
wrap is that it does not have to be distan-  
ced, that is, that the wrap would be the  
definitive boundary of the machine, that  
the machine would be an integral part of  
its boundary. Behind the architecture of  
the „Salle de rock“ or the Tokyo opera,  
there is the idea of a self-sufficient, self-  
contained architecture, a micro-world  
which has no need to communicate with  
anything outside itself through a door or  
window. The idea of the wrap goes a long  
with the myth of the absolute defense, of  
the self-contained and self-sufficient  
place.

Today, there is a lot of talk about auto-  
mation. All objects are moving toward

functional autonomy. Automation gives  
rise to the possibility of a fully self-suffi-  
cient house, which does not have to open  
itself outward since it is concentrated on  
itself. The American bar, the supermarket,  
the teleport already have this tendency to  
self-sufficiency. There is clearly a trend.  
Is there some truth to it or is it a crazy  
idea? Is an architecture without doors  
conceivable when you realize that up to  
now, the door was the condition for  
every kind of architecture? Windows are  
dispensable – there was architecture be-  
fore windows were invented – but there  
were always doors. Is such a development  
possible or is it only an intellectual exer-  
cise?

Nouvel: Clearly, right now there is no  
way to avoid equipping buildings with en-  
trances, but you go through them in an  
increasingly submissive way; to stress an  
entrance, to accentuate it, has no mean-  
ing anymore. This takes us beyond all  
academic architecture which is based on  
the role of parades, of columns which  
frame them, and of a front which towers  
over them. Whether it is Tokyo, the IMA,  
the „Maison Lézènes“ or the last project  
for the „Tête-Défense“, you slip through,  
almost accidentally, as if you were going  
under a building and – in a very direct  
way...

Virilio: You arrive in the middle again!

Nouvel: Exactly. The overriding impor-  
tance of this function of entering has ne-  
ver been clarified. The automobile shoes  
how things are developing. Take a car  
door. You don't see the handle anymore.  
If you don't know that you have to put  
your fingers under the moulding and  
pull, you can't get in! The same thing  
with the headlights: if you don't know  
that they open up in a Porsche, you don't  
recognize them when you don't see the  
rings around them. In a sense, it is the ex-  
tension of the inner world, which results  
in diminishing the volume of the entrance.

Virilio: Nonetheless, I find it really stran-  
ge that until now, the only architecture  
which has managed without a door is and  
was the egg. I am sticking with the idea  
we already dropped, but I am trying to  
look at the consequences. Doesn't this  
mean that the image has taken preceden-  
ce over the object? The only way to enter  
an architecture without doors would be  
via transmission. Would the monitor, the  
terminal, the screen be the new door? Are  
we entering a society in which the image  
dominates the person?

Nouvel: I would say that there is a defini-  
te tendency to make the concept of the  
boundary relative and to blur it as much  
as possible, that there is a way of ente-  
ring without being aware of it.

Virilio: I agree. Imagine, though, a socie-  
ty of tele-work and tele-conference, in  
which people don't have to come together  
in order to be together: the screen would  
no longer be the new window, but the  
new door.

Nouvel: In many of my projects, you en-  
ter from below like a space ship. The door  
in the sense of a door-tool is physically e-  
liminated (you take an escalator and sud-  
denly appear). There is no more door,  
only flowing movements.

Virilio: Yes, yes, but behind this debate  
there is still the question of the relation-  
ship between material and image. Is the  
image material? I say yes. I would answer  
that one can no longer speak of material,  
of architectural material, and forget the  
image. The image is already the material  
of contemporary architectural design, to-  
morrow it will be the material of the ar-  
chitecture itself. That does not mean that  
things will just be full of screens, but that  
people will not be satisfied with opacity  
and transparency anymore.

When scientists talk about space/time,  
they say that at the beginning, there was  
glass (an outrageous material, because it  
is material and transparency at the same  
time!) and then, to make it short, there  
were mirrors, plexiglass, transparent plas-  
tics, and now we have the picture tube.  
The subject of space/time begins there.  
How could architects not be interested in  
this material, just as they were fascinated  
by glass at the time of the Crystal Palace?  
What an architecture and what a revolu-  
tion! Images will be material for architec-  
ture, beyond their anecdotal origin in  
church windows and movie palaces!

Nouvel: Architecture, in the sense of crea-  
ting images, cannot remove itself from  
the countless fabulous images which have  
been created through the centuries. I  
would also assert – and this always  
brings strong reactions – that there is a  
tendency to two dimensionality in archi-  
tecture. This play with permeability, with  
screens, with integrating facade parts at  
the IMA does not come out of the blue. It  
comes from areas which are related to ar-  
chitecture.

Virilio: I see traces of this idea of a mate-  
rialized image in your way of working.  
You work with a story, not a program.  
Your program is the story, and this story  
transports images like a screen play. So  
you need intellectual images to create the  
actual image which is the project. It is  
very clear: the images produce the archi-  
tecture, but constitutively, not in a meta-  
phorical way. ... At the moment, we use  
images without knowing their real capaci-  
ties and applications very well, a little  
like the first people to build with stones!

*Goulet: Are there areas which are already  
further along?*

Virilio: Naturally, the military! For in-  
stance, the C3I (control command commu-  
nication intelligence) is the peak of the  
transformation of images, the sum total  
of the movie theater, a place where the  
images really produce the whole architec-  
ture. Under the Rocky Mountains, in Ta-

vernery or any other nuclear command post, those in command have all the images at their disposal, images which are transmitted via satellite, images of all airplanes in flight, of all means of transportation from tanks to the soldier marching down the street. ... At every point in time during the battle, a complete panorama is available. Modern warfare is based on a strategy of vision, not a strategy of fear. In order to win, you have to see everything, on whatever scale. This synthetic vision, this synopsis, only exists in command centers. C3I is really an architecture of images, not light. It is the one-man watchtower, the new electronic panopticon and naturally, as if by accident, there are no doors. At the beginning of the battle, they are closed. It is a place where you see everything, and at the same time, the most isolated place in the world!

**Mediapark Cologne**  
**Jean Nouvel**  
(p. 41)

The building complex for the media park has offices, a luxury hotel, apartments and a shopping gallery. Except for the north facades, the facades are planned as glass „picture screens“, transmitting information with the most different elements.

Various gray patterns are imprinted on the glass skin of this picture screen. Recesses of transparent glass let in unfiltered daylight or intense colored signs from artificial light sources like automobile headlights. Trademarks and firm logos are a dominant element in the facade design. At different points in the facade, different sized screens, stretching over several elements of the facade, are integrated. The screens are about 1.5 to 2.5 meters behind the facade in order to give it depth.

The division of the interior space is expressed graphically, with lines and numbers on the facade. Floors are marked with mirrored bands lit with colored lights behind the glass facade. The verticals of the stairs and elevators form dynamic vectors of colored light. The people inside are also part of the „picture screen program“. Strong, hard light shows the silhouettes of the people who come near the facade. Their horizontal movements contrast with the vertical dynamic of the elevators.

The north facades are made of clear, unpatterned glass and show the activities of the building three dimensionally, in contrast to the two dimensional picture screens of the rest of the building's facades.

**Information – less is more**  
**Martin Pawley**  
(p. 65)

A massive and separate semiological system has been overlaid upon the built environment. A visitor from Mars, asked to comment upon the architecture of the centre of Manchester for example, might well find the question bewildering. At the junction of the A56, A57 and A57M, adjacent to a bare half-dozen buildings there are, according to the Automobile Association, no less than 150 pieces of directio-

nal information, as well as advertising messages and shop or building names. To look at the buildings here instead of the signs requires a filtering out of a large part of visual scene, and in performing that act of filtration an involuntary censorship of the real world takes place. What we have in the modern world is a disorganized multiplicity of sign systems tracking back through time, of which perhaps the oldest and most overlaid is architecture. The next step in architecture should be a reintegration of the built environment with the overlaid information systems that have been allowed to take over its proper task.

The American architect Edgar Kaufmann Jr. saw this information revolution as proof of the arrival of an era of disposability – or 'ephemeralization', to use a Buckminster Fuller word. 'Technology is increasingly immaterial', wrote Kaufmann in 1966, 'it is increasingly electronic, less mechanical, and the net result is that the imagery of technology readily eludes the designer (...). The future of design lies in situation design and not in product design; products merely implement the situations.

The consequent final disconnection of external form from internal function is the one architectural event of historic significance that can truly have been said to have taken place in the 1980s. It marks the final shift from an industrial economy to an information economy. Today a building bereft of information is dead, whatever its period.

So far, far from giving rise to a new aesthetic, the information economy has presented the architects of today's banks and offices with a new and formidable variant of the problem that confronted the architects of yesterday's giant cinemas. The 992-line video screen, like the 35-mm moving picture frame, has no implicit architecture.

The new information buildings of the Second Machine Age are physically bland but informationally 'decorated'. Externally their structural frame or monocoque skin will be rationally and economically designed by engineers to support a vertical sandwich of alternate service zones and occupied areas. The envelope enclosing these sandwich buildings will be a thin, high-performance glass, ceramic or metallic skin of minimum surface area.

With the exception of the latest information technology, nearly everything is in place in the Willis Faber & Dumas insurance office building in Norwich, designed by Norman Foster in 1972. Before that, the basic arrangement without the smooth cladding that became possible with gasket glazing is present in the later commercial designs of Mies van der Rohe, notably the unbuilt 1967 project for Mansion House Square in the City of London, and the posthumously completed IBM tower in Chicago.

For Mies van der Rohe to design a house, a factory and an office block in the same way was an achievement whose radicalism is clearer to us after the fall of Modern architecture than it was to his contemporaries. Even today such buildings look like popular magazines with blank covers, or Grand Prix racing cars devoid of sponsorship. Their smooth glass and metal skins convey no comforting historical message. Mies van der Rohe came to terms with this anonymity during his long career. 'I believe that architecture has little or nothing to do with the invention of interesting forms or with personal inclinations', he said towards the end of his life. 'True architecture is always objective and is the expression of the inner structure of our time.'

But Mies van der Rohe was not destined to see the final achievement of the 'Gothic solution'. In his greatest buildings there is an evitable emptiness. The cathedral of information will paint its face, with electronic images.

**Media Facades: Inside – out**  
**Joachim Krause in Conversation with Nikolaus Kuhnert and Philipp Oswalt** (p. 76)

*ARCH<sup>+</sup>: The facades of the projects presented in this issue use new rhetorical devices. The classical organization of the facade using supports, columns, cornices etc. – in other words, specifically architectural means of expression – is replaced with technical images and graphic signs. The architects here are using the language of advertising, of graphic design, of video – means which are alien to architecture. At the same time, the facade no longer represents the building, but gives information about the events taking place inside it. The facade becomes a screen. Is this still a matter of rhetoric?*

Krause: The facade has been independent of the body of the building and has followed its own rules since the early Renaissance, when a certain view of the building received preference and the image as painting was detached from the wall. In their canonical form, these rules are part of a rhetoric of pictorial language, which is a part of the common system of representation. The present-day facade as screen is essentially nothing new. It is just a classical solution in a contemporary form.

But the adaptation of contemporary media presents another, as yet unclarified, question: what influences do the technical media have on architecture? The relation is very old. Think of the rood-screen of the Romanesque and early Gothic churches, which created a room within a room for reading Biblical manuscripts, and which became superfluous with the advent of book printing. In the 19th and 20th centuries, the new media changed buildings from within, so their influence went unnoticed for a long time. In the first machine age, houses became de facto living machines from within, through installations, central heating, and electric light; in the second machine age, radio, telephone and television have guided the complete reconstruction of the inner or-

der of living and business buildings. With the coming of the personal computer, the office and the apartment have changed. The window on the world is multiplied. Along with the direct visual relationship to the outer world, the indirect relationship via the screen appears. The world is represented by looking at the screen, not out the window. Sight dominates the other senses. The window has not lost the function of letting in light, but the symbolic function of the picture window has been transferred to the media.

*ARCH<sup>+</sup>: How have the electronic media influenced the facade?*

Krause: When you drive through one of the large suburbs at twilight and see flickering blue t.v. screens, closeness and distance, intimacy and anonymity are reversed. The hearth, which is actually intimate, is made cold by the blue light, and the sky takes on a homely intimacy in the sunset. Contemporary concepts of the facade thematise this paradoxical reversal of closeness and distance.

*ARCH<sup>+</sup>: Because the media have penetrated the home, the apartment has become the place to assemble in front of technical images, and the outer world, which is actually public and strange, has acquired an intimate character.*

Krause: In projects like Nouvel's design for St. Quentin, the building itself becomes a television which presents images to the surrounding world. The body of the building is shaped like a television. But in the treatment of the pictorial space, such inversion concepts are surprisingly conventional. They are based on a frontalised, right-angle picture screen in an orthogonal space. However, this very pictorial space is in a deep crisis. In the most developed works of video art, several monitors are ordered spatially so as to focus on the interaction between image and observers. The right-angle window with its imaginary visual pyramid exposes the observer to the conventional rhetoric of the graphic and video graphic image.

*ARCH<sup>+</sup>: Another trend is the sculptural design of buildings, the parts of which are so displaced and dislocated in relation to each other that they affect the perception of passing automobile drivers, as is the case with the Churchillplein sky-scraper by Rem Koolhaas in Rotterdam. There is also work with facade surfaces, the shapes of which change with the movement of the viewer, whether through layering several perforated surfaces or using holography and interference filters.*

Krause: Unlike films, architecture is not seen by motionless viewers. Architecture assumes people in motion. In the 1960s, op-art showed how even minimal movements can release sensations on the retina; it is no accident that their cinematic effects were immediately used for department store facades.

Jean Nouvel's Institute du Monde Arabe is an original solution to the definition of the relationship between kinetics and cinematics; a montage of different facade concepts, the connection between which first becomes apparent in the interior. Here, the facade mediates the views in and out. When you look out, the image on the facade is superimposed on the view. With a change in perspective, the pictorial areas are dislocated in relation to each other. A new development in the airplane cockpit is interesting in this context. In the cockpit, along with the view out the front windows for visual flying, there is the symbolic window of the instrument panel and radar screen for flying with instruments. Through the development of the so-called Head-up-Display, these two windows and their orientation systems are connected with each other. Transparent screens with pixels produced by electrochrome glass surfaces are integrated in the front windows of these airplanes. Digits, letters and symbols appear on the glass pane without interfering with depth perception. Window and image are superimposed, so that the pilot can correct his navigation by aligning the image with what he sees.

Marcel Duchamp's experiments with windows in the 1920's anticipated this superimposition of real and symbolic space. He built objects with cracked glass panes, on which he introduced objects and signs in a pictorial order. You look simultaneously through the window, into the room in which it is located, and at the window, the pictorial surface of which is marked by the cracks, and further beyond that into an illusion-space of pictorial elements and objects. Here, the montage changes from a processing of heterogeneous material to an organization of the heterogeneous gaze.

*ARCH<sup>+</sup>: Isn't the facade today a question of density? Looking at these projects, thinking in density, in distributions of brightness and colors, has replaced thinking in figurations and compositions, of open and closed. Xenakis began to deal with the problem of density in Kloster La Tourette. In the „musical glass walls“, he distributed density according to the principles of probability, rather than as a figuration of open and closed.*

Krause: In technical images, the screen distributes optical densities. Screens are grids in the projection space which transmit, externalize the structure of the retina of the eye on even planes through the visual space. That is the basis of all technical images and the procedures for reproducing them. In architecture, which works with spatial screens, the pupil as well as the retina can be externalized. Apart from sensors, in the facade moving shutters or optochrome panels appear which regulate the light shining in. Moreover, transparent or translucent elements always entail two-sidedness, the changeability between inside and outside. The perfect illusionary spaces of the 19th century, dioramas, already worked with two-sidedness, projection and projec-

tion, superimposed on the pictorial surface. Most trick techniques come from this, as well as the methods of half-spatial representation, which combine flat, half-spatial, relief-like and plastic elements in relatively flat show-cases and produce the illusion of depth. The facade is not a surface, but a relatively flat zone of superimposition; it can also integrate the function of screens and displays, but it becomes much more than a screen.

*ARCH<sup>+</sup>: Architecture becomes lighting equipment, light becomes the subject of design. With changes in the light, the boundaries of the space change. Lit from the front, screens and graphics appear on the facade as massive surfaces. Lit from behind, they seem to float freely in space.*

Krause: With the calculated application of light in space, the *Gestalt* differs from the form. This difference is one of the central topics of art in this century. To me, the experiments about this seem like contributions from a huge visual laboratory which in reality only existed provisionally and fragmentarily. „Lighting design“ – a term Moholy-Nagy used – has become the point of departure for many for a theory of „dematerialization“. But light has two meanings: it is not only the basis of symbolic communication, it is also a form of energy. The rays of the sun are our real income.

In this sense, a facade organizes the energy flow of the building, regulates our coming in and out.

Facade is actually nothing but a face. But the face shows and sees. The face not only has eyes, but also a nose and mouth. The eyes are the windows and are for symbolic exchange, the nose and mouth are openings, entrances and exits, which primarily serve physical exchanges, metabolism. Facades tend to give symbolic exchange, and thus the eye, the sense of distance, absolute priority, and to ignore what is near and primary. The symbolic machinery supports the latent repression of the metabolism. Our first task is to bring metabolism into harmony with nature.

English translation by Capers Rubin