"The hammering machine", Manne Lodmark.

Concepts on Conception
An epistemological commentary

Philippe Boudon

Recently published or presented research work on the theme of architectural design reveal highly varied approaches. Some derive from the humanities and others, which are more epistemologically oriented, raise questions on the process itself. Still other approaches give priority to the analysis of the architectural object.

Italo Calvino tells us that the emperor of China had commissioned a drawing of a crab from an artist. The latter had laid down as a condition for carrying out his work that a villa with six servants should be made available to him for a year. After the year was over the emperor asked for the crab. The artist replied that he needed an additional six months under the same condi-tions. Somewhat perpelexed, the emperor finally gave his approval though quite reluctantly. The six months over the emperor once again enquired, "where is my crab?" But there was still no crab to be seen; however, the artist then took a leaf of paper and proceeded on to draw the most beautiful crab that ever was.

Did the process of conception take a year and a half or merely ten minutes; should we be of the opinion that "conception" was involved in the above example? Could the conception not be limited equally to the few seconds concentration time required to spend the five minutes on the crab? And what's more, hadn't the artist "conceived" beforehand the idea that the villa with the accompanying servants would be necessary for the accomplishment of his task? Basically, this story is told by a writer; therefore a "conceiver", if we are to agree with Herbert Simon,[1] is a condensation of the different possible approaches to conception.

Some are likely to say that conception is to be found in the drawing of the crab, an opinion which in the eyes of others involves somewhat a confusion bet-ween conception and drawing! Some others will hold

the view that conception was made possible (since the story served merely as a pretext for dealing with conception) only due to the conditions under which the process of conception was able to unfold: a villa bringing together a given number of actors seems to have been indispensable for the artist. Included among these actors we have an emperor, who commissions the work and from whom the artist manages to extract, all things considered, the price of a year and a half's labour for a crab actually drawn in ten minutes. If we know that a ten-minutes wage would not have been on a par with the «most-beautiful-drawing-of-a-crab-in-all-the-world», and if we consider that crab drawings commissioned by emperors are not a common occurrence, and that one must provide for one's living in between offers, what is to be, then, the cost of conception? For this is an issue which cannot be separated from the conditions surrounding the work of conception. Furthermore, wasn't the year and a half of preparation a necessary thing? Others still will opt for those moments immediately preceding the drawing, on the assumption that the drawing could only begin after the artist has conceived some kind of generative outline even prior to his having placed the pencil on the paper. But in that case, the crab would have been conceived prior to its being drawn and the argument would be that there is just as much conception in and during the drawing even though you may not confuse the fact of drawing and conception.

But must we necessarily choose from among these different concepts on conception which the tale of the crab has brought to light? I would tend to think not so, on the basis of Karl Popper's anti-essentialism. He writes:

> What counts is not so much the essence of things but rather the questions they ask and the problems they raise.[2]

In this connection, research on the process of conception raises a good number of problems depending on which of the points of view mentioned above is adopted, since in most likelihood each one is as legitimate as the next. It is evident that investigators focus their questions in relation to varying approaches which I shall now try to identify here.

There is a number of articles[3], a few special issues published by professional journals[4], and a given amount of research work[5], all show that architectural design is in the process of becoming an object of research. This trend follows up on hypotheses from scientific work dating back twenty years and relating not only to architectectural design[6] but also to conception in general[7]. The purpose of this article is to attempt to trace the diverse options, questions, and orientations that are a part of the emerging landscape of conception. We must however first ask ourselves what we mean by «conception». Some of the reflections concerning it belong naturally to conventional epistemological subdivisions, but others show that conception imposes a rethinking of such a classification.

On the one hand we have existing disciplines which tend to take a classical point of view to approach the said object – conception – offering themselves in the process a new field of investigation. But at the same time they preserve their initial scientific object which, by definition, had originally constituted them as disciplines and which, therefore, is not conception itself. For example, such is the case of a recently launched research activity entitled Euro-conception[8]. This activity is concerned with the study of conception as a part of reflective professional activities; it seems to favour an approach that is predominantly sociological. Conception provides a way to put together a body of knowledge on which, for instance, the sociologist will work.

On the other hand, we have some approaches postulating that conception raises very specific problems for scientific research. The problems are of an epistemological nature, they are new, and they are problems which existing disciplines have not been in a position to deal with so far as a result of the analytic approach which supposedly characterizes the classical sciences and which has prevented them from engaging this object, conception, which as such is new for knowledge. This view is expressed by Jean-Louis Le Moigne[9] when he proclaims: »Conception is a new idea.» This hypothesis, advanced by Herbert Simon and developed in France by J-L Le Moigne's works leads us to what H. Simon calls the «Sciences of the Artificial»[10], according to the title of his own work, or to the «sciences du génie» (the

engineering sciences), as proposed, in turn by J.-L. Le Moigne[11]. In both cases conception imposes an epistemological revision. These approaches share with architecturology – the latter being their contemporary with respect to the emergence of its scientific project, as J.-L. Le Moigne observes – a concern for examining conception through the specificity of the problems it raises. Whereas the existing disciplines dealing with the exact sciences or with the humanities themselves offer conception as an additional new field of investigation, without any consequent calling into question of their object: namely, the social for the sociologist, the economic for the economist, the mental for the psychologist; in short, the object without which the said disciplines would no longer be what they are all about.

Conception as a field of study

If we may say so, this category deals with conception in the weak sense (and this does not diminish in any way the interest of the studies which this group undertakes).

For example, Véronique Biau postulated, in an interesting paper, that the process of conception, though concerned with the production of a building, is accompanied by an explanatory discourse that is produced at a social level since it reproduces "common themes" which basically go beyond the singularity of each building. According to this researcher, the social dynamics taking place are re-interpreted in the architectural field and provide a framework within which individual answers by architects can be given. It is in such a manner that a corpus of values is constituted. Such an obviously sociological approach[12] leads, in spite of its social object which «by definition» goes somewhat beyond the limited field of architecture, to problems that are rather specific to the field of architecture and in a relative manner to other fields of investigation. Véronique Biau wonders whether there isn't a contradiction arising between the ephemereal nature of value-oriented phenomena bringing about a rapid change to the existing corpus and the lasting nature of buildings which characterizes to a certain extent the architectural field. The outcome of it all is an object of questioning that is

also focused and constitutes a true question proper to architectural research, even if the question arises in a more general problematic framework[13].

Turning now to the expression "process" that Véronique Biau uses, it should be noted that it encompasses the degree of determination of conception that is based on sets of values affecting buildings. The "process" here is therefore approached through an anticipation of the evaluation of the architectural object. From an epistemological point of view, I would not hesitate to say that what is produced here is a very clear object of study but which replaces what other researchers call, in turn, "process of conception" and which resides in the explanatory discourse addressing the building.

Which process of conception then are we speaking about? If we wish for archtitectural research to advance in a clear manner then it would be most appropriate to specify which one. The expression process of conception might be attached to some kind of conceptual unit, or to some kind of essence... However let us admit that the expression must be seen in a relative manner. Should the meaning understood by Véronique not include what other researchers mean; that would not signify in the least that we must consider one interpretation as "the good one" in oppostion to another.

Here then we are facing the inevitable variety of points of view from researchers on an object that will be individually constituted in fine according to the scientific and methodological approach of each researcher. It seems to me that any essence of a process of conception that one would supposedly attempt to "discover" should be abandoned and care should be taken vis-à-vis the very expression process of conception, particularly if we consider that the supposed unity of its object is being called into question in the research activity that is taking place. Different objects of study are established from a supposedly unified and highly empirical object and, yet, we do not even know whether the said object – the process of conception – exists. Any reality that we might attribute to the process of conception comes instead, once again, from the questions that it raises.

This is why Jacques Allegret expressed the hope

(since the proposition pertains to a possible project as opposed to actual work done on it) to analyse the process of conception with respect to which, in his view, too many interests seemed strongly inclined to preserve its mystery. He raised the initial problem of the methods to be used for such an analysis. The method would entail dealing with its most material aspects and would require a model and a rationale, namely, the architect's building of a signature. This last activity would constitute the object of study for Jacques Allegret. Although this proposal is part of a sociologically inspired approach, it is different nevertheless from Véronique Biau's.

The above undertaking, which proposes to provide an account of the "fight for recognition", belongs to a model of analysis of the process of production governed by three terms serving as framework for the areas of investigation: context (such as the competitions), facts (such as the commission), working environment (such as CAD or professional organization). The work of research would aim, as Allegret puts it, to discern what is at stake in the process of conception, what its driving forces are, and what possible determinants there may be.

Jacques Allegret gives a definition of conception:

Architectural design results, to a large extent, from an objectifiable process, determined by decipherable conditions, finalized by discernable issues, and conducted by agents with identifiable characteristics.

Since the process is "as a rule socialized, interactive and negotiated", Allegret attributes a small role to the designer "whose background must be known", but he does not wish to "exaggerate that role because he seldom works alone". For Allegret the reality of the process is primarily social and not immediately intelligible for the designers who would be playing their part as if they were blind actors.[14]

The main question which seems to emerge from the whole of investigations carried out on conception is that of knowing to what extent the researcher gives priority to a multiplicity of actors or to the individuality of the designer.[15] We have here yet another reference to the object of research; however, it would be preferable for a clear, common understanding among the community of researchers in the field, that the scientific or methodological point of view adopted – inasmuch as priority would be given de facto to one position or the other – would not be blown out of proportion so much that it would become more than a methodological point of view, and would thus pretend to be giving an account of «the» reality of the process of conception.

Michel Routon's work also has to be classified in the category of sociologically inspired research. He uses Lakoff and Johnson's writings which have established the role that the metaphor can play beyond language pertaining to our concepts and our experiences. From this perspective, architectural design seems to derive from a cognitive semantic approach as an

instance that participates in the building of social entities, as well as in determining their nature and in their adjustment to the present times.

The "applicationism" of the method (the intention of applying both the methods and the objectives of knowledge of a given discipline to the field of architecture[16]) involves the transposition of the mentioned writings into architecture. Thus we see that the terms architecture and architectural conception are interchangeable, thereby confirming that the approach can be placed in the category described above, as a weak hypothesis concerning the use of the term conception. It is nonetheless true that apparently peripheral approaches can deal with conception in the strong sense and that the role played by the metaphor at the very center of the architect's work can be examined. Needless to say, the attempt at classification that I am carrying out for the sake of clarity, must not lead to fixed categories since the trans-disciplinary bridges can indeed provide an impetus for research. In this way we may move from the sociological to cognitivism and then to the semantic.

On this occasion Hélène Mialet's approach came closer to anthropology and even more to cognition than to sociology. In her presentation she raised the question of knowing how a new scientific theory is conceived. From a methodological perspective the question related to how one can carry out the observation of the mind in the process of conceiving a new idea. Using

as a starting point writings by epistemologists and of historians of the sciences, Mialet presented laboratory observations in biotechnology and thermodynamics, as is done with anthropological work linked to the emergence of scientific, technical, and cultural objects. Invention in architecture is then postulated as being accounted for by an approach analogous to the one within the scientific fields.

Here we see that the idea of conception is assimilated to that of invention. Although no reference is made to it, it is in what I will call the Simonian paradigm of the focus on conception in general that I would rank this work. However, the approach itself claims to be anthropological, subject to better understanding that which would bring together – or distinguish – conception and invention. This is why Hélène Miallet's remarks seem to me to fall under the approaches classified as cognitive. Conception is not dealt with as a specific object nor is it seen as a place to situate a specific problem. "Conception" is reduced to "invention", with the latter being relegated to the "conditions" under which it emerges in the laboratories[17]. The question raised concerns the assimilation of conception to terms that appear to be close to it. The terms would call for further specification of the degree of assimilation they go through or, on the contrary, further explanation on the distinction separating conception from invention, in the present case, or, also just as well, from decision, from representation, and probably from other terms as well. Unless we are cautious, we might accidentally hesitate to amalgamate conception, decision, representation similarly to how we can amalgamate conception and invention. To design an architectural object is indeed, by the same stroke, to invent it through its representation as well as to decide its future existence. But these different aspects of the process do not become consequently assimilated to each other.

We must point out here how much the very idea of conception upsets acquired mental habits and to what extent it is, to take up again J.-L. Le Moigne's expression, "a new idea". Philippe Deshayes has made a presentation[18] showing how Alvar Aalto encountered the specificity of architectural conception when he raised the apparently astonishing question of the influence

of architecture on the materials, had had to give up the idea for failure in making explicit the question, due to the absence of a modelling that would allow him to specify his question. Aalto was then forced to conclude his remarks in a much more conventional manner referring to «the influence... of the materials on architecture»! P. Deshayes concluded from the above that, as a result of a truly theoretical work not being achieved, the designer cannot take advantage of modelling tools capable of allowing him to make headway in his capactiy to reflect on the process of design, which corresponds to the aim of architecturology.

Thus, we move on to an entirely different paradigm which serves as a framework for the work of researchers whose view of conception is that of a bona fide object as opposed to one limiting it only to a kind of black box over which are enacted a number of influences to be discovered, and under conditions to be examined and possibly undergoing determinations exterior to it, to be analysed. The object in question emerges in Aalto's text and his failed attempt at description, as analysed by P. Deshayes. The same object is being timidly aimed at by Le Corbusier in his board with four compositions. But in those two cases the architect has – in terms of conception – only already designed objects. and the difficulty lies in thinking out the act of conception without thinking it in terms of designed objects. Such a process, moreover, is in contradiciton with the very idea of conception since conceiving is conceiving "that which does not yet exist "[19].

Conceoption as an object of science

In contrast with the above-mentioned researchers who tend to apply to architecture approaches belonging to disciplines outside its field, others aim at something specific behind the word conception although, here once again, it does not always involve the same thing. I should specifiy that referring to such and such a discipline does not necessarily mean that an applicationist approach is being used. An example of this is Dominique Raynaud's doctoral work which he has placed in the context of an anthropological approach to the imaginary[20], but which also leads him to engage the double point of view of cognitive psychology and an-

thropology. By setting up his object of research on the side of the emergence of the «parti», he is aiming at a question which according to him has been formerly raised by architecturology[21]. He is seeking to find out to what extent the «parti» (that evident moment of the design process thus named by the Ecole des beaux-arts and which is fashionably referred to nowadays as «concept») relies on the association of mental images and dynamic schemata, all of which leads him to raise a major question: «How does the architectural form retain the semantic properties of the image?» From an anthropological perspective, Raynaud evokes the sociological «implications» of the «breakdown of mytho-symbolic systems in modern societies». We find ourselves, indeed, in the midst of cross-disciplinarity while coming as close as possible to one core element of architecture since the parti raises a primary question for design in architecture. But however central this question may be it nevertheless channels the author almost necessarily towards a history of architectural symbology and a type of anthropology. As we see here, resorting or referring to established disciplines takes as its starting point, just the same, both conception itself and the questions it raises, but we do not find ourselves in what I have called applicationism. And it is in the closest proximity to conception and at the place for an architecturological question that the veer to anthropology imposes itself[22].

Although put differently, this very same question was formulated by J.-C. Burdese, G. Engrand, and J.-F. Mabardi. The authors are opposed to the holistic and methodology-oriented vision of the architect's "work process", which in their view prevails today (including the vision of the corresponding phases leading to the object) – a vision that is, in fact, widespread. They make a distinction between two radically different intellectual working attitudes which relate to quasi-antithetical investment modes on the part of the conceiving subject. They postulate a radical distinction between conception (common to all subjects) and "projectation"(specific to the architect): If we go back to the crab metaphor, it seems to me that, for the authors, the crab would have been conceived before the artist's drawing projected it onto the paper. Or, bet-

ter yet, its «generative figure», which will give way to the drawing, will probably have been coming to maturity at length before revealing itself suddenly, in a manner that made it possible for the drawing of the crab to emerge.

These authors recall the former questions on the double verbal and iconic aspect of the process as a way to emphaize the two-tiered work of conception which pertains to both image and thought. The authors refer to G. Bachelard through an excellent example of the word "conception" (the verb "to conceive" would express tension between "to perceive" and "concept") and thereby raise an obviously crucial question for the investigations on architectural conception[23].

Moreover, in spite of the "intuitive" nature of the question they raise and which they consider to be "fragmented" and "lying beyond their capacity to demonstrate", the authors deal with a real problem, namely the foundational figure, although they address it in a different manner than does Dominique Raynaud. The two resulting approaches can appear quite complementary to each other, one more anthropological and the other more cognitivist. For the three authors, "the objective of conception is to contain the entire project within a foundational figure". Although the approaches are different, the question is indeed the same and marks a major development with respect to the queries generated by conception. Having recourse to the varying points of view of given disciplines should not overshadow the apparently specific character of the question raised by conception, at the very point where the process begins. That question is referred to, in still another manner, by architecturology when the latter, in turn, calls it the question of its initiation[24]. In this case, architecturology is aiming at the question of how to begin the project, as opposed to any idea(s) that may be at the origin of the project, which raises an entirely different question.

Though in the preceding case the idea of a generative figure seems to be based on a specificity of the work of conception in architecture, for other investigators the activity of conception is, from the outset, assumed to be an activity that is common to all subjects. Thus for André Demailly it becomes an object for the psy-

chologist or the cognitician. Linking architecture here to the sciences of the artificial in a manner similar to H. Simon's approach[25], Demailly proposes to focus on the knowledge of architecture – and of its improvement – through the establishment of «organizational artificial memories». Such memories would be capable of re-producing the differed mnesic processing of information. Here architecture is associated to a part of reality «understood as a hierarchical organization of systems that are both autonomous and functionally interdependent». I believe that it is important to note here that this paper, presented by a connoisseur of Herbert Simon's works, basically approaches architecture as a process of conception which becomes now exterior to the architect's design work and acts instead as an aid to decision. The matter of knowing whether conception and decision should be assimilated or not is raised again here in the same manner as it was, before, with regard to the couple conception/invention. On a different scale, we shall note in relating to the general institutional situation of architecture how daring André Demailly's proposal is and, consequently, how thought provoking is his proposal.

We know how much Robert Prost[26] considers it necessary «to extend the notion of project» to areas of investigation whose study would contribute to a better understanding of the processes involved in architectural design. The project is but a link in more general processes extending beyond the design in a temporal context both upstream and downstream. At the seminar, Prost's intervention questioned the evidence on the basis of which the «architectural project» could serve as the «place for the possible generation of knowledge of conception».[27] Three crucial elements emerge through the above question: the diversity of empirical terrains covered by the notion of project in architecture, the protocols of observation, and the conditions for validation of the elements of knowledge produced. The question is also of major importance for knowledge on conception since the latter tends to go beyond the intuitive knowledge of conception supposedly natural to the designer or the architect. How is one to produce knowledge on conception? That is the singular question that is raised here. The question now falls under the category of a «strong» meaning attributed to conception insofar as the approach calls for investigating what kind of possible special device would allow the production of knowledge on the subject matter. It is for this reason that the project itself is being investigated. Robert Prost's work is interesting because it seems to accept jointly, with respect to conception, the projectual dimension of conception – understood as that which pertains to the project – (even though the latter is not able to produce its own knowledge), and the processual dimension to indicate that which pertains to procedural knowledge, which is more greatly emphasized by the author. The latter is fundamentally different from an object-focused knowledge of architecture on which architects tend to concentrate exclusively. Although valid and comprehensible their outlook, which is encouraged by a professional bias in which all is reduced to the architectural object, it is restrictive since it overshadows the processual dimension.

All of the above leads us to a consideration of a third type of research work that I shall now introduce as a complement to the two preceeding approaches and which renders a central role to the architectural object, as opposed to the project, in the study of conception.

The architectural or spatial object as conception

The very idea of conception in the view of some researchers, is closely linked to the conceived object. In other words, conception is linked to the architectural object that in itself constitutes the finality of conception.[28] The conception that some have of the object counts as much, if not more, than the design through which the object is made, whether by an individual designer or a team of actors. Among other researchers however, conception is not rejected, they instead opt for pursuing their investigation into the object through their specific methodological point of view.

This explains the primary role that morphology plays in the work done by the team of researchers consisting of Bernard Deloche, Patick Denis and Bernard Duprat. The group is interested in understanding morphological phenomena as specific products of the processes of conception, the starting point of which is the "plastic schema" defined as "the generating principle to be for-

malized as a set of rules of production". To put it graphically, these researchers are working towards a personal grammar for the designer which can be expressed by formal rules. Their approach aims beyond the specifics of architecture so that it can be applied to artistic activities, an area in which their method has already been used. What is taken into account are the traits of a given object in its final form in an attempt to classify the forms produced by the architect, and then, through another operation, to retrace the process that produced those forms.

Albert Lévy also places the architectural object and its space at the center of a knowledge of conception. He emphasises architectural space in combination with references to the architecturological approach, at times highlighted by him and which he contrasts with other approaches. According to Lévy a theory of architectural design must also be a theory of architectural space[29] in order «to form, in his terms, a general comprehensive theory».[30] For Lévy architectural space is a polysemic, signifying structure[31], a stratified complex structure, the product of a generative process. Thus he proposes a «model of the process of conception» distinguishing syntax and semantics from content and expression while opposing performance and competence. This applicationist technique – to the extent that it is part of a more semiotic approach – establishes a distinction, which merits attention, between general architectural competence and design competence, leading to a hypothetical definition of architectural design. The preceding would correspond to a mediation which transfers the space of general competence through design competence.

Thus, Architectural space becomes a stratified complex structure, a product of a generative process[32], and a polysemic signifying structure. We recognize here the double axis for process and system in which lies the intention to re-introduce architectural space as a system, in relation to the generative one on which architecturology has thus far concentrated its work. But it is still necessary to better specify what is to be understood under «design competence» if one is to integrate it into the structure of the signification of architectural space.

A. Lévy strongly emphasizes the necessity of not confusing generativity and genesis (taken to mean "continuous linear development"), thereby joining Burdèse's team in their critique of such a development. The team of O. Délépine, D. Jézequellou and F. Sotinel considers that the process follows an approach for formalization of the project that is "increasingly refined". The process of conception would consist of a system characterized by nondetermination and by relations of components to the whole that may take place either in an ascending or a descending mode. Through the work that the group has carried out on this computerized process, they have attributed a "declarative" and an "imperative" mode to each of the above patterns.

Both expressions, ascending and descending pattern[33], are proof that something is progressing, indeed, and that the process, viewed as a totality by the researchers fundamentally consists of a progression. What is original about this group's work is that on the one hand it considers nondetermination as being permanent and that, on the other hand, it thinks out the process – and the nondetermination accompanying it – within the context of an ultimate objective which remains at all times a part of architectural space itself, considered holistically. Its characterization could be summed up in two key words: nondetermination and totality.[34]

The place of the spatial object is once again under scrutiny through the work of Alain Rénier, who introduces an additional object of study by contrasting two types of morphologies for the spatial object.[35] The first proceeds from a physical or formal reality. The second may be constituted from representations and projections carried out as imaginary and they give rise to manifest spatial organizations which are distinct from the first group and are formally recognizable through experimental research. In contrast with the fragments of the first type, which proceed from a morphological analysis of the consitituent physical components, Rénier distinguishes the segments which proceed from reading and from perception. The recognition of the difference between the two should lead to a reconsideration of views on the process of the conception of space. The author is particularly interesred in the organization of complex places

and of their users. If there is a process going on here, it is related not so such to the project's elaboration as it is with the meaning that the spatial object acquires through this process and which should be taken into account in the elaboration of the project. The specific instance taken here does not belong to the programme nor to the elaboration per se of the project. Rather, it is the moment devoted to the recognition of that which founds the existence of the «working stuff» of the project, beyond its emergence through the interplay of the 's design.

The goal is to recognize the structuring modes of the mental space. Once again, the use of the term process, as used by Alain Rénier and compared with the preceeding group's use, does not carry the same meaning. We are in no way dealing with alternatives but rather with approaches to differing objects of knowledge whose subsequent possible mutual articulation cannot be excluded. In fact, the very newness of the field of study of conception renders this type of situation quite normal.

To conclude with Gilbert Luigi, the archtiectural object is such an intricate part of the process leading to it that, according to this architect, in an unpublished report on 20th century sculpture and architecture, sculpture functions as a model of conception for some architects of the present century. His method is based on observation of the morphological changes evidenced in the designer's drawings.

Lastly, J.-Y. Quay's intervention, which was more archi-

tectural, came closer to adopting a process instead of giving an account of it. We find here the defendable position of the archtiect who is aiming primarily at the object to be designed.

In these two cases, what counts most is the distinction between a reference to the forms as such and a submersion of the latter in processes charged with meaning and to which they belong as elements in a process of meaning, as described by Alain Rénier. Given autonomous or sculptural forms, or components of the process of meaning, provide us an important alternative to the approaches on architectural design at the very level of the spatial object.

In conclusion

It is clear that the complexity and variety of problems do not lend themselves to a neat and organized arrangement fitting in with the classification attempts I have made here in order to make the reader more aware of the situation. Probably due to its newly emerging nature, their object of knowledge is naturally still seeking to organize itself into epistemologically relevant and scientifically oriented sectors. The distinction which I have made does not prevent the two sectors from establishing links for a two-way collaboration later on.[36] The highly varied presentations and the number of questions raised tend to treinforce the urgency of investigations on architectural conception. To take up an expression used not long ago by Michel Conan.[37] However difficult it may have been to transcribe thoroughly the wealth of papers and debates at the seminar, it is possible to attempt to situate the papers presented and to classify a certain number of questions.

Process, on the one hand, and conception, on the

other, can refer to different objects. In the case of process it can be envisaged as close as possible to or at the very heart of the architect's work. It can also pertain to a type of research which for lack of a better term I might qualify as cognitive in nature. But from another point of view it can involve the consideration of the interplay of actors who are concerned by conception. We are faced here with the ambivalence of the term conception which, as J.-L. Le Moigne underlined, can apply both to the activity (meaning 1) as well as the re-

sult (meaning 2). This means that the conception that one has vis-à-vis an expected result and the activity that leads to such a result through an action involving conception are two different things.[38]

Thus, one of the most difficult obstacles for investigations on conception is precisely that of trying to remain as lucid as possible on this difference. This is demonstrately so when we have research work such as Alain

Rénier's which, while focusing on conception under meaning 2, postulates a process that happens to be semiotic. So although it may appear natural to see behind the term conception meaning 1 – the process – there are researchers nevertheless (A. Lévy and A. Rénier)[39] who postulate, quite rightly, that this time conception, from the semiotic point of view, may under meaning 2, be apprehended in terms of process... This is why several researchers have joined in with the criticism expressed by J.-C. Burdèse, G. Engrand, and J.-F. Mardi concerning a linear vision of a process that is progressively advancing from the imprecise to the precise. And little does it matter whether one's representation of the advancement is made in terms of the conventional succession of tasks (programme, outline, preliminary drawings, etc.), of the progressive reduction of uncertainty,[40] or through some mathematical or automatic model for the sequence of operations.[41]

Such a degree of complexity calls for continuing the work undertaken but with the hope that the investigations will not be perceived as too basic in nature, in comparison with the traditional image of a creative and comprehensive act in the fine arts tradition, but which corresponds to an image that Jacques Allegret has quite rightly attempted to demystify. Research will gain little by perpetuating such a mystery; this is even more true for education. In this regard, the great stride accomplished at this seminar will have consisted in establishing conception as an object of research and, to unbolt the complexity hovering over the too empirical and general term project.[42] For this term project reaches the same degree of generality that could be attributed to the human body in medecine. Thus, who would consider re-focusing medical studies on the human body? or to devote one's research activities on the human body? With conception, epistemologically speaking, the question is raised at another level which would correspond perhaps – to continue with the analogy in biology – to the realm of the living, an entirely different matter.

As for the different objects identified by researchers we might consider that they might be orienting architectural research towards more precise questions, as it would be done with the nervous or blood circulation systems. How could their inter-relation have been con-sidered as part of the human body if they had not been previously distinguished, for the human body, from a biological perspective, is but a storage-room, as is the project.

<div align="right">Philippe Boudon</div>

Notes

1. We know that according to Herbert Simon the architect who conceives a building, the musician who conceives a symphony, the engineer conceiving a motor are all "conceivers" and as such they bring into play a cognitive activity apt to being laid down as object of knowledge by the sciences of the artificial: cf. H. Simon. Sciences de ses systèmes, sciences de l'artificiel (1969). Paris. Dunod. 1991.
2. K. Popper. La quête inachevée. Paris. Calman-Lévy. 1974.
3. M. Conan, Concevoir un projet d'architecture. Paris, L'Harmattan, 1991; R. Prost, Conception architecturale, une investigation méthodologique, Paris, L'Harmattan, 1992; Philippe Boudon, Introduction à l'architecturologie, Paris, Dunod, 1992.
4. Technique et Architecture (Paris), N°406, février–mars 1993. Particularly the articles by R. Prost qnd J. Sautereau. The other articles in this issue do not really take into account the distinction project/conception.
5. As evidenced by the consultations undertaken by the Plan on Construction and Architecture, as well as by the Office of Architectural Research (MELT) on the theme "Knowledge on Conception".
6. C. Alexander, Notes sur la synthèse de la forme, Paris, Dunod, 1967; P. Boudon, Sur l'espace architectural, essai d'épistémologie de l'architecture, Paris, Dunod, 1971, and M. Conan, op. cit. p. 5. M. Conan wrote the following with respect to the proposal made in the name of architecturology to constitute architectural design as an object of knowledge: "The knowledge of architecture does not limit itself to the knowledge of the 'real', the 'concrete' space, which is the realm of perception. Such knowledge extends to conception. For architecturology, the facts are not limited only to the material aspect of the architectural work." (La Pensée, 1972); at that time adherence to the distinction project/conception was still maintained, as shown by C.-H. Rocquet who reporting on my work Richelieu, ville nouvelle, answered the question "what is architecturology?" thus: "that which consists of giving more attention to the project than to the finished work."
7. H. Simon, op. cit. The meeting between researchers on architectural design and researchers on conception took

place in 1986. Jean-Louis Le Moigne is quoted in the proceedings from a symposium devoted to Herbert Simon: "Philippe Boudon's contribution ... is particularly welcomed as an illustration of our remarks since it specifies the intellectual path that leads the architect reflecting on his activity (as opposed to his art) to invent ... a theoretical basis of conception."

8. Euro-conception. European Programme for Research and Experimentation. Practices and arts in architectural, construction and urbanistic design. The 1992 Plan for Construction and Architecture, The joining together of investigation on fields as heterogeneous as architecture, construction, and urbanism illustrate well the general nature of such work.

9. J. L. Le Moigne, Théorie du système général. Paris. P.U.F., 1977. Revised in 1990.

10. H. Simon op. cit.

11. J.-L. Le Moigne. op.cit.

12. The approach takes its inspiration from Bourdieu's sociological theories.

13. Véronique Biau sees quite rightly a complementary approach between hers, which deals with fashion, and architecturology's, which, as a theory, aims at the general as opposed to the passing phenomenon.

14. But how are we to appreciate the necessarily intentional part without which the "building of a signature" could not take place?

15. This point of view which I expressed during the introduction to the seminar coincides with the distinction established by R. Prost in an article which the reader might find useful "conception : où en est la recherche" (Conception: An Update on Research) in Technique et Architecture (Paris) N° 406 -fécvrier/mars 1993. It is interesting to note on this subject that Robert Prost places "the work" on the side of the actors (and "the project" on the side of the architect), whereas Véronique Biau places the work on the side of the "architect". Here we have a question to work on.

16. Cf. P. Boudon, "Recherche fondamentale en architecture", in Architecture et comportement (Lausanne), vol. 5, n°3, 1989.

17. In this manner we would have under this category other researchers coming from the field of architecture and placing themselves also on the side of conception in general. In architecture we should draw lessons from what is taking place outside itself and in other fields as regards invention or discovery.

18. The papers that I am describing here were presented in the group "theory", where I served as moderator. P. Deshayes' presentation took place in the group dealing with the theme "the practice". The third group worked on the theme "education". Those readers interested in the two other groups would have to consult the proceedings of the seminar for the corresponding papers.

19. I am borrowing this quotation of Plautus from J.-L Le Moigne as an illustration of the architecturological proposition that says that "the building is the representation of the project that preceded it and not the opposite", cf. P. Boudon, op. cit.

20. In the spirit of Gilbert Durand's works.

21. Cf. D. Raynaud, L'imagination architecturale, Doctoral thesis. Université de Sciences Sociales de Grenoble. Research centre on the imaginary. «(P. Boudon) recognizes that «the parti could provide a line of research for architecturology' but he never attributes a central role to it... the scale as such is but an instrument for concretizing the initial parti... the central problem for architecturology is that of investigating architectural partis, their origin, and their transformation.»

22. As an example, see the interesting article by D; Raynaud, "Symbolisme de la porte" in Architecture et comportement (Lausanne), vol. 8, 1992.

23. Such a question requires a better understanding of the role that drawing in figuration plays for the architect. The reader can consult the following on the subject:J.-C. Lehabar, Le dessin d'architecte, Marseille, Parenthèses, 1983; P. Boudon and F. Pousin, Figures de la conception architecturale, Dunod, 1986; a series of works subsequently undertaken by North Americans on this subject and which M. Conan has conveniently inventoried, op. cit.

24. Let us note that the opposition between project and conception on which the authors insist becomes somewhat blurred if one were to ask whether the idea of conception is not closely related to the idea of "project". Isn't then the foundational figure an instance, however singular, that is nevertheless an instance of the project? But we distinguish the above opposition from the question of the initiating of conception.

25. Cf. H. Simon, op. cit.

26. R. Prost, Conception architecturale, une investigation méthodologique, op. cit.

27. Today the question is up for debate if we consider the teaching of architecture. There would be reason to have great concern over the capacity for an education in architecture that is "focused on the project", as it is requested, to fulfill the function of teaching efficiently. Mistrust of the capacity of the project to produce its own knowledge does not prevent us, inversely, from envisaging that knowledge of conception and its processes will lead to an alternative training for the project. See R. Hoddé's paper, Apprivoiser la complexité:de la connaissance des processus de conception à l'apprentissage du projet (Taming complexity: from the knowledge of the processes of conception to the apprenticeship of the project) the title of which is indicative of the objective to improve education on design through the advancement of knowledge.

28. In this connection, the distinction introduced by architecturology between the conceived object and the conception of the object explains the need for a displacement from the architectural space towards the space of conception imposing itself.

29. It is true that archtiecturology's hypothesis establishing as an object of knowledge a space of conception that is distinct from the architectural space (space that it has in modelling in the meantime) transforms the latter into an object of knowledge also. This does not exclude the possibility of taking architectural space into consideration. But A. Levy's hypothesis consists of re-integrating the architectural space, originally set aside by architecturology, into the projected object of knowledge.

30. The point of view here is not only different from but also opposed to architecturology's since the latter does not aim at a theory of architecture or even of architectural design. Rather, architecturology focuses on precise questions, such as the question of measurement.

31. This is not denied by the architecturological point of view. But in order to articulate a knowledge of conception effectively into the architectural space, the former would need to have been further developed. The attempt to do so seems premature to us.

32. It should be noted that the author insists vigorously on the need not to confuse generativity and genesis which is taken to mean "continuous linear development".

33. The descending methods proceed through successive refinements and the breaking of problems into sub-problems down to elementary operations; the ascending patterns proceed through building of new systems originating from a combination of pre-defined elements.

34. On this subject the authors make an important remark on the present state of experimentation: as a place for experimentation the field of knowledge of archtitecture can always rely at worst on education.

35. Let us note carefully that the author does not refer to "architectural object".

36. Thus, M. Conan writes: "Architectural design perhaps offers a priviledged area for establishing links between specialists in the social sciences and specialists in the science of the artificial. In any case, the latter will need to rely on the refined description on the process of architectural conception. But such a connection requires that a basic knowledge of it be developed, combined with the corresponding language that will allow for its description. Such is the aim of architecturology", in Architecture et comportement (Lausanne) Vol. 5, N° 3, 1989. (Translator's note: Philippe Boudon has agreed to my use of "design" at the beginning of this paragraph and "conception" at the end. According to him, the above

ambivalence indicates what is at stake for scientific research as regards the underlying proximity and difference between these two terms ; the same would apply to the terms "projet", "projettazione", and "projetation" as well as "drawing" and "intention".

37. Ibid

38. Even when they proceed from a conjunction of events.

39. The underlying influence of Hjelmslev should probably be taken into account to explain this folding back of the system over the process.

40. For a critique of the process of conception understood as a linear progression from the imprecise to the precise, see: F. Schatz, S Fiszer. "Histoires et mesures de projets", in De l'architecture à l'épistemologie, la question de l'échelle (under the direction of P. Boudon) Paris, PUF, 1991.

41. I myself had referred to a possible parallel with geometric orders as a possible model for representation of a process for architectural conception at a time where the objective was to suggest possible pathways for interrogation in architecturology. But it's been a long time since the latter abandoned the idea of a comprehensive representation of the process and opted for the investigation of local operations.

42. The distinction between project and conception involves work that cannot be summarized in a few lines. Kindly see my article "Conception et projet" in the work L'Architecte et le philosophe under the direction of Antonia Soulez, Bruselles, Mardaga, 1993.