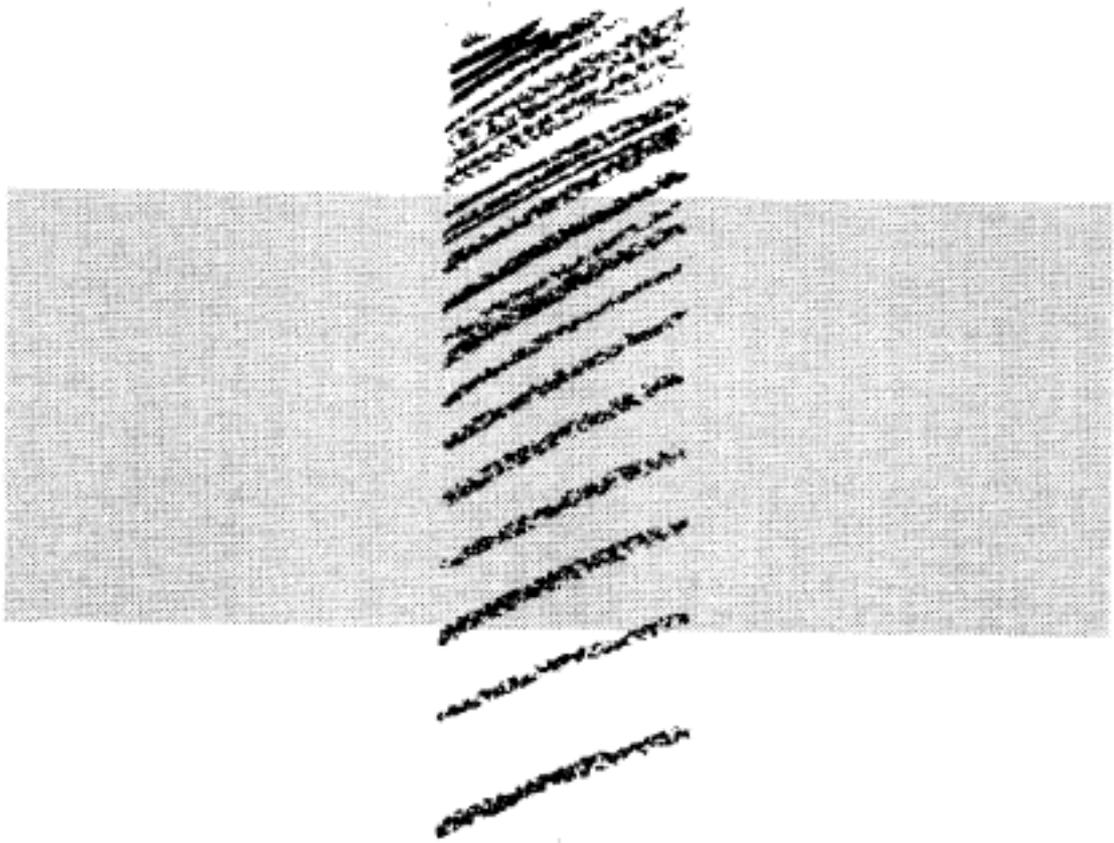# The ARCHITECT and CAD - a QUESTION of CREATIVITY

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THIS PAPER SHOWS
SOME EFFORTS TO TOUCH
AND APPROACH THE PROBLEM OF CREATION
IN ARCHITECTURE
AND THINK OF IMPORTANCE OF ITS TOOLS

## ON FOOT OR BY PLANE? PENCIL OR COMPUTER?

Probably everything I want to express may seem obvious - nowadays, when multimedial systems have become almost universal (though still fascinating) in western design culture. I am not going to explain the analogy I mentioned above, either. I use it to illustrate the scale of the issue of creativity - and, I believe, for this purpose it is appropriate enough. On the other hand - I do not want to convince anybody that one is better than the other, since everything defined unequivocally is dubious (thinking of human, not devine works and verdicts). I want to share what emerged in my mind concerning this lack of trust - relating to man's ingeniousness, its tools and methods. Another matter that concerns me is education. Architectural education (which we deal with) is subordinated to the quality of architecture to be created. Therefore I assume that everything - methods and tools - is to serve this general aim. Visualisation as such is indispensible in architecture, but it is not its soul. I am not sure what this soul is, but I believe that its most important components are INVISIBLE. This is why in taking care of visual perfection of architectural design (especially in design aided by computer) - being more and more impressed by fast development of computer graphics systems - I need to remember not to put my trust (in looking for my creativity) in the processor, graphic card, hard disc, software, etc...

## ESSENCE IN A TANGLE

Designing is creation.
The essence of the work, like facts expressed by language, is not dependent - on the deepest level - on the mean which is "only" a carrier. Any word, e.g. "window" sounds and looks rather different in different languages - but the essence it describes, the substance it is subordinated to is generally the same, is attributed, given, grafted. Simplifying - creation in the human sense is the way to express meanings. Means, languages attempt to discover, denominate and inform of this found and independently existing reality, this axiomatic existence of things, this mysterious, powerful tangle of beings, facts and states. This reality, which is given to us, surpasses our perceptive faculty and as such is the source of an INFINITE NUMBER of COMBINATIONS in the search for truth or any kind of expression. This is one of the basic thesis of this paper. Why am I saying this?

multidimentional ... on a paper space
undefined statement giving impetus for thinking

## HAND VALUE...

Not every hand is able - using a tool (pencil) - to create a
meaningful line, or consequently express some state of
condition.
[TADAO ANDO : "...*A line drawn with highly focused
determination by the conceptual or minimalist artist can, on
occasion, transform our world. By this, I mean a world of
spiritual dimension where stimulation can lead to perceptual
awakening. A line drawn by architect, however, is concerned
with how objectively it can define space, and is thus directly
involved with the human spirit and body. The architect's line
cannot be arbitrary. it must be dictated by reason and have a
spine of logic...*"].
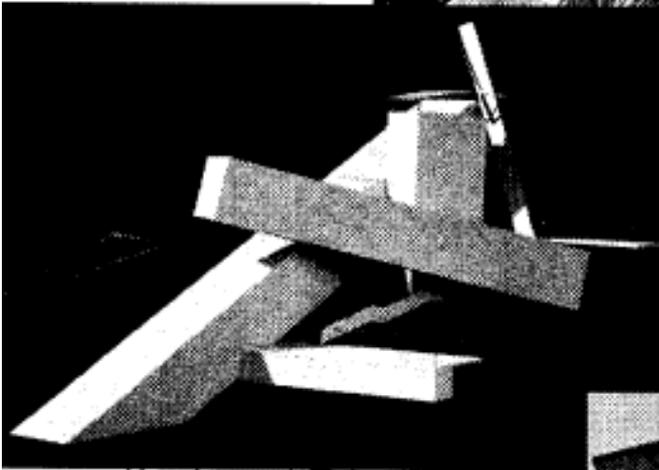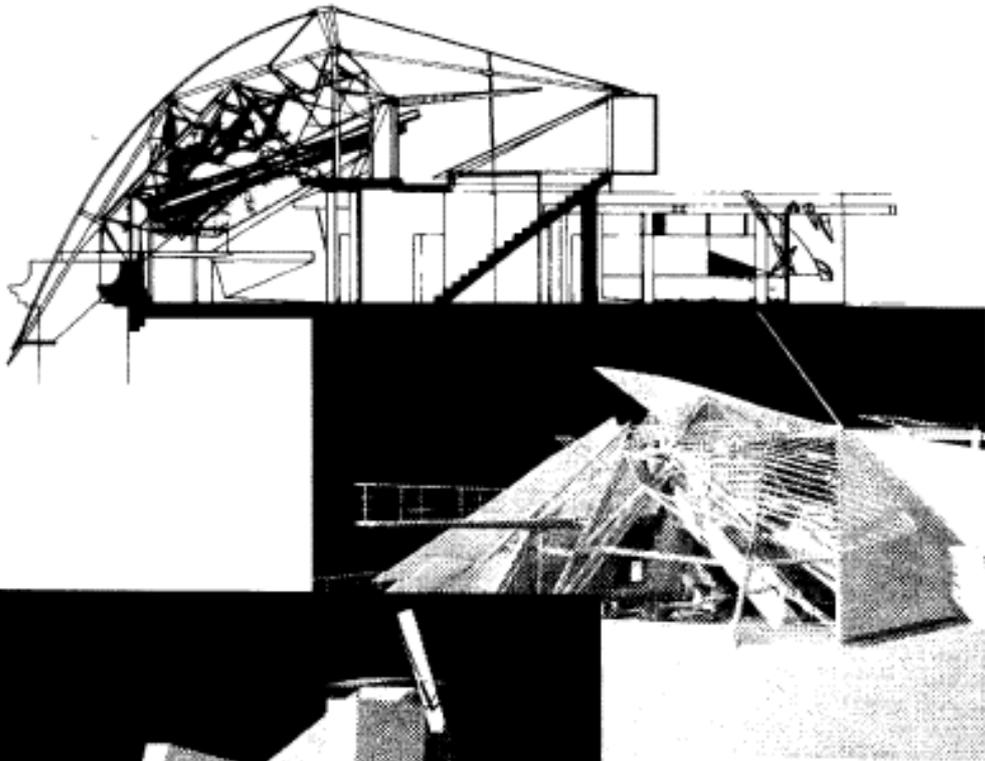
Deconstruction -
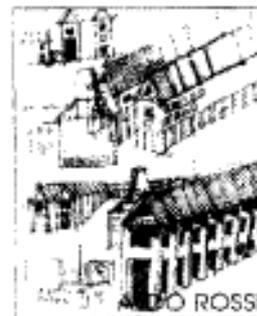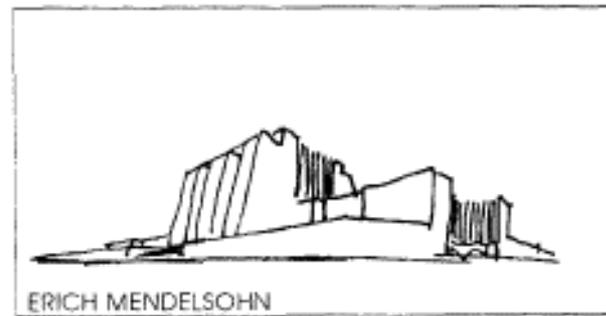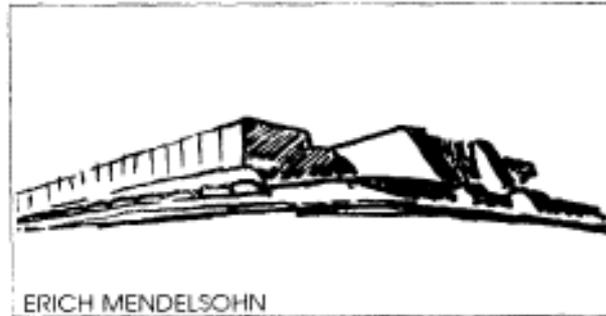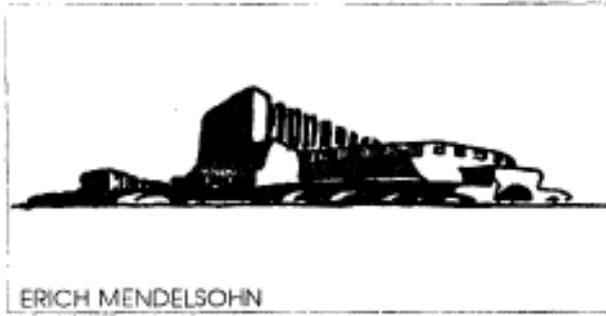a desire to materialise
an expresion of the sketch?
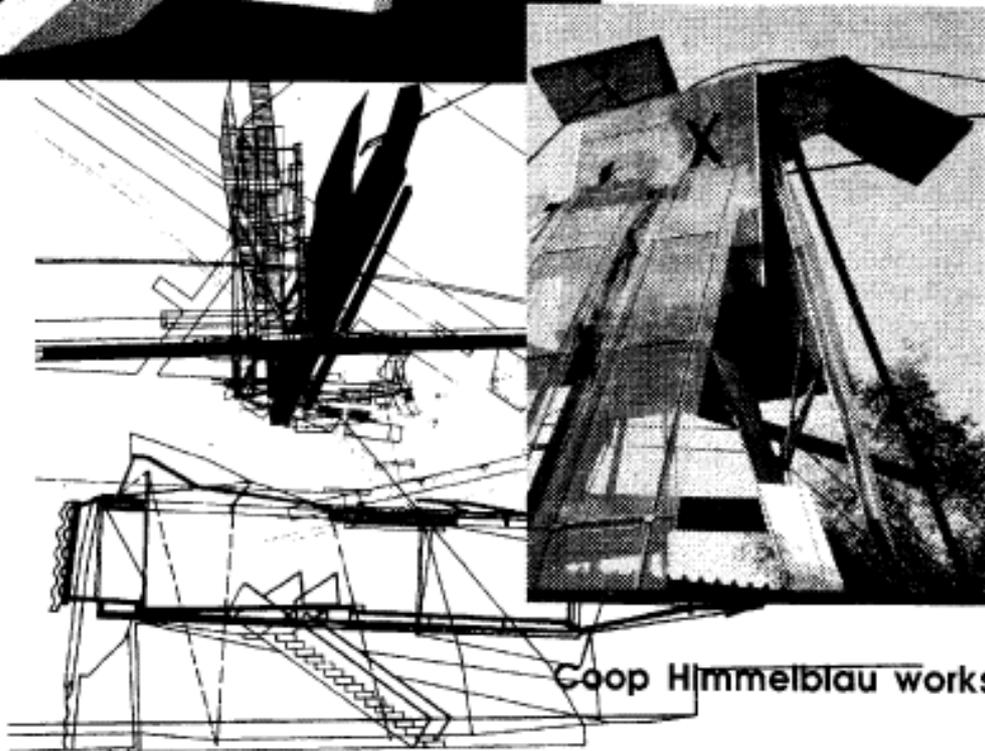
Coop Himmelblau works

Similarly - not every man can be a musician, painter or architect. To act creativity one should be able to see, hear, discover and master a meaningful essence (its existence is independent of us) and to see, hear, discover and master a language appropriate to express it - a language with always liquid and unsettled rules. These rules - expressing the only emotionally discernable importance of harmony or decomposition - serve us in our efforts to reach perfection. Hence designing - in the widest sense - is a kind of unveiling of a mysterious reality (creation - but with already found states and things). Juxtaposition of elements into a composition, fixing the rules of its existence, anticipation of foreseeable impressions, which surely the composition causes (always!) - is a mysterious action. All of this surpasses our ability of informational perception. Therefore a hand with a pencil, creating a view of space "using" lines and spots (mysterious event) becomes one of the last links within an endless tangle of information and states, circulating between God, the Universe and perceptive reality. Some attributes of this fundamental relation we all have got inborn in brain, soul and body. That's why my hand never acts twice identically. With each line drawn it can express some of this mystery. In a language which is never fully recognisable. Thinking of architecture - I see this in the strange transfer of the idea from the drawing on the paper, to a real, material space, which lives and acts in a built object.

## IMPORTANCE OF THE LINE

It is fascinating that a handmade line is never perfectly straight (being precise, I should notice that each visual presence, regardless of the tool or mean, is never perfect, is always more or less optimised; perfect is only the clear information of this presence). It should be called imperfection. But on the other hand - this inequality of doing and receiving (seeing, etc ... ) is the result of the internal and external coincidence of events. conditions being in never-ending sequence of mutual relations. All of this reaches the truth of the real world. THE TRUTH IS PERFECTION - ISN'T IT? Nevertheless this kind (?!) of truth is chaos for humans. So handmade line is only a SINGULAR MEANING extracted - from chaos. And chaos makes line unequal - in its first symptom. This juncture or tangle is chaos because we are not able to see and comprehend the rules by which it acts. These rules do exist, though I can't prove it. [JAMES STIRLING: *"...So, a form, a plan is worked out in the head, which you might doodle on paper but which has nothing to do with materials. It's just a form. (...) I would call all this a kind of conceptual process. The drawings which accompany this sort of thinking are doodles, tiny sketches about one centimeter in size. They are the very first ideas about a set of relationships, which can be developed in small axonometric drawings showing the relations between volumes and heights..."*].

LEON KRIER



ERICH MENDELSOHN



ALDO ROSSI



ERICH MENDELSOHN



JOHN HEJDUK



ERICH MENDELSOHN



JOHN HEJDUK



TADAO ANDO



ALDO ROSSI

A few
famous
examples
- a handmade
sketch
is always
multivalent



TADAO ANDO



TADAO ANDO

Nowadays, in the age of maximum expression desire, in architecture too, Deconstructionism seems to be an anxiety to materialise this primary and literal ambiguity of the sketch. Probably it is the first example in the history of architecture, when a "conscious" accident, a chance, things extremely free from a rational motivation - are fully appreciated, together with acceptance of states and things, which are impossible to explain. [DANIEL LIBESKIND: "*...I am not an architect who sketches and draws a lot and thinks with a pencil...*" COOP HIMMELBLAU: "*...we (...) built a correction of the first sketch...* "
  "*... we do not always design with our eyes closed...*"].

So we try to make this singular meaning - extracted and unequal, expressed with a collection of drawn dashes - understandable and place it within the limits of some kind of perception. So we go from a SKETCH to the DEFINITION. It is the necessity to restrict oneself to singular meanings in receiving and expressing, facing the impossibility of touching the substance of being. How to get a mind able to embrace that juncture of connections?

Therefore the hardest work is to catch, materialise and show in a creative way as many as possible of these interrelations. That's why a sketch is often a much more powerful image than the finally defined work.

## DEFINITION AS A FRUIT OF DEGRADATION

Thus we are forced - externally and internally - to degrade the sketch to the level of definition. What we see with mind and heart in the simplicity or muddle of a sketch, even feeling what is not yet drawn, struggling, we have to bring to the material level (in consistence with human nature and the roots of this craft). It is either tragic or beautiful, because it is not possible to experience katharsis at the end of pilgrimage travelling by plane, but only after fighting with ground, air and oneself to the bitter end. Katharsis for me is the rational materialisation of a possibly full idea expressed in a conceptual sketch. [OSWALD MATHIAS UNGERS: '*...what comes first is always the search for the image, the expansion of the image into grotesque or extreme configurations, then bringing it back to abstraction masking, concealing, not making everything clear, not telling all, leaving a few things behind - - releasing the important things, but not the total reality. REDUCING AN IDEA IS MUCH MORE INTERESTING, OR MORE IMPORTANT, BUT ALSO MUCH MORE DIFFICULT. (...) ART IS THE REDUCTION OF IMAGES AND STRIPPING THEM DOWN TO THE ESSENTIALS...*'*]. Further on is "only" the WORK of reaching definition. [JAMES STIRLING: "*...for me sketches are in the first instance a kind of conversation between what is in my head and what I am looking* at *on the paper It's a kind of interaction between almost subconscious thinking and how the very small sketches appear When they become a bit bigger they are also instruments for communicating with my collaborators ( ... ).*
 *The sketches go back and forth, I correct them, then they come back*
 *to me in a slightly more elaborated form and so on...*"].

Reaching the definition - i.e. putting the work together with already defined words, cleaning and purging it and in the end - clear expression of the whole work - all this can be a computer domain. Under certain conditions it is hard to find a more effective tool for this. The computer as we all (?) know <u>makes it possible</u> to produce visually finished work, work with no unplanned effects at the end - thanks to the possibility of an immediate and optional seeing the thing being elaborated. In the case of the composition consequently materialising the architect's conscious intentions - it becomes his powerful weapon. The work "conventionally" finished - definition - in my opinion is the more valuable the more creative emotions and inspirations it causes, during its reception and interpretation i.e., the more mysterious connections of this abstract, metaphysical reality embraced, mastered and shown in the sketch is materially expressed. [TADAO ANDO: *"... By the abstract I mean a crystalisation of the world's complexity and richness in an architecture of greater purity, rather than a reduction of the world's reality by diminishing its richness (...). I SEE THE CHARACTER OF ARCHITECTURE THEREFORE, AS SIMULTANEOUSLY EMBODYING THE CONCRETE AND THE ABSTRACT, AND I TAKE AS MY PRINCIPAL CONCERN'THE MANNER IN WHICH THESE TWO OPPOSED ASPECTS ARE TO BE SYNTHESISED IN A UNIFIED WHOLE..."*].


## MANY VALUES IN ONE

So it is hard to conceal that the essence of this idea is not generally dependent
on the tool by which the idea is to be embodied. However it can help.
The theory of MULTIVALENT work defined by Charles Jencks indicates the importance
of internal relations between the elements and the possibility of various
perceptions and interpretations of it's parts and the whole form "...Certain buildings
have a richness and density of meaning which make them more enjoyable
to inhabit, view and visit than others. These are the buildings which are reinterpreted
anew by every generation. We return to them again and again, not necessarily
because of any particular meaning which they may convey, but more because of
the exiting and deep way in which the meanings are interrelated or fused together
into a powerful pattern.(..) Multivalence consists of four distinct qualities:
imaginative CREATION, or the putting together of parts in a new way,
the AMOUNT of parts so transformed, the LINKAGE between the parts which
is the cause of this creation and which allows the parts to MODIFY
each other".
Can a tool play a deciding role in this game? Surely not deciding, but quite
significant - when defining the elements and their role
in the whole form being composed. Sometimes it can even play an active role.


## THE TOOL APPRECIATED

Computer visualisation, as we know, enables almost immediate viewing of a
3-dimensional object being elaborated "in" the computer - in any view, giving
us information of the possible image of the form. This feature helps to correct
any mistake without delay. This process becomes a dialogue - where by the
specific language - we listen and - inevitably - are listened to. Of course the
analogy I formulated here is not particularly new, but facing the hardware and
software scores - it becomes
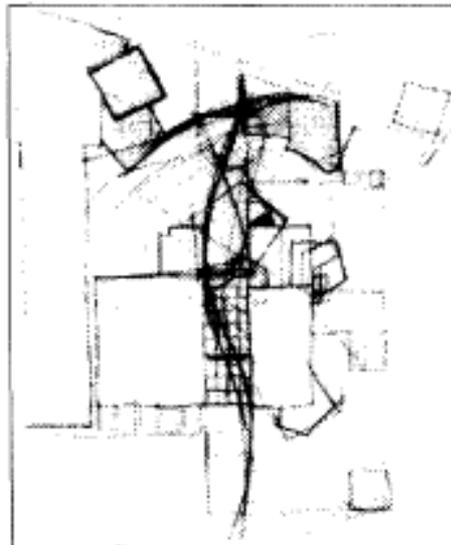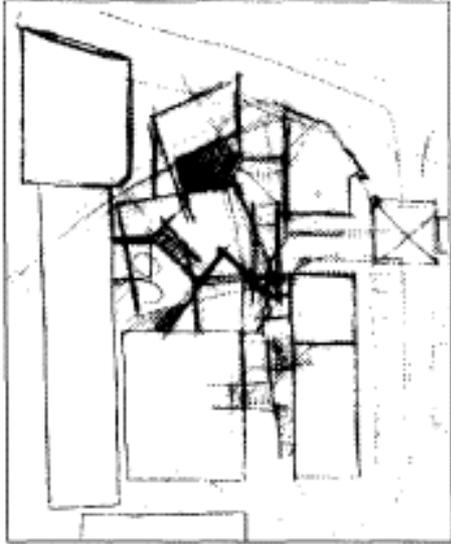
Author's own sketches
- a handmade search
for the architectural space.
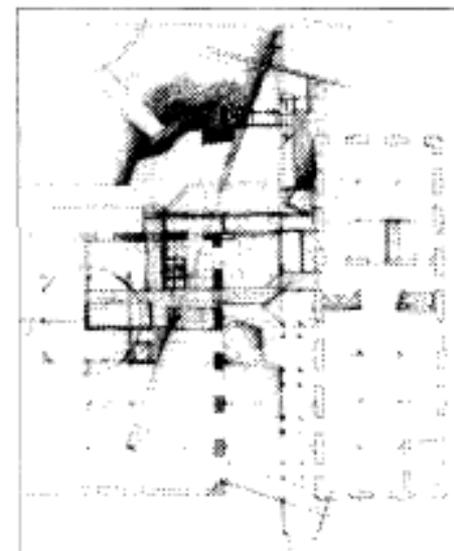
amazingly appropriate [RANULPH GLANVI LLE: "... *A medium is, thus,*
*a participant in whatever action is taken - acting, thinking and forming*
*(and communicating). It is no longer a simple mechanistic, casual agent,*
*but it helps form (or, if you hate this it perverts) what we try to do*
*and how we try to do it, and, in so doing, it often changes what we thought*
*we wanted to do, or at least, it changes what we thought we wanted to do*
*from a to achievement w...*"].

Coming back to the aircraft analogy: a pedestrian travel, being here work with a "pencil" -is, in my opinion, indispensible in the case of the true search for beauty, at least until the moment we find its best image in the concrete design trial. Shouldn't we talk about the beauty -when discussing CAD issues? Effort is an inseparable component of creating. The hurry without any deeper foundation, excessive "speed" in expressing and in the manner of expressing oneself, leads to a catastrophy or at least - the result is a muddle.

The computer (let's rather say computer systems) as a tool of ultimate potential - in a juxtaposition with a user, of course - causes a danger to make it an aim of unreasonable engagement of the mind. Especially for the architect's work - and its assumed essence -where the tool is the matter of the secondary importance. Architect is to concentrate on the architecture. However I would leave the question - whether the architect should also be a programist - with no answer (unequivocal opinion is dubious ... ), rather as a subject to discuss. I personally think that it is the matter of the univocal choice - whether I design architecture or improve the tool. One does not have to be in a strong contradiction with the other, of course, but it is good when you decide what is your job.

The concentration on the tool problems costs: we have to pay with our own creativity, sensibility relating to strictly architectural matters. There are exeptions in a general principle of course
- but I found that one should answer himself a question. where is the end of Architectural Design made with a Computer Help and where is the beginning of the morbid pursuit of improving the tool? Accepting the fact that the language (the tool!) co-ordinates the structure of thinking, I also noticed that the medium, i.e. computer system as the only tool of those I ever used - can master one's mind in a very dangerous degree: when we try to transfer the categories of its work (or work with it) on other tools, being disappointed that the pencil is not able to erase lines, copy them, define layers, freeze or thaw them etc...

In the presence of many doubts and fears relating to a sphere of computer use in architectural design - I do believe that the handmade sketch is like a first breath for a newborn being, which sets a whole machinery of life in motion. I do wonder if it's possible to replace a "pencil" with other tool (computer system?) - especially in a conceptual, spiritual phase of designing architecture. Further on - I do feel it is a mean of fundamental importance for architect, because by the hand it is a direct tool of the brain and soul - and nothing is able to replace it in these preliminary phases of the visualisation of invisible realities produced there.
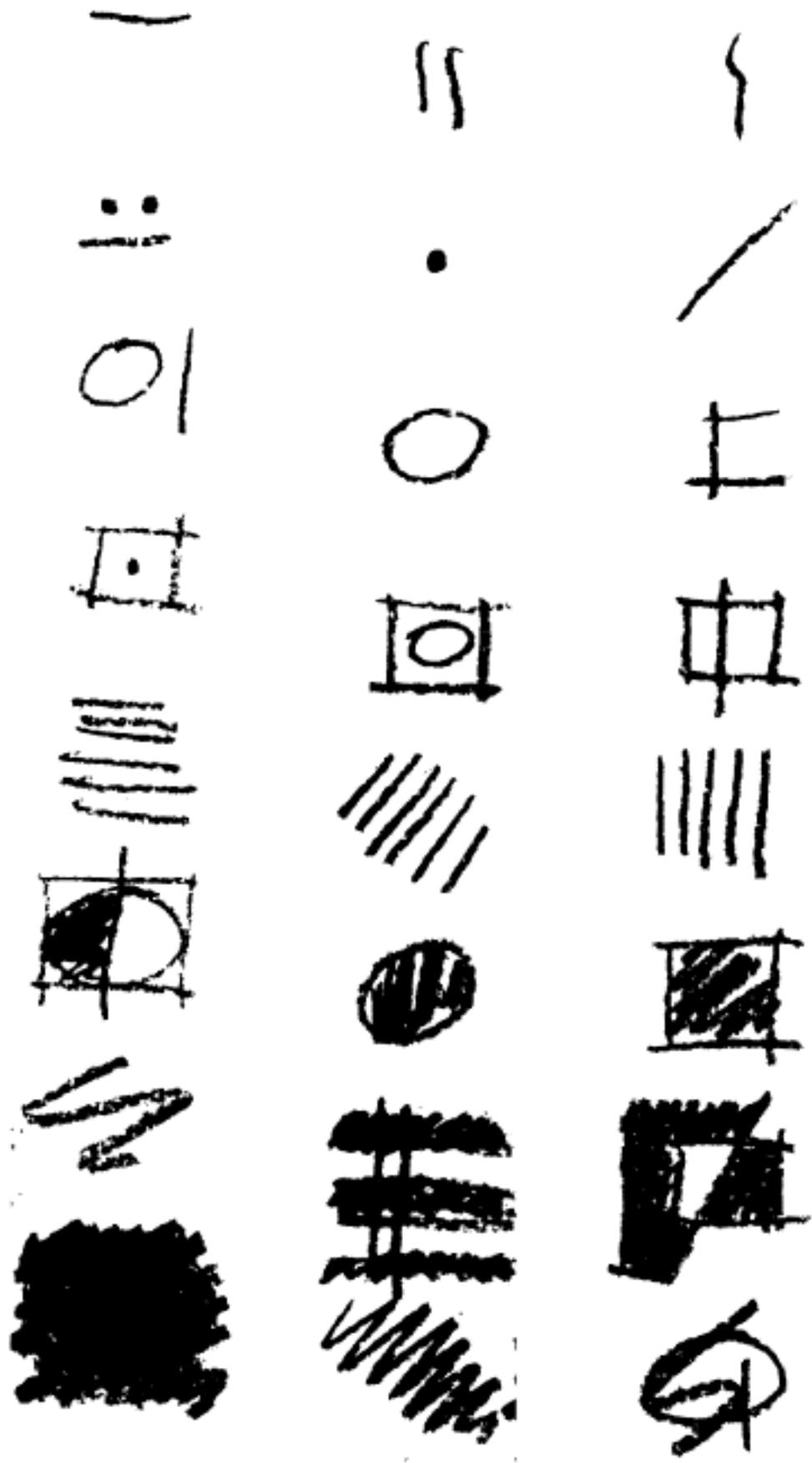
Civilisation progress we all participate in (and still try to convince
ourselves of its power), generally enables the development and together
- does not protect from the fall. One should not trust the tool
and media unconditionally, because they can destroy our trials to reach the deeps
in the same degree they can help. Somehow they can even give
a view that seems to look better than the world we live in - especially
that I can make such a substitute reality myself. What I want to say is
that it is we to decide what and how we do, although by a permanent and
fast development of computer graphics systems, we are still given
already more and more defined solutions.
Most of us look for the poetry in architecture and in ail things we create.
We try to reach it somewhere inside and to plait it into our works.
So I feel we have to reject tools which prevent us to strive after
the true and deep beauty. It is the matter of personal choice -
- and we do try to make the students, we work with, aware of this.
However, computers exist and it is we to master them in a way we need to.
Not in a way they want. Thus it gives those who feel and think deeply
a trump card to reach deeper and go further than the pencil is able to show.

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