

Towards a Disciplinary Identity of the *Making* Professions
The Oslo Millennium Reader

Oslo School of Architecture

Halina **Dunin-Woyseth** and Jan **Michl**, eds.

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Towards a disciplinary identity of the *making* professions.

An introduction

By Halina **Dunin-Woyseth** and Jan **Michl**

The articles collected in this Reader deal with the issue of knowledge in the so-called making professions. We choose to apply the term *making* professions to the fields of art production, object design, industrial design, architecture, landscape architecture, urban design and spatial planning.¹ The subject matters of these fields of professional expertise represent a remarkable variety and volume of artefacts and man-made environments surrounding us in our daily lives.

¹ Most of these fields could be encompassed also by another term, that from the nomenclature of the Norwegian Ministry of Higher Education, Research and Church Affairs, namely by the term "practical-aesthetic professions". The international community of professions, ACE (Architects' Council of Europe), however, recognises already the common grounds of the *making* professions, as reflected in a recent Research document of the Association of Swedish Architects (cf. SAR's *Forskningspolicy* 1999).

To distinguish the kind of knowledge with which the *making* professions are concerned, we shall employ the term *making knowledge*. This is a term related to the established distinction introduced by Gilbert Ryle, between *knowing how* and *knowing that*, and belongs obviously to the broader category of the *knowledge-how* (Ryle, 1945-46). And just as the field of the contrasting *knowledge-that* has been maintained by the established academic disciplines, we submit that there is a case for sustaining and maintaining the field of *knowledge-how*, or *making knowledge*, through a discipline of its own, a *making discipline*.

In order to develop such a *making* discipline, the *making* knowledge has to achieve disciplinary viability. It has to comply with demands of two worlds: in addition to the world of its own profession, it has to abide by the rules of the academic world. While the main criterion of viability in the former world is its relevance to the practice of the professions, in the latter it is the ability to fulfil the criteria of science, the meeting of which constitutes disciplinary knowledge.

Ideas about disciplinarily viable design knowledge have been earlier considered by several scholars. Already in 1969 Herbert A. Simon introduced the concept of “the science of design” in his seminal book *The Sciences of the Artificial*. To the science disciplines, exploring natural things, he opposed the science of design dealing with “...artificial things, how to make artefacts, that have desired properties, and how to design” (Simon, 1969:55). Here the emergence of the concepts of “knowledge-how” and “the science of design” can be seen as a beginning of a process leading towards a disciplinary construction of *making* knowledge.

In the well-established discipline of art history the man-made environment of artefacts is approached within a broad “spoon-to-city” spectrum. Among

art historians E. H. Gombrich has been perhaps the one most preoccupied with the question of skill as a missing aspect in this discipline: he believes that the focus of academic inquiry should be placed on the craft of art, i.e. on what in the taxonomy of this article we would call its “making” aspects (Gombrich, 1991:68). Gombrich refers to the 16th century Italian art historian Giorgio Vasari who provided such focused knowledge and made the growth of representational skills the standard account of the development of Italian art from the thirteenth to the fifteenth century. This craft approach to art, however, ceased to play the central role after the Romantic period. Gombrich has gone so far as to claim that “we do not yet have a history of art worthy of its name”, and argues that the missing “technological approach”, or the “craft aspect” of the academic inquiry, has to be restored in order to secure this inquiry a renewed viability (Gombrich, 1991:68; Gombrich, 1993:177; see also Abrams, 1989).

During the last ten years there have been ongoing debates on the importance of the “craft aspect”, or the “making aspect”, as a core focus of the design-related research addressed by designers *qua makers* of design. It is these debates to which the title of this introduction refers. At the Scandinavian schools of architecture and design, research education has played a role as a forum for such debates. Questions have been posed and some answers formulated as to the character and content of *making knowledge* (cf. Dunin-Woyseth, 1996). Last year’s issue of the *Nordic Journal of Architectural Research* (No.1-2, 2000) is especially representative of the Scandinavian discussion.

In this issue Björn Linn argues, for example, that the present model of research education in Sweden is inadequate for the task of bringing out new, full-fledged researchers. He describes the existing model as strongly efficiency-oriented, the priority objective being the highest possible degree

of completion in doctoral studies. Linn calls for a new model where, on the one hand, one would train young researchers in independent and critical thinking, in an ability to formulate relevant questions, and, on the other, where one would offer them an “academic breeding environment”, helpful in forming an awareness of their academic identity, and of their professional and academic knowledge base (Linn, 2000: 93). We can regard this criticism as a call for a proper balance in research education between the “breeding role” and the practical benefit role of knowledge, i.e. between what are known as the Aristotelian and the Baconian modes of legitimisation of knowledge.

Seen from the perspective of the two proposed criteria for disciplinary viability of *making* knowledge, those of professional relevance and scientific status, what could then be regarded as the groundwork for this kind of knowledge?

In the same issue, two other scholars, Claes Caldenby (Caldenby, 2000) and Bobo Hjort (Hjort, 2000:110), regard architectural criticism as a central element in the process of establishing architectural research as an academic discipline. They assume that criticism, being a bridge-builder between architectural practice on the one hand, and the practice-derived and practice-oriented architectural discourse on the other, is a part of, and strengthens, the professional relevance of this discourse. This assumption, seen from a point of view of a practitioner, seems already to be a part and parcel of the intellectual identity of practising architects, as witnessed by the US architect Bill Hubbard, Jr., who sees criticism and history as two spheres, shaping the professional identity of architects. In his words “...the practice of architectural design works like this: Criticism and history thread narrative lines through buildings and their various aspects. Those narratives reveal to us paradigms of order which we then use in our design giving to criticism

and history yet other buildings through which they can thread yet other plot lines. And when they do, they will reveal yet more (or differently seen) paradigms of order for yet further use” (Hubbard Jr., 1996:98). The British architect Leslie Martin emphasises the role of theory in the total account of *making* knowledge in this way: “Theory is the body of principles that explains and interrelates all the facts of a subject.” (Gromark, 2000:102)

Jerker Lundequist commented on this triadic concept of design knowledge convincingly when he wrote that “...architecture is a profession which can manage historically determined social and cultural values, i.e. which has the ability to promote and defend these values ... this constitutes the most important task for the architects - they must be able to assess this historical dimension and develop it. The reason for this is that the only way to correctly manage the aesthetic and ethical questions of judgement which are at the centre of all theory and practice of architecture must be based on a deep familiarity with the knowledge of experience which has been accumulated over a long time through the practice of architecture. Only in this way is it possible for architects to assert that there is a field in which they are more skilled than others. -- If architecture loses its historical dimension, we also lose the ability to assess it, and our ability to develop it. And it is this historical dimension, that the built environment *is* the history which we live in, which gives the theory and practice of architecture its specific conditions” (Lundequist, 1999:37-8).

In the Anglo-Saxon education system, the knowledge base in design professions appears to be rooted in the triadic concept of History, Theory and Criticism. Many dozens of courses at undergraduate and graduate levels, some at the doctoral level, have been offered, based on this concept (Bizios, 1991, 1994, 1998; Buchanan et al., 1998). It seems that this triadic concept of knowledge could be used in our part of Europe as a possible cornerstone

of designers' knowledge base, meeting in this way the criterion of professional relevance to *making* knowledge.

The other criterion of disciplinary validity of knowledge is, as mentioned before, the compliance with the demands of scientific quality. In order to do so, we find it useful to introduce Matthias Kaiser's classification of knowledge (Kaiser, 2000: 152-169). He discusses four types of knowledge: *scientific expert knowledge*, *folk knowledge*, *tacit knowledge* and *practical skills*, while rejecting the concept of common sense as a possible source of knowledge.

Scientific expert knowledge is made up of two elements: certain general demands of scientific method on the one hand and a certain social organisation of the scientific community on the other. With regard to the latter, Kaiser refers to basic norms of the scientific ethos as they were characterised by Robert K. Merton in 1942: communism (meaning common ownership of scientific knowledge), universalism (meaning the inclusion of all knowledge producers, regardless of origin, age, colour, sex etc.), disinterestedness (meaning absence of bias with regard to special non-academic interests or values), organised scepticism (meaning the systematic and critical inquiry into all knowledge claims), and finally originality (meaning the demand for novelty with regard to scientific insights). The demands of scientific method are characterised as the attempt to inter-subjectively establish systematically organised knowledge claims on the basis of explicit arguments, based on empirical data, and without reference to alleged absolute truths. Science is thus the socially organised production of scientific knowledge (Kaiser, *ibid.* 156).

Folk knowledge is characterised as a set of beliefs that emerge in a given local and situational environment, based on personal experiences, and

specific to groups with relatively homogenous interests and lifestyles. They are transmitted by tradition and personal contacts, with the informant's reliability and credibility as the critical threshold for acceptance.

Practical skills are introduced with reference to Dreyfus and Dreyfus' model of stages of practical expertise (*Mind over Machine*, 1986). They are defined as the trained / learned ability to master practical tasks. Typically the mastery of such skills involves elements of intuition and rests only rudimentarily on articulated analysis and conscious following of rules. Skilful acts appear mostly automatic when one truly masters the task at hand.

Tacit knowledge, finally, describes the non-articulated horizon of beliefs that every agent carries with him, without being aware that one has them. They form the suppressed background for understanding and acting that can be elicited in certain conflicts between reality and agent's beliefs. These sets of beliefs comprise both elements of personal experience and learning, and culturally transmitted conceptual schemes.

According to Kaiser, all four sources of knowledge share a basic commitment to the ability to justify beliefs through reasons, even though the way this is or can be done varies. Common sense, though often taken to be a special source of knowledge, is rejected by Kaiser because the concept postulates a non-justifiable basis for insight.

We can agree that all these kinds of knowledge can be recognised in the whole body of "*making* knowledge". The challenge is to transform it, or parts of it, to a mode which would acquire the status of a scientific discipline.

The concept of an academic discipline is not as straightforward as the general public assumes it to be. Its status depends upon many factors, such as a community of interest, a network of communications, a tradition, a particular set of values and beliefs, a domain, a mode of inquiry, and a conceptual structure. Some authors focus on epistemological aspects, describing disciplines as “characterised by its own body of concepts, methods and fundamental aims” (Becher, 1989:20). Others define them unquestionably as organised social groupings. The majority of commentators give the same emphasis to both aspects, maintaining that knowledge and social organisation are equally important and interdependent.

As with most of the other so-called vocational professions, the *making* professions can hardly be ascribed a status of an academic discipline as they stand. We wish to suggest, however, that these professions are on their way to establishing such a status. As the history of science shows, scientific status is not a static phenomenon; it is rather something which is won. Certain domains of knowledge achieved such a status earlier than others. The consolidation of what today are called the social sciences and the humanities as academic disciplines took place only at the end of the 19th century. As Stein Haugom Olsen writes, at that time “...a network of norms developed defining the logic of the discipline, standards for evidence, standards for valid argument, etc. (...) There were similar developments in areas that resulted in the definition and professionalization in a range of social sciences and also in aesthetic disciplines such as literary studies and art history.” (Olsen, 1996:19). Trying and failing, and trying again is obviously the way to go in order to establish a *making discipline*. There is a growing perception in the Scandinavian, as well as European and American design education circles that such a continuous process is necessary, and unavoidable (Frayling, 1993-94; Buchanan et al., 1998; Frayling et al., 1998, Durling and Friedman, 2000; Katainen and Aura, 2000:114). The making

professions can build their knowledge base up to a level of an academic discipline only through establishing a tradition of relevant discourse, i.e. through the process of repeated critical discussions and debates about central issues, a process that would develop the standards of quality Olsen mentions. One could ask why the design professions should attempt to develop a disciplinary level of a professional discourse. In arguing for such a development we do not attempt to claim superiority of disciplinary knowledge over other kinds of knowledge, described above by Kaiser, in the context of the *making* professions. We are, nevertheless, aware of the potential of the *making discipline* as a platform for communication, and fruitful dialogue, with the already established fields of disciplinary knowledge. We believe that by developing the disciplinary kind of *making* knowledge, accessible to other disciplines with their inherent tradition of organised scepticism, and of ongoing criticism within an inter-subjective discourse, the disciplinarily constructed *making* knowledge would provide for a more informed and knowledgeable practice which is in great demand in a time of change such as ours. Further, we believe that a fully developed *making discipline* could be of crucial importance to design education. At the level of the vocational studies such a discipline could help students to learn to be critical of their own knowledge and normative stance (as pointed out by Barrie Needham in the present volume; cf. also Michl, 1995). That would be also true at the level of research education. Further, a *making discipline* could at this level create grounds for an academic identity and thus encourage young researchers to address both disciplinary and trans-disciplinary issues. In this endeavour to contribute to the process of developing a disciplinary *making* knowledge, i.e. a *making* discipline, we join a growing community of similarly minded colleagues (Piotrowski and Robinson, 2001).

In one of his recent publications a Swedish scholar, Ulf Sandström, ‘mapped’ two parallel, and at the same time opposite, tendencies in all government-funded, or “sector”, research, where also architecture and spatial planning belong (Sandström, 2001). One of the tendencies in profession-related research, according to Sandström, moves towards academization of knowledge in the direction of what is usually called monodisciplinarity. This tendency seems to be of international character, as recent conferences and papers suggest (Durling and Friedman, 2000; Friedman, 2000). The other one is oriented towards solving problems derived from life-world situations, thus joining the development in knowledge production, which recent literature often calls transdisciplinary (Klein et al., 2001:7). Sandström’s claim is that both architecture and spatial planning need further monodisciplinary development, even if there will be a stronger growing demand for transdisciplinary problem-solving research in the time to come. We believe that the concept of a *making discipline* can be useful both in the development of monodisciplinarity, as well as in the opposite development, though here probably only in an indirect manner.

Some scholars have asked whether the potential *making* discipline could benefit, apart from the *making* professions alone, also to the established “knowing-that” professions, i.e. the traditional academic disciplines. Ranulf Glanville, one of those believing in the wider benefit of *making* disciplines, put it recently in this manner: “Design is the key to research. Research has to be designed. Considering design carefully (making theory from or even researching it) can reveal how better to act, do research – to design research: as a way of understanding, acting, looking, and searching. And research is a design act. Perhaps that is why it is beautiful.” (Glanville, 1999:90)

* * *

The six texts that create the main body of this volume are intended to shed some light on the subject of an emerging *making* discipline. Five of them are based on lectures presented by invited European and North American scholars. Their lecture series constituted the 1998 doctoral course, arranged by the Oslo School of Architecture under the title “Towards a disciplinary identity of the making professions”. The curriculum was built on the triadic concept of History, Theory, and Criticism. The doctoral students that attended the course represent a broad “spoon-to-city” spectrum of the *making* professions, including designers, architects, as well as urban planners. The sixth author, Michael Astroh, was especially invited to contribute to the volume in order to present an example of how the subject matter of architecture can be seen from the perspective of a scholar who does not himself belong to the vocational field.

As to the order of appearance the text follows the logic of spoon-to-city scale starting from the object design, through architecture and closing with the large scale of the built environment. The intention was to illustrate the process of developing a new discourse tradition in the *making* professions, where the *making* knowledge is being tested as a would-be discipline with its maturing standards of academic professionalism as proposed by Becher, Kaiser and Olsen. Each of the texts included in the present volume is briefly introduced below.

Since we are in the course of development of a *making* discipline, three other texts are included in this volume to illustrate this process. These are summaries of two doctoral theses, one by Thorleif SKJØNSBERG, and the other by Elisabeth TOSTRUP, completed at the Oslo School of Architecture in 1996, and among the first dissertations delivered at the institution. The third one summarizes a dissertation by Bjørn SANDAKER, who received his doctorate in 2000. They represent a *making discipline in the making*, so to

speak, and can be studied both for their subject matter proper, and as an example of the evolving scholarly standards of a young discipline.

* * *

Jonathan WOODHAM presents a story of how a new field of inquiry, Design History, has developed to the status of an academic discipline in Great Britain over the last quarter of the century. He discusses, on the one hand, how internal, disciplinary demands have influenced this development, and, on the other, how external, social, economic and institutional circumstances have affected this process. The text describes the process of academic differentiation of Design History from traditional Art History, with its emphases on artists, styles, periods, iconography and connoisseurship, towards a more radical and inclusive agenda, including popular culture and ephemeral styling, advertising and consumption, or the study of the anonymous and everyday. The protagonists of the new field of studies understood the need to develop a new perspective, different from that of the parent discipline, Art History. As the university sector looked down upon this new, emerging field of studies, there was a need to define and defend the potential subject boundaries of this field in order to position it on the agenda for incorporation as a legitimate academic discipline in the higher education system.

Woodham talks about a group of people, who started from a small and scattered community of like-minded polemical practitioners and theorists, who over time developed an autonomous disciplinary identity and academic acknowledgement. In this process he recognizes some crucial milestones which have been indispensable for achieving the present status of Design History. Among those he mentions: development of higher education curricula which both produce and test new knowledge; securing of academic

standards through on-going debates in peer-reviewed journals and yearly conferences; internationalisation of the debates and, finally, positive, dynamic response to the potentials of IT in knowledge production, diffusion and education.

The concept of design set forth in Michael ASTROH'S contribution offers a philosophical assessment of architecture's proper relevance for human forms of life. Due to the concept's origin in traditional rhetorics, design is often understood in terms of purposeful disposition. Architecture's universal structure, however, requires a more comprehensive understanding of its design. Astroh's account of design relates the formal as well as material constituents of a built environment as presupposed in human interaction. In this way architecture's structural, but likewise political and, finally, existential impacts on human culture present themselves in a uniform way. Theories of architecture that concentrate either on its formal set-up or on its human relevance thus have to be conceived of as genuinely complementary endeavours.

The contribution represents a view on architectural subject matter as conceived of by a representative of another, traditional knowledge discipline, i.e. philosophy. That perspective can thus be regarded as "from outside", as opposed to the perspectives represented by other authors who are "makers" themselves, offering a perspective "from within" of the subject matter of architecture or design.

Louise PELLETIER introduces Johann Heinrich Lambert (1728-1777), the author of the perspective theory. His concept of perspective as natural perception became the basis of a common understanding of visual perception in the eighteenth century. Once the perspective was assumed to be natural, it became identical to the visual appearance of things, thus collapsing the space

of interpretation between the image of the world and the world itself. Later on attempts have been made to reintroduce the poetic structure of the world. Some painters and architects developed new ways of fragmenting the linearity of perspective. The author argues that representation is never a neutral tool or mere picture of a future building. The tools of representation have a direct impact on the conceptual development of projects. She calls for a search for alternatives to the reductive working methods of common contemporary practice.

So Pelletier discusses core problems of architectural discourse, those concerning the creation of architecture, those of the “making process”, its modus operandi and its consequences. She does it by studying, in a historical context, an encounter between architectural “know-how”, its modes of representation, and another type of knowledge, a “know-that” of a scientific discipline. Further, she points out the consequences of this encounter both with regard to the posterior “know-how” of architects and to the architectural output of this modus operandi, i.e. architecture itself.

John MCKEAN’S work is in the study of architecture of urban places, of designers and of individual buildings. Rigorous study of architecture entails in his view either criticism or historical study. He refrains from calling such study research, but agrees that it demands, as any good research does, rigour, revelation, relevance and return. In his text McKean discusses some studies from his earlier and more recent practice in historical studies and architectural criticism. He quotes several prominent scholars who reviewed these works at the time of their publication, praising them as “holistic” (as opposed to nomothetic), “insight-bringing”, and “a model for students and research workers”. McKean discusses his own working process which led to these successful results. First, he emphasises the importance of being self-conscious in one’s studies, i.e. of clarifying the principles of one’s

prejudging. He points out that this is the way to facilitate a qualified, critical discussion of the references used, the argumentation applied and the results achieved.

He “blurs” history and criticism as a necessary attitude while studying works of our own time, while looking for the meaning which migrates with time and memories. A “more difficult, coherent world view” is called for while studying such objects. Only then can a study be grounded in the reality of its social and material formation. He closes his text by quoting Hillier who claims that “the important things to be discovered, understood and theorised about, are the relations between the social background of the design, the final form of the buildings and the social effects of both”.

McKean gives the reader a view of an academic career, devoted to studies of architecture from a broad and from a close perspective. He offers texts which are rigorous but highly accessible and elegant and which clarify at the outset the “rules of the game” and are thus open to informed response. By quoting the views of some prominent scholars on his own works, McKean not only presents quality standards in the field of historical studies and architectural criticism, but he also shares with the reader the criticism of the criticism.

Pier Giorgio GEROSA describes the process of formation of cognitive theories on the city as an artefact. He points out that the issue of non-prescriptive knowledge about the city becomes actual only with the Enlightenment and the autonomisation of the cognitive processes. Around the middle of the XIX century, a new discipline evolved: urbanism. It had the ambition of being, on the one hand, scientific, and, on the other, an instrument of control in the formation of growing cities. Two schools of thought competed for hegemony: that of German urban planners

(Baumeister, Stubben) and their counterparts from Spain, England and Austria (Cerdá, Geddes, Sitte).

After the First World War, the approach to the city found its point of departure in architecture which was seen in its spatial post-perspective conception and based on the poetics of experimental aesthetics. The new architecture was supposed to be morally and socially “correct” and brought about by scientific methods. The philosophical foundations of professional reflection changed to neopositivist reductionism (Italian Futurism, Russian Constructivism, the CIAM movement). After the Second World War two approaches evolved. The city as a whole, i.e. as an artefact and as form, represented the typological approach to the city. Saverio Muratori and his Italian school are representative of this approach. Their practical and theoretical works prepared the base for the making of the city and for the leading theory. The overarching concept was that of a cyclical character of urban development and of the inclusion of earlier artefacts into the new cycle. Another approach has developed simultaneously to the typological one. It assumed the existence of timeless elements in the city, and thus represented another attitude to the issue of temporality. Two schools have followed this line: one, from an analytical and the other from a phenomenological point of departure. In architecture Ch. Alexander and Ch. Norberg-Schulz; in urbanism K. Lynch and M. Webber have made the most substantial contributions to this approach.

A new, more complex approach to the city is emerging: the city is not an object, but a palimpsest, composed of artefacts with a certain character produced by elements of different form, more or less stable, elements with different meanings and with different temporal duration.

Barrie NEEDHAM looks at spatial planning as a “making” (“designing”) activity and as an academic discipline. While doing so, he leans on the concept of the paradigm of design disciplines (as developed by van Aken). In his article he “tests” whether spatial planning is such a discipline.

The *activity of spatial planning* is spatial disposition of activities, buildings and spaces. Spatial planning is different from other design disciplines (as architecture, industrial design etc.) in that its agencies are usually not able to implement the chosen policy. Spatial planning should be rather regarded as a “designer of policies” for realisation of a desired disposition of activities, buildings and spaces.

The “*planning subject*” is a public body which takes responsibility for trying to ensure that the spatial disposition in a specified geographical area meets certain objectives. Most planning subjects have very few possibilities for changing the spatial disposition directly. The achievement of their goals is dependent on the *actions* of others. The planning subject chooses the measures for changing the spatial disposition after considering the goals to be achieved, the *means* available for achieving them, the probable effects of and the context within which the measures are to be taken.

Needham works out the paradigm of spatial planning as a design discipline with the aim of improving the way that practitioners carry it out. He points out that this is the same as working out a methodology of spatial planning, methodology being, according to Faludi, the theoretical basis for the choice and application of methods.

Further in the text, the author discusses some implications for education in spatial planning, provided the paradigm of spatial planning as a design discipline is chosen as dominant for spatial planning. He defines a set of

primary activities under spatial planning and then pinpoints different types of knowledge (at the abstract level of theories, at the concrete level of “this was tried out in practice and the results were...”, knowledge acquired directly from practice) and skills for those primary activities. As a design discipline spatial planning needs specific educational measures. These are not limited to developing the traditional design skills of making land-use plans but also encompass the skills for designing spatial policies in other forms. It is not sufficient that planning students acquire knowledge solely in order to apply it in practice, and learn skills as an apprentice does under a (studio) master. The requirements of academic thinking and normative reflection can be met if planning education is given in such a way that the student learns how to be critical – about the knowledge, about the skills and about the goals. Also, the students should learn to be critical of his / her own knowledge and normative stance.

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Design history from a British perspective

By Jonathan M **Woodham**

I am delighted and honoured to have been invited to contribute to the Oslo Millennium Reader as it provides me with an opportunity to reflect on the achievements of the discipline of design history in Britain over the past twenty-five years, a quarter of a century in which the subject has been recognised as a field of study in its own right, with programmes of study ranging from undergraduate to doctoral level. Current [i.e. 1999] state-fuelled preoccupations with the 'rebranding' of Britain as a forward-looking country charged with creative energy in the visual and performing arts, the promotion of so-called Millennial Products by the Design Council in Britain, the fashionability of museum and exhibition culture as reflected in the mass-media, together with the nurturing of the cult of design and architectural personalities, cities, buildings and products, have collectively done much to cast tradition, heritage and history in the shade. Sustained by such aesthetic élitism, design history - or what passed for it, particularly in the earlier stages of its emergence as a significant element in the academic curriculum - has too often been cast as a handmaiden to style history, the 'creative

individual' and the fashionably-branded product. I too have been affected by such perceptions of the subject, as in the production of my own text *Twentieth Century Design* in 1997¹: rather than reflect my desire to move the emphasis of the subject away from the celebration of the iconic in favour of such notions as the everyday, as exemplified by the genuinely popular, mass-consumed artefact, the mail-order catalogue or socially-responsible product, the publishers, in their choice of cover illustration, insisted on a detail of the *Paimio* armchair of 1931/2 by Alvar Aalto.

DESIGN HISTORICAL AUTONOMY IN THE HIGHER EDUCATION CURRICULUM

In this essay I will examine the emergence of the discipline of the history of design from a largely British perspective, attempting to trace the subject from its origins as a free-standing academic discipline at degree level in Britain in the early 1970s through to its present position at the threshold of the twenty-first century.² It was considered important by those setting out to legitimise the field of design history as a significant field of academic study to differentiate it clearly from what were still then prevalent traditional art historical emphases on artist, style, period, iconography and connoisseurship. Previously, such preoccupations had tended to dominate the majority of art history degree courses in Britain which, in the 1960s and 1970s, were located in what later became known as the 'old universities', seats of learning where many of the emergent new and younger breed of design historians had studied. Design history, unlike art history, had its main roots in the newly-established polytechnic institutions, formed in the late

¹ Woodham, J M, *Twentieth Century Design*, Oxford: Oxford University Press, 1997

² I last wrote about this area in *Design Issues*, Spring, 1995, pp. 22-37. Entitled 'Resisting Colonization: Design History Has Its Own Identity', my article was written as a somewhat barbed reaction to an earlier article by Victor Margolin (see note 3, below), also reprinted in the Spring 1995 *Design Issues* volume which was devoted to discussion about the nature and role of design history. The invitation to contribute to this Millennial volume, together with an invitation to contribute a keynote address on British design history research to the first Spanish design history colloquium in Barcelona in April 1999, has allowed for a more reflective appraisal of the standing of the subject. I am very grateful to Jan Michl for allowing me this opportunity.

1960s and 1970s from amalgamations of colleges of art and design, education and technology, and sought to assume what then seemed to be a more radical and inclusive agenda: an embrace of such concerns as popular culture and ephemeral styling, advertising and consumption, or the study of the anonymous and everyday, all of which were far removed the cultural élitism often associated with art historical studies. At that time, the idea of a new field of study - design history - was rather looked down upon by the university sector and the major museums establishment (and was also, perhaps, in some ways loosely tainted the curriculum shifts engendered in the light of the student revolutions of the late 1960s). As a result, there seemed to be a real need to defend and define the potential subject boundaries of this new field of design history in order to place it on the agenda for incorporation as a legitimate academic discipline in the higher education sector.

In the mid 1970s considerable energies were also expended in attempting to provide a singular working definition for what was felt to be encompassed by design history. Now, approaching the Millennium, with a range of specialist undergraduate degree and postgraduate degree-level studies in the history of design almost 25 years old, a Design History Society established for 22 years and a *Journal of Design History*, published by Oxford University Press and now in its twelfth year of existence, there are many different inflections to the history of design in Britain: the recognition of its potential relationship to such fields as social anthropology and studies in material culture, gender issues, social and cultural history and theory, business and economics, industry and politics. Some may argue that this represents a position of uncertainty and the lack of a clear identity and agenda; I see such relationships as central to many areas of design-historical debate, pregnant with possibilities and potential influence across a wide academic spectrum.

THE FRAMEWORK FOR STUDIES IN THE HISTORY OF DESIGN IN BRITAIN

In order to understand the genesis of the history of design in Britain it is necessary to set it against a background of significant change in the pattern of British art and design education.³ Following the publication of the 1960 Report by the National Advisory Council on Art Education (the Coldstream Report)⁴, from 1963 onwards all art and design diploma⁵ students in Britain had to devote a significant percentage (up to 20%) of their total curriculum hours to studies in art history. Such injections of academic content were intended to remove practical studies in art and design from the supposed stigma of vocationalism and, through the addition of an apparent intellectual underpinning, endow them with university-level status for professional and salary purposes.

The content of such ‘art historical’ studies proved highly problematic for lecturers and design students alike; unsurprisingly the latter, at a particularly vibrant period of social and cultural change in the latter half of the 1960s, became increasingly interested in exploring many aspects of popular and contemporary culture. Not unnaturally, their inclinations lay in exploring territories other than that offered by the more traditional domain of art history and its generally conservative methodology, often still rooted in the study of the avant-garde, the work of ‘significant’ individuals, style, movements and periods.

Nonetheless, in the field of design history an essentially modernist ethos prevailed and Nikolaus Pevsner’s *Pioneers of Modern Design*, first

³ This line of enquiry is given further legitimacy since Victor Margolin, one of the co-editors of the American periodical *Design Issues* and highly critical of what he saw in 1992 as the limited achievements of design history ‘as a solid field of academic study’ sought to position design history as a discipline which contrasted significantly with the history of art since the latter had a distinct identity within academia that is independent of its relations to practice.

⁴ This was further reinforced by the 1970 Report on *The Structure of Art and Design Education in the Further Education Sector*

⁵ Diploma courses were later replaced by degrees.

published as *Pioneers of the Modern Movement* in 1936, became a widely adopted text at this early stage of the discipline's development in Britain. Blending art and architectural historical methods there was an emphasis on individual designers, personal creativity, styles and movements together with an implicit critique of the mass-consumption and of visual encyclopaedism in the Victorian era. The fact that Pevsner's book had earlier undergone a radical change in appearance in its second edition of 1949 through collaboration with the Museum of Modern Art in New York further underlined its particular aesthetic alignment and also charged it, by inference at least, with an openly modernist position. Following further revisions in 1960, the fact it underwent a considerable number of reprints in the 1970s endorses its significance in this context.⁶

Many British design students studying for their Diploma in Art & Design were also working in very particular fields of design, such as fashion, graphics, interiors or industrial design. Nonetheless, historical research centred upon the particular specialisms which students were following (such as jewellery, illustration, industrial design or fashion and textiles) which at first sight might have seemed to offer a way forward, was too often preoccupied by the art historical demands of connoisseurship or the exigencies of conservative museology. Such scholarship offered limited assistance to those seeking to explore fresh insights into their disciplines - historically and methodologically.

Following the expansion of higher education in Britain in the decade following the election of Harold Wilson's Labour Government in 1964 a new type of degree-awarding institution came into being - the polytechnic -

⁶ Pevsner also published another text, based on similar premises, for the Thames & Hudson World of Art series: *The Sources of Modern Architecture and Design*, London : Thames and Hudson, 1968

and it was here that the history of design saw its most significant developments. However, as indicated earlier, such institutions were formed from the amalgamation of previously free-standing colleges of art and design, colleges of technology and colleges of education and were felt, in general terms, to offer students more vocationally-oriented and occasionally rather more radical, programmes of study. They were viewed by the educational establishment as poor versions of their university counterparts, a view also echoed by significantly less favourable funding from central government and further reinforced by a perceived need for academic policing in the form of the Council for National Academic Awards (CNAA), a body which approved and regularly reviewed courses through peer group review.

Nonetheless, many of the most important British schools of art and design, often with distinguished histories rooted in the expansion of British art and design education from the 1840s onwards, were included within this new polytechnic sector. Many first-rate artists and designers were employed within this sector, as well as a number of writers, critics and historians who embraced a more innovative approach to the study of visual culture than many of their art historical counterparts in the university sector.

THE OPEN UNIVERSITY

The role of the Open University (OU) in stimulating research and studies in the history of design in Britain was, in my view, highly significant. The OU, a pioneer in distance-learning in Britain was established by the UK government by Royal Charter in April 1969 with the express aim of being ‘open as to people, open as to places, open as to methods and open as to ideas’ and commenced its operations in 1971 with a first cohort of students of 250,000. The pedagogic use of contemporary media and technologies were an essential part of its development, with terrestrial television and radio

broadcasts providing important means of dissemination, in addition to specially designed course units.

Centred in the new town of Milton Keynes, the Open University was also committed to the introduction of new teaching and learning media and well-designed multi-media teaching units provided fresh stimuli to degree-level studies in the UK. The history of design, albeit influenced by expertise in architectural and art history, was embraced in such developments and the first incursions into the field were made in the Third Level Course entitled the *History of Architecture and Design 1890-1939* which was launched in 1975. Considerable investment was made in the formation of substantial interdisciplinary Course Teams working together critically on a range of courses and units of study: those involved with the formation of this new course included Stephen Bailey, Tim Benton, Charlotte Benton, Tony Coulson and Lindsay Gordon. Through the use of television and radio, documentary and other film clips, ‘accompanied’ site visits, designers and architects talking about their work at the time and retrospectively, as well as a wide and diverse range of other visual sources such as photographs, books and catalogues could all be brought into the homes of those studying the course, giving the enterprise added life and potency. In addition to dedicated Course Unit books students were supplied with a compendium of documentary source material⁷, another of illustrative material and a radiovision booklet to accompany broadcasts. In addition to more mainstream themes, students could study the heritage of the ordinary in ‘The Semi-Detached House; the Suburban Style’, debates about domestic

⁷ Benton, C (ed.) A A305D, *Documents*, Milton Keynes: Open University, 1975

⁸ Although in the late 1990s it sought to represent the interests of art and design historians in all aspects of the discipline, including art, design, architecture, photography, film and other media, cultural studies, conservation and museum studies, its relationship to the emerging research interests in the field of design history in the mid 1970s seemed rather more ambivalent.

planning in 'The Labour-Saving Home' and other similar themes distanced from progressive cultural trends.

THE DESIGN HISTORY RESEARCH GROUP

In 1974 the Association of Art Historians (AAH) was formed to promote the study of art history.⁸ Seeking to establish an informal design history interest group unfettered by the organisational ambitions of what appeared at the time to represent the interests of the art historical establishment, an informal colloquium of researchers and lecturers was established under the title of the Design History Research Group. The general aim of this Group was to meet occasionally in order to discuss common themes and concerns, often centred around key design exhibitions.

Building on such an initiative, the first free-standing design history conference was mounted at Newcastle Polytechnic (now the University of Northumbria) in 1975, where a significant number of those of us concerned with creating historical and theoretical study programmes for the large numbers of design students in Britain came together. The range of topics presented seemed wide, encompassing such diverse topics as problems inherent in researching German furniture design of the interwar years, American automobile styling of the 1950s, science fiction and popular culture, and design education. These were subsequently published under the title *Design 1900-1960: Studies in Design and Popular Culture of the 20th century*,⁹ and included contributions by key figures such as Reyner Banham, Tim Benton and Adrian Forty. Encouraged by the relative success of the event, the Second Conference of Twentieth Century Design History was held at Middlesex Polytechnic (now Middlesex University) in April 1976 and was focused around the theme *Leisure and Design in the Twentieth Century*.

⁹ Faulkner, T, *Design 1900-1960 : Studies in Design and Popular Culture of the 20th century*, Newcastle upon Tyne: Newcastle Polytechnic, 1975

Amongst the papers delivered (and published¹⁰) were 'The History and Development of Do-It-Yourself', 'Women and Trousers', 'Art and Design as a Sign System', 'Having a Bath - English Domestic Bathrooms' and 'Transportation and Personal Mobility'. Perhaps significant in terms of wider recognition was the fact that the Design Council, the state's design promotion organisation¹¹, published the collected papers of the conference.

THE FORMATION OF THE DESIGN HISTORY SOCIETY

It was at Brighton in 1977 that the Third Annual Conference of Twentieth Century Design History, entitled *Design History - Fad or Function?* was mounted¹². The future of the subject appeared to be relatively rosy for, as Penny Sparke, the editor of the published papers, remarked at the time:

the subject matter of the conference was design history itself, and the approach was a pluralistic one, demonstrating that there are, in fact, many design histories... The interdisciplinary nature of the subject was reflected in the range of lectures, which were in three main sections that focused on turn on the designer, the consumer and the object.¹³

Subsequently, the conference was noted for the fact that it led to the foundation of the Design History Society under its first Chair, Noel Lundgren, with support from its inaugural Secretary, Penny Sparke. Essentially a formalisation of the Design History Research Group, it sought, through the levying of a modest subscription, to further promote meetings and conferences, the production of indexes and bibliographies and, importantly, the production of a *Newsletter* which sought to carry reviews of books, films, archives, collections and activities related to the networking and development of studies in the field.

¹⁰ Design Council, *Leisure and Design in the Twentieth Century*, London: Design Council, 1977

¹¹ Founded under the Board of Trade in 1944. It was renamed the Design Council in 1972 when it took on engineering and the design of capital goods as an integral part of its operations.

¹² Bishop, T (ed.), *Design History: Fad or Function?*, London : Design Council, 1978

¹³ *Ibid.*, Sparke, P, 'Introduction', p.5

THE ESTABLISHMENT OF THE FIRST GENERATION OF DESIGN HISTORY DEGREE COURSES

The first generation of seven free-standing degree courses with a significant emphasis on design history began to emerge at the time of these three pioneering conferences. They were established in Britain between 1975 and 1980, ranging from courses that were intertwined with other areas of academic activity, such as film studies, art and architectural history, and those that were specifically focused on design, as at Manchester and Brighton Polytechnics (the former in conjunction with a limited percentage of practical design studies, the latter in close relationship with social and economic history). It was at this time also that Middlesex Polytechnic framed the first postgraduate course in the field, formulating it around approaches which were to be identified later with what became known as the 'New Art History'.

CRITICAL PERSPECTIVES: *BLOCK* AND OTHER INITIATIVES

However, despite such seemingly auspicious beginnings, searching questions began to be asked by a number of people, including Bridget Wilkins¹⁴, Fran Hannah and Tim Putnam, all lecturers at Middlesex Polytechnic. Hannah and Putnam, writing in *BLOCK* magazine in 1980, felt that, despite much hype to the contrary,

art-conventional notions of design will pass as the substance of the subject while context amounts to eclectic dipping into new fields. Bits of business history, history of technology or social history find their way into an account without consideration of the problems proper to those histories or even the processes by which they have become established as knowledge... Far from being a greener pasture free from the contradictions of art history, design history is in fair danger of becoming an academic backwater.¹⁵

¹⁴ Wilkins, B, 'Design History in Polytechnics and Art Colleges', *Association of Art Historians Bulletin*, 1976

¹⁵ Hannah, F & Putnam, T, 'Taking Stock in Design History', *BLOCK*, no. 3

BLOCK magazine came into being at Middlesex Polytechnic (now Middlesex University) 'as a vehicle of communication with a small and scattered community of like-minded, Marxist and polemical practitioners and theorists... [who were involved with] establishing undergraduate and graduate degrees in art, cultural studies and design history'.¹⁶ It provided a reaction against what appeared to be the restricted cultural horizons of academic art history and provided a particularly potent force in the shaping of design history in Britain at a critical time of debate. Published between 1979 and 1989, *BLOCK* recognised the importance of the history of design as a field of study and research which was more ambitious and inclusive than what too often passed for the essence of the history of design - the social, moral and aesthetic dimensions of Ruskin, Morris and the Arts and Crafts movement, the marriage of avant-garde artistic endeavour and the symbolic endorsement of contemporary technology and new materials at the Bauhaus, and a widespread preoccupation with the ideals of the Modern Movement. *BLOCK* sought to

treat design, like art, as an ideologically encoded commodity, the value and significance of which were dependent on modes of consumption. This approach was in opposition to prevailing notions of design writing which adopted untransformed art historical notions of univocal authorship, inherent meaning and received hierarchies of value. The first priority was to disengage from notions of authorship and the pathetic values of intentionalism, unself-reflexive paradigms which left little room for the complex processes of investment and desire which imbued objects with social and existential meaning.¹⁷

Influences as varied as the Centre for Contemporary Cultural Studies at Birmingham University, the work of Raymond Williams, Pierre Bourdieu and Jean Baudrillard, together with the theoretical concerns of Michael Foucault, Louis Althusser and others all enlivened the often provocative

¹⁶ 'Introduction', *BLOCK Reader in Visual Culture*, London: Routledge, 1996, p. xi

¹⁷ *Ibid.*, pp.132-33

articles in the magazine, many writers for which formed a virtual ‘who’s who’ of emerging and challenging thinkers in the field of visual culture studies.¹⁸

Less radical contemporary alternatives were offered in texts such as John Heskett’s *Industrial Design* (1980)¹⁹ and Adrian Forty’s *Objects of Desire: Design and Society 1750-1980*(1986)²⁰. Nonetheless, the former, although essentially a concise survey of the field and necessarily limited in depth, introduced a number of fresh colours to the design history palette, including themes such as play, learning and leisure and the design of military technology, and also acknowledged that values of design ‘may be based on premises different from those of the designer and producer’²¹. The latter was more direct in its downgrading of the importance of the designer as a principal focus for design historical studies. Forty felt that in many ways the designer was irrelevant to an understanding of an object’s significance, an outlook which led to a certain amount of hostility in the design press when his book was reviewed, particularly since it was published during the ‘Designer Decade’ of the 1980s, a time when the word ‘design’ was applied to everything from automobiles to food and washing powder as a means of enhancing its status for the consumer. Forty felt that the customary celebration of the individual designer was a ‘misunderstanding’ sustained by the media and fuelled in ‘schools of design, where students are able to acquire grandiose illusions about their skills, with the result that they encounter all manner of difficulties in their subsequent careers’²².

¹⁸ Including Jon Bird, Barry Curtis, Tony Fry, Phil Goodall, Dick Hebdige, Griselda Pollock, Adrian Rifkin, Lisa Tickner and John A Walker

¹⁹ Heskett, J, *Industrial Design*, London: Thames & Hudson, 1980

²⁰ Forty, A, *Objects of Desire: Design and Society 1750-1980*, London: Thames & Hudson, 1986

²¹ Heskett, J, op. cit., p.9

²² Forty, A, ‘Lucky Strikes and Other Myths’, *Designer*, London: SIAD, November, 1986. Members of the Society of Artists and Designers (now the Chartered Society of Designers) were among those put out by Forty’s undermining of their importance in the design cycle.

FURTHER POSSIBILITIES: WOMEN'S STUDIES AND MATERIAL CULTURE

During the *BLOCK* decade other critical perspectives in histories of visual culture were also emerging, including the implications of women's studies for design history. The impetus of much of this questioning of the historical status quo derived from the 'New Art History' of the late 1970s and early 1980s, prompted by the publication of texts by emerging scholars such as Griselda Pollock²³ and Anthea Callan.²⁴ In tune with such thinking 'feminist' design historians sought both to shift the agenda away from the priorities of production towards the world of consumption, seen as a more feminine domain for intervention and also to reassert the significance of the crafts as a legitimate field of intellectual enquiry since, as Cheryl Buckley argued in 1986,

craft allowed women an opportunity to express their creative and artistic skills outside of the male-dominated design profession.²⁵

A number of other important texts conceived in similar vein emerged in the latter half of the 1980s, including Judy Attfield and Pat Kirkham's edited collection of essays, *A View from the Interior: Feminism, Women and Design*,²⁶ published by the Women's Press in 1989 and revised in 1995. Attfield also contributed a chapter entitled 'FORM/female FOLLOWS FUNCTION/male: Feminist Critiques of Design' in John A Walker's useful primer entitled *Design History and the History of Design*²⁷. More recently, in her ambitious book *As Long as It's Pink: The Sexual Politics of Taste*, Penny Sparke has examined related issues of gender and design across a

²³ Parker, R & Pollock, G, *Old Mistresses: Women, Art and Ideology*, London: Routledge, 1981

²⁴ Callan, A, *Angel in the Studio: Women in the Arts and Crafts Movement*, London: Astragal, 1979

²⁵ Buckley, C, 'Made in Patriarchy: Towards a Feminist Analysis of Women and Design', *Design Issues*, vol.3, no.2, 1986, p.7

²⁶ Attfield, J & Kirkham, P (eds), *A View from the Interior*, London: Women's Press, 1989 and 1995 (rev. ed.)

²⁷ Walker, John A, *History and the History of Design*, London: Pluto Press, 1989

wide historical period - from 1830 to the 1980s. In the opening chapter she commented that

Until recently cultural theorists have tended to view consumption as a form of manipulation, the commodity out to trap the unsuspecting consumer. The only alternative to this essentially negative account of consumption has been that of anthropologists who have studied it as a form of social ritual, a means of achieving social cohesion. However, their accounts, like those of their fellow social scientists, have underplayed the role of gender. A number of social, economic and cultural historians have addressed consumption as it emerged in the late-nineteenth century with the growth of department stores and mass-retailing. While some have perpetuated the idea that women's role in this was entirely passive, others have offered a more positive view of feminine taste, seeing it as operating outside the value judgements imposed on it by masculine culture. The evocation in these writings of the sensations of pleasure and aesthetic delight go some way towards an understanding of consumption in specifically feminine terms.²⁸

Another comparatively recent text which explored specific case studies was a collection of essays, drawn from across a range of disciplines edited by Pat Kirkham and entitled *The Gendered Object*.²⁹ Seen essentially as a vehicle for stimulating further exploration of issues of gender, design and the gendering of design the short individual contributions addressed, with varying degrees of conviction and ability to convince, such objects as the washing machine, trousers, trainers, ties, children's clothes, toys, guns, bicycles, cosmetics, bicycles and hearing aid. The relationship between gender and technology has also proved a fertile field for research and publication in the 1980s and 90s in the United States and Britain and this

²⁸ Sparke, P, *As Long as it's Pink: The Sexual Politics of Taste*, London: Pandora, 1995, pp.7-8

²⁹ Kirkham, P (ed.), *The Gendered Object*, Manchester: Manchester University Press, 1996

growing corpus of work³⁰ has exerted a significant influence on approaches to design history in the later 1990s.

As indicated earlier, a number of British design historians have acknowledged the significance of studies in material culture and social anthropology as a means of providing an alternative approach to design, one which moves away from the limitations of an emphasis on named designers, periods and movements towards a focus on the consumption of design. Key texts which have been influential include Douglas and Isherwood's *The World of Goods: Towards an Anthropology of Consumption* (1975)³¹, Daniel Miller's *Material Culture and Mass-Consumption* (1987)³² and McCracken's *New Approaches to the Symbolic Character of Consumer Goods and Activities* (1988)³³. A number of younger scholars involved in teaching and researching design history have been influenced by such thinking. These include Alison Clarke who has been completing a volume on *Tupperware and Postwar Consumption*, for the Smithsonian Institution in the United States, as well as published essays on 'Tupperware: Suburbia, Sociality and Mass Consumption' and 'Window Shopping at Home: Classifieds, Catalogues and New Consumer Skills'.³⁴ Material culture studies have also impacted significantly upon the work of historians focusing

³⁰ Such as Cowan, Ruth Schwartz. *More Work for Mother: the Ironies of Household Technology from the Open Hearth to the Microwave*, New York: Basic Books, 1983, Wajcman, J, *Feminism Confronts technology*, Cambridge: Polity, 1991, Silverstone, R (ed.), *Consuming Technologies: Media and Information in Domestic Spaces*, London: Routledge, 1992, de Grazia, V & Furlough, E, *The Sex of Things: Gender and Consumption in Historical Perspective*, Berkeley: University of California Press, 1996 and Terry, J & Calvert, M (eds), *Processed Lives: Gender and Technology*, London: Routledge, 1997

³¹ Douglas, M & Isherwood, B *The World of Goods: Towards an Anthropology of Consumption*, London: Allen Lane, 1975

³² Miller, D, *Material Culture and Mass-Consumption*, Oxford: Blackwell, 1987

³³ McCracken, G, *New Approaches to the Symbolic Character of Consumer Goods and Activities*, Bloomington: Indiana Press, 1988

³⁴ contained respectively in Silverstone, R (ed.), *Visions of Suburbia*, London: Routledge, 1997 and Miller, D (ed.), *Material Cultures: Why Some Things Matter*, London: University College, London, 1998

on earlier periods, as evidenced by such texts as Brewer and Porter's edited collection on *Consumption and the World of Goods*³⁵ (1993).

In 1996 *The Journal of Material Culture* commenced publication³⁶ and took a refreshingly open attitude to disciplinary roots and boundaries - it is perhaps this openness that has proved so attractive to a significant number of design historians. In a recent volume of collected essays, *Material Cultures: Why Some Things Matter*, Daniel Miller remarked on what he saw as 'a general renaissance in the topic of material culture studies', writing that

after several decades in the academic doldrums this has re-emerged as a vanguard area liberating a range of disciplines from museum studies to archaeology. Although there are a large number of volumes and articles which together constitute the evidence for this development in academic interests, there are still relatively few publications that have as their particular concern the nature of material culture or material culture studies. This is in part because the subject does not exist as a given discipline.³⁷

It is not possible to review all material which has impacted upon research in the history of design in Britain, but it would be remiss not to mention the very real shifts that have been taking place in museology over the past ten or fifteen years, whether in innovatory Departments of Museum Studies, such as that at the University of Leicester from whence an impressive body of texts have emanated from prolific scholars such as Susan Pearce, together with the series of *Leicester Readers in Museums Studies*³⁸, or in developmental departments in museums themselves, such as the Research Department at the Victoria & Albert Museum which has done much to

³⁵ Brewer, J & Porter, R (eds), *Consumption and the World of Goods*, London: Routledge, 1993

³⁶ London: Sage Publications, Vol. 1, 1996 -

³⁷ Miller, D (ed), op. cit., p.4

³⁸ published by Routledge, London

reinvigorate thought about collecting, display and exhibitions policy.³⁹ A large collection of titles concerned with the theme of museums and cultural heritage have been published by Routledge since the mid-1990s and have done much to revitalise design-related debates in the wake of the establishment of the Design Museum at Butler's Wharf, London, in 1989. A somewhat empty monument to the belief in the economic power of design so embraced in the Designer Eighties under Mrs Thatcher's Conservative government, the Design Museum set out to offer 'an insight into the role design plays in our everyday lives from the origins of mass production to the present day'. The harsh economic realities of the late 1980s and early 1990s exerted significant constraints upon its outlook and its main display galleries generally underpin an iconic, designer-led design perspective common to other museums in which design is displayed, such as the Museum of Modern Art in New York.

VISUAL RESEARCH AND THE DIGITIZATION OF ARCHIVAL COLLECTIONS IN BRITISH UNIVERSITIES AND INSTITUTIONS OF HIGHER EDUCATION

The need to develop a richer and more comprehensive visual resource base for teaching and researching design and design history had been recognised long before the radical restrictions imposed on institutional slide-making policy by the 1988 Copyright Designs and Patents Act. Despite the mounting in 1993 of a discussion forum on 'Visual Resources for Design' by the Visual Resources Committee of the Art Libraries Society (ARLIS) and the subsequent publication of a report and directory of sources in 1995⁴⁰ little real change came about from this quarter. The identification of many of the key themes being addressed by design historians notwithstanding, there was a lamentation of the general lack of educationally and commercially-

³⁹ Such thinking has been developed through the British Academy-funded University of Brighton Institutional Research Fellowship at the V & A. This six-year post, occupied by Jane Pavitt, is concerned with developing a collecting and display policy for product design at the V & A.

⁴⁰ Godfrey, J & McKeown, R (eds), *Visual Resources for Design*, UK & Ireland: ARLIS, 1995

produced slide material to support their work. However, even in the short period of time that has elapsed since the ARLIS publication the culture of debate has shifted significantly, with the radical expansion of, and accessibility to, digital technology and its means of production.

The Joint Information Systems Committee (JISC) of the UK Higher Education Funding Council was established in order ‘to stimulate and enable the cost effective exploitation of information systems and to provide a high quality national network infrastructure for the UK higher education and research councils communities’. In the latter half of the 1990s JISC’s most relevant project directly related to the perceived lack of accessibility of design historical visual resources has been the establishment of the Image Digitisation Initiative. An ambitious pilot digital archive for the higher education community in Britain, its embrace extends far beyond the remit of design history, but includes selections from the extensive Design Council Archive in the Design History Research Centre at the University of Brighton, the archives at Central Saint Martin’s College of Art & Design, London, the London College of Fashion, the John Johnson Collection of Printed Ephemera at the Bodleian Library at the University of Oxford, and the African and Visual Arts Archive at the University of East London. The overall aim is to build a pool of 30,000 images from fourteen participating university-level institutions and, as an integral part of the process, to disseminate knowledge and best practice in the field, with the application of common standards, effective project management and high levels of quality assurance.⁴¹

⁴¹ I am grateful to the Curator of the Design Council Archive, Dr Catherine Moriarty, for allowing me to read the paper (entitled ‘Some Implications of Digital Resources in British University Collections’) which she presented in february 1999 at the Visual Resources Association Conference in Los Angeles

The Visual Arts Data Service (VADS), located at the Surrey Institute of Art & Design, has been another addition to the British Higher Education scene with relevance to research in the history of design. Under the direction of an Executive Subcommittee, which includes representation from the JISC Image Digitisation Initiative, its published aim is to build an on-line archive of electronic resources created by and of use to the visual arts community, adhering to agreed standards of best practice for the creation, management preservation and access of electronic information. With its own website (<http://vads.ahds.ac.uk/>) it also seeks to provide training workshops and materials and the publication of guides to good practice. Also based at the Surrey Institute and helpful in the securing of relevant 'quality-assured' information has been the Art, Design, Architecture and Media Information Gateway (ADAM).⁴²

Of course, there have been a number of other initiatives utilising information technology which have become an integral part of the research landscape in design history. These include the work of CHArt (Computers and the History of Art), which was established in 1995 by art and design historians with an interest in computers, its membership also including personnel from relevant museums, art galleries, archives and libraries. It has its own web site (<http://www.chart.ac.uk/>), publishes a journal *Computers and the History of Art* and mounts annual conferences.

THE DESIGN HISTORY SOCIETY AND THE *JOURNAL OF DESIGN HISTORY*

Since its inception in 1977, with varying degrees of success, the Design History Society has sought to bring together the design history community both nationally and internationally. Its initial ambitions were modest as the first *Newsletter* of March 1978 testifies. As the Arts & Crafts scholar Alan Crawford remarked at the time:

⁴² <http://adam.ac.uk/index.html>

So I find myself more definitely a design historian, but still with no strong sense of what that means, nor any strong desire to find out for that matter. And I hope that the Society will be equally tentative.

It need not concern itself with abstract issues, like what design history is, or with aggressive policies "to further the development of the discipline". It is enough that there are a growing number of people whose interests fall into this area and that we can help them by meetings, conference[s] and a newsletter.⁴³

Such hopes were, of course, utterly unrealistic in the changing climate of higher education in Britain. The new degrees in design history were being set up in polytechnics at a time of increasingly constrained resources. Critically important to the development or, perhaps more realistically lack of development, of design historical studies was the fact that polytechnics and schools of art and design were not funded for research to anything like the degree that was enjoyed by the 'old' university sector. This was an imbalance that did not begin to be seriously addressed until the early 1990s, when the polytechnics were redesignated as 'new universities'. Also significant, in the 1980s and 1990s, was the emergence of teaching and research quality audits in higher education, an ethos which encouraged the production of increasingly tightly-defined curricula in the history of design.

Nonetheless, studies in design history and design history research have continued both inside and outside the walls of the academy. The Design History Society now has its own website (<http://www.brighton.ac.uk/dhs/2001DHS.html>) and an electronic Design History Discussion List has been established on the internet with the hope of further stimulating news,

views and debate in a less formal and more up-to-the minute way than the more cumbersome and intermittent vehicle of the *Design History Society Newsletter* or contact at occasional conferences. Perhaps something of the

⁴³ *DHS Newsletter*, no. 1, March 1978, p. 3

innocence, openness and informality hoped for by Alan Crawford twenty-one years ago might resurface as an important dimension in making the subject accessible.

The Society's *Journal of Design History*, published by Oxford University Press and now in its thirteenth year, enjoys a wide international readership and makes a modest profit which accrues to the Society. It has a pluralist approach to design history - or design histories - as is suggested by a random search through the *Journal of Design History* list of keywords suggested to potential contributors for on-line searching. These include such suggestions as air travel, architectural lettering, business history, crafts theory, discourses of consumption, dress, fetishism, feminism, Feng Shui, home dress-making, museums, popular entertainment, rhetorics of need and want, structuration theory, tourism, trade literature and women's history, as well as many others which contributors themselves may seek to introduce.

Scandinavia has its own developing arena for the study of design history, whether in the *Scandinavian Journal of Design History*, the museums sector and new programmes of study in the higher education sector. As yet its achievements appear modest in scale, though with work of real quality and interest in all three arenas. With genuine interchange of ideas and scholarship across national boundaries, the breaking down of artificial confines created as a result of introspective disciplinary definitions and the will to learn from good practices encountered in the course of research and study, design history will continue to develop as a vibrant and significant field of study in the new Millennium. It is to be hoped that the Oslo Millennium Reader will play a small but significant role in stimulating further research, thought and debate.

Architectural design as a cultural phenomenon*

By Michael **Astroh**

...Beyond, no wise man can tread;
no fool either. I will not venture; a fool I were.
Pindar, Olympia 3, 44--45.

INTRODUCTION

As long as we live as human beings we presuppose to have a world in common. For only if some things are the same for us in at least some respects communication and interaction between us can be consistent and thus can exist. The world we share happens to be a physical one in which our personal existence is finite. Worlds other than this one are not accessible through common experience. The idea, however, that they were or had been within reach is a fascinating one. It touches upon the core of our being mortal.

* I would like to thank Mrs. Yana Staino, Mrs. Akkelies van Nes, Prof. Dr. Jan Brockmann and Prof. Dr. Andrew J. I. Jones for their helpful advice.

Religions nourish our hopes to pass from one world to another, and it is a truly aesthetic challenge to imagine a passage of this order. In this radical move nothing should remain what it was, and still we should be able to keep our personal identity. In this respect at least, the plain idea of resurrection scarcely satisfies our imaginative expectations. If once we will indeed rise from the dead we will apparently return to a world of the kind we were supposed to leave. Otherwise the literary meaning of the word resurrection is definitely misleading our grasp of its figurative sense.

The way in which we experience a common world inevitably limits our possibilities to envisage its threshold to some other world. Whenever we seriously try to sketch our passage thereto we are bound to fall back on the familiar model of bodily coexistence, interaction and communication in space and time. Hence we cannot imagine any fulfilment of our metaphysical desires without drawing on an *architectural* framework our culture has brought about. Conversely, we may expect that an adequate grasp of architectural design depends on a critical account of man's irreducible longing for an infinite existence.

In the main contemporary theories of architecture focus on two complementary and equally important aspects of their subject. On the one hand they tend to investigate architectural space in terms of its *formal* properties and with detailed reference to the social and the natural sciences such that planning and production of our built environment may improve on account of their increasingly systematic understanding and reflective practice. The works of J. Hanson and B. Hillier, W. J. Mitchell and J. P. Steadman exemplify this general tendency. On the other hand present day reflections on architecture try to identify the existential sense of our built environment. Hermeneutic approaches of this sort intend to let us experience it as an articulation of our elementary concerns and of the values they

presuppose. The writings of A. Pérez-Gómez and C. Norberg-Schulz illustrate this equally important line of thought.

The present contribution proposes an account of architectural design that accommodates both these perspectives. It is meant to set out for what reasons and in what way these two perspectives depend upon one another. The concept of architectural design promoted for this purpose does not start out from architecture's planned realisation on the basis of a preceding representation. The intended, more basic concept of design will relate primarily to the architectural object itself, and not to its mostly pictorial anticipation.

In answer to the indicated situation the present article proposes a comprehensive account of architectural design. In essence, it allows us to experience our built environment not only as an ordered, spatial context, but likewise as a sculptural assemblage. The perceptible, physical object we experience and the spatial context in which it relates us to other objects are but two basic aspects of just *one* cultural phenomenon.

Architecture is an essential component of any human environment. Its design makes us experience the world around and between us as an ordered, universal context to which our existence is bound. The order this context embodies affects essentially our disposition to identify and to pursue the various goals of our daily life.

In the last analysis, the environment in which we inscribe the gradually developing form of our lives is a physical one of which we are a transient component. The political and, in the end, existential nature of all architectural design will turn out to depend essentially on its material, i.e. physical constitution.

Interestingly enough, a famous literary text can help us to understand the evenly contextual, pragmatic and material preconditions of architectural design. Subsequently, this work of fiction will allow us to introduce each of these three constitutive aspects and to discuss their unity.

ARCHITECTURE THROUGH THE LOOKING GLASS

In a novel by Lewis Carroll a young girl named Alice moves from the rather uninspiring context of a Victorian drawing-room to a world of exciting nonsense. The first chapter of *Through the Looking Glass* describes her transition in every detail:

One afternoon Kitty, the black kitten, did not obey Alice's order. So, to punish it, she held it up to the Looking-glass, that it might see how sulky it was -- 'and if you're not good directly,' she added, 'I'll put you through into Looking-glass House. How would you like *that*? 'Now if you only attend, Kitty, and not talk so much, I'll tell you all my ideas about Looking-glass House. First there is the room you can see through the glass -- that's just the same as our drawing-room, only the things go the other way, I can see all of it when I get upon a chair -- all but the bit just behind the fireplace. Oh! I do so wish I could see *that* bit! (pp. 180--181.)

While her conversation with the kitten continued Alice imagined that there was a way of getting through into Looking-glass House.

'Let's pretend the glass has got all soft like gauze, so that we can get through. Why, it's turning into a sort of mist now, I declare! It'll be easy enough to get through --' She was up on the chimney-piece while she said this, though she hardly knew how she got there. And certainly the glass was beginning to melt away, just like a bright silvery mist. In another moment Alice was through the glass, and had jumped lightly down into the Looking-glass room. The very first thing she did was to look whether there was a fire in the fireplace, and she was quite pleased to find that there was a real one, blazing away as brightly as the one she had left behind. (pp. 181--185.)

After a short while, however, Alice realised that she had entered an absurd world as different as possible from the one she had just abandoned.

For some minutes Alice stood without speaking, looking out in all directions over the country -- and a most curious country it was. There were a number of tiny little brooks running straight across it from side to side, and the ground between was divided up into squares by a number of little green hedges, that reached from brook to brook. 'I declare it's marked out just like a large chessboard!' Alice said at last. 'There ought to be some men moving about somewhere -- and so there are!' she added in a tone of delight, and her heart began to beat quick with excitement as she went on. 'It's a great huge game of chess that's being played -- all over the world -- if this is the world at all, you know. (pp. 207--208.)

The garden beyond Looking-glass House is situated in the Second Square of this chessboard. Here Alice starts her adventures as the White Queen's Pawn. When she reaches the Eighth Square she will be a Queen herself.

The metaphorical framework of Alice's journey touches upon three major issues that are crucial to any thorough understanding of architectural design. In the first instance Carroll's novel points to its contextual nature. The universal scope of architectural design

Looking-glass House, its garden and the landscape in which they are situated make up a whole world that conforms to an overall design. A regular arrangement of brooks and hedges embodies the spatio-temporal order of this universe. An immense chessboard provides the comprehensive context in which Alice, supposedly by following particular rules of the well known game will experience the perils and pleasures of her life beyond the looking glass. Just as the readers of her adventures the Victorian girl tends to believe that this universe and all the events it allows for comply with a pre-established order. Seemingly, it consists in the rules of chess, the game of Indian or Chinese origin which by the contrast between its simple setup and its complex playing symbolizes the vicissitudes of life itself. In spite of its happy end Alice's journey will teach her that this seemingly ordered universe does not conform to any rules at all. It is not just a world where "the things go the other way".

Lewis Carroll thus plays with a cosmological notion of architecture that derives from Plato's initial presentation of the so-called argument from design in his dialogue *Timaeus*: The world being "the fairest of creations" lays open to man that God created it after "an unchangeable pattern".

And having been created in this way, the world has been framed in the likeness of that which is apprehended by reason and mind and is unchangeable, and must therefore of necessity, if this is admitted, be a copy of something. (*Tim.* 29a)

Plato himself does not call the Creator an *architect* though he characterizes him as a *tektainómenos*, i.e. as someone who like a carpenter though not like a smith produces things by assembling them. Most likely he is doing so with the help of a plan and not by trial and error.

Later authors did not hesitate to identify the God's creative activity with the work of a master-builder or architect who either makes others carry out a pre-established plan or who himself designs the project to be realised.¹

Especially Cicero being one of Antiquity's most influential authors interprets Plato's dialogue in this sense. In the dialogue *De natura deorum* the Epicurean participant asks:

¹ Well before Plato's dialogue the third *Homeric Hymn*, To Pythian Apollo, reports on a God's design of his temple by laying out its foundations. The building itself is then carried out by mortal builders:

"In this place I am minded to build a glorious temple to be an oracle for men, and there they will always bring perfect hecatombs, both they who dwell in rich Peloponnesus and the men of Europe and from all the wave-washed isles, coming to question me. And I will deliver to them all counsel that cannot fail, answering them in my rich temple."

When he had said this, Phoebus Apollo laid out all the foundations throughout, wide and very long; and upon these the sons of Erginus, Trophonius and Agamedes, dear to the deathless gods, laid a footing of stone. And the countless tribes of men built the whole temple of wrought stones, to be sung of forever. (287--299, p. 345)

Here the architect acts as a master-builder indeed. Once the foundations of the temple are given the proportions of the building as a whole are fixed. Its plan resides in its foundations. There are no independent means of representation by which the plan is communicated to the workmen.

What power of mental vision enabled your master Plato to descry the vast and elaborate architectural process which, as he makes out, the deity adopted in building the structure of the universe? What method of engineering was employed? What tools and levers and derricks? What agents carried out so vast an undertaking? And how were air, fire, water and earth enabled to obey and execute the will of the architect?² (I, viii; p. 23.)

In the history of Western philosophy this interpretation is widely accepted. For instance Hume's sceptic refutation of the argument from design follows this paradigm. However, in contrast with Plato's original presentation Hume discusses the possibility of a universal design that is *not* a received, eternal pattern, but an invented, occasional paradigm. Like any other architect the Creator is responsible for his project and its adequate realisation. In the *Dialogues Concerning Natural Religion* Philo argues:

Did I show you a house or palace, where there was not one apartment convenient or agreeable; where the windows, doors, fires, passages, stairs, and the whole economy of the building were the source of noise, confusion, fatigue, darkness, and the extremes of heat and cold; you would certainly blame the contrivance, without farther examination. The architect would in vain display his subtlety, and prove to you, that if this door or that window were altered, greater ills would ensue. What he says may strictly be true: The alteration of one particular, while the other parts of the building remain, may only augment the inconveniencies. But still you would assert in general, that, if the architect had had skill and good intentions, he might have formed such a plan of the whole, and might have adjusted the parts in such a manner, as would have remedied all or most of these inconveniencies. His ignorance, or even your own ignorance of such a plan, will never convince you of the impossibility of it. If you find any inconveniencies and deformities in the building, you will always, without entering in any detail, condemn the architect. In short, I repeat the question: Is the world, considered in general, and as it appears to us in this life, different from what a man or such a limited being would, *beforehand*, expect from a very powerful, wise, and benevolent Deity? (Part XI, p. 251.)

² It should be noted though that Cicero likewise uses the term "aedificator mundi", i.e. world-builder.

In Paley's influential *Natural Theology* of 1802 God's activity as a universal designer is restricted to *applications* of the laws of nature. Only living creatures whose successful adaptation to their surroundings mirrors a *functional* contrivance exhibit a genuine design.³ The cosmological, originally Platonic conception of architectural design does not exclude exemplary references to the articulation of biological functions. For Plato even the universe itself is a living being. However, the value of its creation is not assessed in instrumental terms, but in a both moral and aesthetic perspective.

The work of the creator, whenever he looks to the unchangeable and fashions the form and nature of his work after an unchangeable pattern, must necessarily be made fair and perfect; but when he looks to the created only, and uses a created pattern, it is not fair or perfect. ... If the world be indeed fair and the artificer good, it is manifest that he must have looked at that which is eternal; but if what cannot be said without blasphemy is true, then to the created pattern. Everyone will see that he must have looked to the eternal; for the world is the fairest of creations and he is the best of causes. (*Tim.* 29a.)

Hume's scepticism as regards any kind of theodicee amounts to the argument that an overall functional achievement is at least a necessary condition of any moral or aesthetic achievement. Theories of design like W. Mitchell's *Logic of Architecture* follow this line of argument when they try to conceive of architectural design in purely functional terms. Moreover, they tend to assume that all design consists in conceiving and modelling objects that are meant to serve one or more particular purposes. This presupposition restricts the scope of possible answers to the question what is architectural design. For answering it becomes tantamount to identifying the particular functions architecture is supposed to fulfil. Consequently, its design will be denied to have a universal scope. An adequate account of architectural design has to resolve this seeming incompatibility between basic assumptions.

³ For a detailed exposition of Paley's account of design and its historical relevance cf. Astroh 1999.

AN ARISTOTELIAN ACCOUNT OF DESIGN

Functionalist theories of architectural design sometimes motivate their proposals by referring to a discussion in Aristotle's *De anima*. In essence it concerns the adequacy of an object's possible definition. The example Aristotle offers seems to advocate a pragmatic understanding of architectural objects:

Anger, for instance, would be defined by the dialectician as desire for retaliation or the like, by the physicist as a ferment of the blood or heat which is about the heart: the one of them gives the matter, the other the form of notion. For the notion is the form of the thing, but this notion, if it is to be, must be realised in matter of a particular kind; just as in the case of a house. The notion or definition of a house would be as follows: a shelter to protect us from harm by wind or rain or scorching heat; while another will describe it as stones, bricks and timber; and again another as the form realised in these materials and subserving given ends. Which then of these is the true physicist? Is it he who confines himself to the matter, while ignoring the form? Or he who treats of the form exclusively? I answer, it is rather he who in his definition takes account of both. (*De anima*, book 1, chapter 2, 403a30--403b7.)

Undoubtedly, the example as well as its methodological context are essential to our present discussion. A closer inspection of the passage will unravel as to why Carroll's metaphor of the chessboard landscape embodies a comprehensive understanding of architectural design.

In the first instance Aristotle might be taken to identify an elementary kind of architecture, a house or a tent, in terms of the predominant purpose of its planning and production. From a functionalist point of view this reading of the text might seem appropriate. However, there are numerous other goods like umbrellas, sleeping bags or clothes that are designed to protect the human being against hostile conditions of various sorts. But none of them counts as a work of architecture. Furthermore, our cultural environment contains copious objects that naturally count as works of architecture even so their design does not make them provide shelter against any kind of

inconvenience or danger. In the preface to his *Ten Books of Architecture* Leon Battista Alberti amply develops this argument and adorns it with various prestigious illustrations. (Alberti 1755.)

It is worth noting that in his *Critique of Pure Reason* Kant uses the traditional metaphor of an architect of the world in contrast with the wording of a creator of the world. Some of the chief momenta of the physico-theological argument for the existence of God relate directly to the present discussion.

There exists ... a sublime and wise cause (or several), which is not merely a blind, all-powerful nature, producing the beings and events which fill the world in unconscious fecundity, but a free and intelligent cause of the world. ...The unity of this cause may be inferred from the unity of the reciprocal relation existing between the parts of the world, as portions of an artistic edifice -- an inference which all our observation favours, and all principles of analogy support. (Kant 1993, pp. 424--425, A624/B652 -- A626/B654.)

According to Kant the analogy with human art limits the possible value of this argument for a proof of God's existence.

This proof can at most, therefore, demonstrate the existence of an *architect of the world*, whose efforts are limited by the capabilities of the material with which he works, but not of a *creator of the world*, to whom all things are subject. (Kant 1993, p. 425, A626/B654.)

Subsequently, we will return to the comprehensive account of architectural design that Kant's presentation of the physico-theological argument, i.e. the traditional argument from design, implies.

In *The Critique of Judgement* Kant uses the example of a palace in order to introduce the concept of disinterested delight on which his theory of aesthetic appreciation relies. (Kant 1952, §2, 204 -- 205.) Naturally works of architecture like palaces can have a functional value. For instance, they serve

political purposes. However, this does not imply that architecture can be identified in terms of particular functions it is supposed to fulfil. In what follows I will introduce an account of architectural design that complies accurately with Kant's understanding of an "artistic edifice". It will, however, defy the pragmatic notion of architecture Kant seems to approve of in his third Critique.

In architecture the chief point is a certain use of the artistic object to which, as the condition, the aesthetic ideas are limited. (Cf. Kant 1952, §52, 323.)

In his *Logic of Architecture* Mitchell subscribes to this traditional, pragmatic account of architecture with explicit reference to Aristotle's *De anima*. Properly speaking he develops a general theory of design presented in the formal language of first predicate logic. As a genuine theory of architecture lies beyond the scope of his scientific interest he does not make any effort to argue in favour of his undiscerning assumption.

Aristotle's reference to a house providing shelter is but an example serving a methodological purpose. Its proper value for the present discussion ensues from the theoretical background of Aristotle's definitional concern in his *Physics*. Some further information on this wider context will prepare a more adequate conception of architectural objects and their design:

Man's social and cultural existence is bound to a physical world of solid, impenetrable and to some extent enduring objects of experience. He himself belongs to this order of things. According to Aristotle any adequate, and finally scientific identification of or judgement about objects of this realm presupposes an understanding of the four kinds of causal determinants conditioning their existence. Interestingly enough, Aristotle uses examples from human art, in particular the making of a statue in order to introduce his elementary distinctions. In order to bring about an artefact the able craftsman

is bound to use a particular kind of *matter*, bronze for instance. By following a number of interdependent rules he will work on the material such that it receives the *form* for instance of the statue he has in mind. Through this transformation the *agent*, i.e. the craftsman, reaches the *goal* of his ordered activity: the bronze statue he intended to produce.

Well then, (1) the existence of *material* for the generating process to start from (whether specifically or generically considered) is one of the essential factors we are looking for. Such is the bronze for the statue, or the silver for the phial. (Material *aitia*.) Then, naturally, (2) the thing in question cannot be there unless the material has actually received the *form* or characteristics of the type, conformity to which brings it within the definition of the thing we say it is, whether specifically or generically. ... (Formal *aitia*.) Then again (3), there must be something to initiate the process of the change or its cessation when the process is completed, such as the act of a voluntary agent (of the smith, for instance), ... or more generally the prime, conscious or unconscious, *agent* that produces the effect and starts the material on its way to the product, changing it from what it was to what it is to be. (Efficient *aitia*.) And lastly, (4) there is the *end* or purpose, for the sake of which the process is initiated, as when a man takes exercise for the sake of his health. ... (Final *aitia*.) ...

This is a rough classification of the causal determinants of things; ... (194b24--195a3.)

In the quoted passage on a house providing shelter this categorical distinction reoccurs. What a house is supposed to be is adequately defined in terms of the material and formal features of the object that make it serve the purpose of sheltering. Only the third kind of cause, i.e. the builder or architect of the house is not mentioned, though undoubtedly presupposed. In book I of *De Anima* Aristotle essentially discusses whether the nature of man's soul can explain his ability to act, i.e. to move intentionally other objects as well as himself. For the present purpose it is not necessary to reconsider this theory in detail. The concept of human agency, however, is indispensable for a systematic understanding of architectural objects and their genuine design.

Human interaction and communication are bound to a physical world of joint experience. Accordingly, cooperation and competition depend on our disposition to move, to modify, to produce or to destroy objects including ourselves. In doing so we relate to a common cultural context, in which at least some of our actions and their results present themselves as meaningful events. It allows us to specify the causal determinants of our ways of dealing with physical, perceptible objects. An act such as greeting or sculpting could not make sense and even might not be identifiable unless we dispose of a set of rules whose application determines its value with reference to other events.

Given the constraints of a specific cultural context perceptible objects exhibit a *design* in the following sense: their material as well as formal constitution *tells* us in what respects it makes sense to act upon them or to presuppose their existence in acting upon other objects.

The design of a perceptible object thus specifies the sense it has for a person or a group of persons within a given culture. Its sense consists in nothing but its pertinency for a cognitive, emotional and aesthetic disposition to relate to this object within a bodily world of shared human experience. It makes up the object's informative impact on their competence to handle it or to handle other objects while presupposing their existence.

In contrast with Vitruvius' or Alberti's account of design, disposition or *diathesis* which follows the tradition of rhetorics⁴ the present notion relates not just to the formal determinant of a given object. Matter *and* form, i.e. both its internal constituents are taken into consideration. (Cf. Vitruvius

⁴ For this conceptual background cf. Lausberg 1973, §§ 443--452. The rhetorical account of design or disposition as a *useful* distribution of things and their parts complies with the present understanding of functional design. However, it does not embrace the universal scope and presuppositional nature of architectural design.

1999, p. 24 and p. 149; Alberti 1755, pp. 1--2.) Moreover an object's design is not conflated with any of its possible representations. Apparently, Vitruvius does not distinguish between an object's design and its representation by a set of drawings. In view of the inherent difficulties to realise an architectural project it is particularly important to respect this distinction. (Cf. Astroh 1998.) The reference of the present understanding of design to a common cultural context of interaction obviously relates to the *external* determinants of an object's existence. In contrast with Aristotle's view these constituents are not taken to be invariant, i.e. natural conditions. When I perceive an orange, the actual experience of this fruit of a particular kind will involve me in a comprehensive grasp of this individual object. In particular, it will make me remember what I know about this kind of fruit in such a way that I most likely will be able to handle it in accordance with my present intentions.

If a friend is offering it to me I will know how to take it out of a bowl in order to put it onto my plate. According to the culture we share I will be familiar with a received and adequate way of peeling, cutting and finally eating this orange.

If I was a nutrition scientist I would know how to subject it to numerous tests assessing its qualities as an agriculture product.

Gradually, I even might come to revise and to improve my disposition in dealing with oranges. The changes in my account of their design could affect my emotional reactions to this kind of fruit. Moreover, after some inspiring discoveries or under the impression of another culture my aesthetic attitude in handling an orange might develop. Incidentally, I could have learnt a far more sophisticated way of peeling, cutting and eating such a fruit than I was taught in my later childhood.

As the present example suggests not just man-made objects, i.e. products of a certain culture have a design. First and foremost natural objects of common experience have a specific design, i.e. an objective way of being integrated into an interactive form of human life. Even in the case of natural objects we expect them to exhibit their design within the limits of an adequate articulation.

In numerous cases clarity and distinctness in the presentation of an object's design are received aesthetic imperatives of their planned production. However, it is by no means excluded and often well received that an object's design does not present itself with utmost perspicuity. At times, objects answer to a given number of demands more efficiently than others only if some aspects of their design present themselves in their most impressive appearance. According to the kind of usage of a certain product, for instance our various technically sophisticated means of transport, there will even be a hierarchy in the set of features the object is supposed to be exhibiting. A salesman would not like to drive a car whose appearance was more attractive to a mechanic than to the potential client.

The present account of design thus separates systematically between the order of objective qualities and the realm of their aesthetic articulation. It is a frequent shortcoming of design theories to equate these two issues. For the task to design a particular product is primarily a matter of applying results of the natural sciences to social, economical and psychological demands. Knowledge of the according disciplines essentially delimits the freedom of aesthetic design.

Natural objects whose identification is bound to cultural conditions provide the material and in many cases even the model for a planned production of essentially man-made goods. The supply of the food industry offers a

particularly fascinating example for the gradual transformation of natural objects into cultural products.

Moreover, the present notion of design reckons not just with an object's qualities and dispositions, but likewise with man's conceptual and pragmatic knowledge about them and his emotional and aesthetic attitudes thereto. An object's design consists not just in a pre-established, culturally independent framework on which all possible ways of dealing with this object among others depend. The present notion of design concerns its material and formal constitution *for* a number of potentially interactive persons. In spite of its natural preconditions an object's design is taken to make it more or less accessible within the limits of a set of cultural achievements. It thus depends on the level of refinement in experience that a given culture is able to establish and to maintain.

So far, the present considerations allowed us to distinguish between the natural and cultural origins of a given design, its actual and potential experience as well as its more or less perspicuous articulation. These distinctions were introduced in order to prepare a thorough account of architectural and functional design. Once this last distinction is introduced the present notion of design makes it possible to conceive in a uniform way man's perceptible physical world. We will thus reach an at least preliminary understanding as to why man's built environment is an essential constituent of his cultural existence.

ARCHITECTURAL AND FUNCTIONAL DESIGN

The present account of design focuses on the difference between material, formal, efficient and final varieties of information that are constitutive aspects of man's competence to handle physical objects under cultural conditions. The intended notion of design was thus meant to contribute to a

systematic understanding of the way in which we move, modify, produce or destroy objects in our surroundings. On the one hand we set out from the assumption that a concept of design is fruitful only if it relates to our interactive competence to *change* our physical environment according to varying purposes. However, no change can matter unless it contrasts with some invariant conditions of its occurrence. For this very reason the guiding concept of design relates not just to various ways of handling a number of perceptible physical objects under spatio-temporal conditions. It equally included that dealing with some physical objects in view of some goal presupposes the existence of other objects. These latter ones exhibit an architectural design on which the functional design of the former ones depends. Handling objects such that they serve the ends we pursue necessarily implies an incessant experience of significant changes. At each stage of our varying experience with them they present themselves as contributing to or distracting from the course of events we anticipate and recollect in their experience. A purpose for instance the one to drink water does not have to take the form of an explicit proposition. All there is to it presents itself in my hearing of the murmuring of a source, my experience of discovering it behind some rocks and bushes, or the cold I feel when my hands touch the water. However, variation in our perceptual orientation presupposes that there are features and objects accessible in our experience that do not vary, but contrast with those that significantly do. While I approach the source I might pass a group of trees besides the path I happen to identify. While I pass them my experience of these objects naturally varies in order to indicate to me that while walking towards the source I am passing them. However, these very variations in their appearances show me that I am changing continuously my position whereas they remain where they are. With reference to my stable surroundings I experience the self-imposed changes my own functional design encompasses. Where from and in what

way I direct myself to the source influences in a comprehensive manner how I am guiding myself to the water I intend to drink.

Those that interact and communicate, cooperate and compete in their pursuit of goals. In order to achieve them they move or modify, produce or destroy objects. All intended change their initiatives are bringing about derives from the functional design of these objects. It contrasts with the architectural design of the objects surrounding them. For these are excluded from any intended change contributing to the achievement of a goal. Nevertheless their intended invariance is a necessary constituent of the intentional development at issue. Being exempted from purposeful changes the experience of their intended invariance contrasts with the experience of intended variations.

In essence, man's design makes him steadily *control* the realm and reach of his specific, often strategic initiatives. To a large extent, we remain the same wherever we are. On the one hand we dispose of ourselves and of one another as means for a given end. In some respects our design is thus functional. On the other hand we cannot function properly unless in and by doing so we basically remain the same. In other respects our design is thus an architectural one.

However, the unity of our both functional and architectural design does not free us from the various contexts of our actions. The design of our environment specifically influences the ways in which one deals with physical objects including oneself. In a sense - drinking a glass of water in a bar in London or in a cafe near Delphi are but two different instances of the same type of action. However, here and there the invariant physical contexts in which a glass is used for the given purpose are quite different. Rather often the pleasures of travelling consist in a successful exploration of the

limits within which one is able to establish and to preserve one's regular form of life under varying circumstances.

ALICE REVISITED

The Looking glass world little Alice knows to enter presents itself as an absurd game of chess. In choosing this comprehensive setup Lewis Carroll points to the core of the present distinction between functional and architectural design: Competitive games of this kind comprise two kinds of rules. On the one hand there are a number of *structural* rules specifying the games basic features. In the case of chess for instance there are but two competing parties, and they are supposed to take turns in moving their pieces. Finally, these rules lay down under which circumstances the game ends and which of the two parties then wins or loses the game. In contrast with this elementary setting a number of *functional* rules specify in what way the various pieces, a Pawn or a Queen for instance, are to be moved on the chessboard. Whereas the structural rules account for the invariant constituents of the game, i.e. its architecture, the functional rules specify the various ways in which the two parties may vary the pieces' positions in order to win the game.⁵ Its functional rules necessarily presuppose its structural settings. In many cases, including the present one, a game's structural rules depend on its functional rules.

The pieces of a board game are formal units whose physical realisation is accidental. Accordingly, their functional design merely is a matter of consistent definition. The physical objects of common experience, however, are not identifiable in terms of a set of explicit conventions. Instead of

⁵ Game theory is not the only domain in which a distinction between structural and functional rules is essential for a systematic comparison of various calculi. The same distinction is relevant in sequent and in dialogic logic. Here it is used in order to provide a systematic comparison between various logical systems. In particular one is interested in investigating how a given set of functional rules behaves under the presupposition of different sets of structural rules. Cf. Gentzen 1934--1935 and Lorenz 1968.

teaching us rules the game of life makes us experience at our own risks and costs various kinds of physical objects, including ourselves. Within the limits of our culture we gradually understand their material and formal design. In this way we gradually assess our possibilities to interact under stable conditions.

The appearance of physical objects matters to us as an initial source for grasping their functional and architectural design. But in the case of formal entities like the pieces in a game of chess their aesthetic differentiation does not relate to their functional design. Introducing them as if they were typical members of a feudal society is appropriate for historical, mnemotechnic and perhaps emotional reasons. Lewis Carroll's novel exploits the conventional appearance of the chess figures in his description of their impersonal attitude towards Alice. She never succeeds in establishing genuine forms of interaction and communication with them.

Likewise the game's structural rules do not specify the layout of the board on which it is supposed to be played. It is even possible to play the game without any reference to its familiar appearance and to replace the physical representation of any particular stage of the game by a series of mathematical formulae. But whereas the appearance of the pieces is entirely arbitrary the form of the chessboard crucially depends on the content of the structural rules. In particular the number and disposition of the squares must comply with the game's structural requirements.

The chessboard of the looking glass world with its brooks and hedges is not an individual piece of architecture. Its design rather consists in a universal layout, and at least at first sight all moving or movable objects in this universe might be supposed to belong to one of the two competing parties and to behave accordingly. All who read Lewis Carroll's novel know that it

is not the case. In the present context, however, its beautiful absurdities are less important than its perspicuous reference to fundamentals of human existence.

On the one hand Carroll's idea of a chessboard refers to the universal scope of architectural design. Our self-conception as human beings presupposes that we acknowledge the invariant physical presuppositions of man's cultural form of life as a meaningful whole.

On the other hand the very same idea allows for a systematic distinction between the architectural and the functional aspects of an according universal design. Designing a world certainly is an impossible task. However, the production of a piece of architecture like a house or a street or a landscape consists at any rate in a *global* modification of the invariant preconditions of a given form of human life. The particular initiatives of architect's, i.e. their pursuit of particular goals necessarily touches upon the entire physical context to which our form of life is attached. Works of architecture cannot be genuine contributions to human culture unless they reckon with its essentially holistic nature.

Architectural design is design for human beings. Therefore it has to include functional components that allow man to pursue goals by moving or modifying physical objects, and thus includes functional components. A house or a street for instance comes with built-in facilities for the production, supply or preservation of various kinds of energy. Nevertheless, works of architecture are not instruments. The means their components offer, mostly in view of basic human needs, are *fixed* and thus integrated into a superseding order. In the case of architecture various facilities are not entirely at our disposition. In contrast with instruments fulfilling similar tasks one cannot move them in order to adapt them to particular

circumstances. In essence, works of architecture provide contexts in which various functional components receive specific places and positions. The architect's proper task consists in their integration. He is meant to offer a synthesis such that man's built environment can tend to comply with his form of life.

These basic considerations pertain to the discussion familiar among designers as to whether an object's form should follow its function or conversely. In the first instance this question concerns the problem of how to articulate an object's functional or architectural design as appropriately as possible. Apparently, it is impossible to solve this task in principle. Whether it has one optimal solution, several equivalent ones or none depends on the specific purposes an object is supposed to serve.

Those, however, who stress the precedence of formal concerns in designing over its functional or architectural implications acknowledge a more comprehensive, finally metaphysical challenge. From their point of view the conception of an object's form can, and thus should invest it with so versatile a design that it will comply with future, yet unknown demands. In the best case an object's potential design even might inspire us to find appropriate solutions for a constantly reappearing problem of our industrial form of civilisation: we force ourselves to adapt our physical environment to forms of its reproduction and final preservation that we continuously invent, transform and believe to improve.

Historical experience does not justify the conviction that in spite of technological progress, economic and social pressure or aesthetic fashions architects and designers can and eventually will produce or find canonical solutions to their tasks. It is on the contrary not peculiar to realise that the classical achievements of our cultural history rarely lend themselves to

fruitful reapplication. Western culture has developed the idea of genuine innovation as one of its fundamental values. It has shaped the form of our lives as a whole.

Aesthetic designs, supposed to illustrate the possibility of canonical solutions tend to apply to products with little technological sophistication. In this sense the design of kitchenware, furniture or private residences relies to a larger extent on the bodily constitution of human beings than on any recent technological progress.⁶

Nevertheless, the development of architectural designs is naturally affected by all change in man's technical competence to dispose of his physical environment. Primarily, the spatial order to which a work of architecture contributes is due to the production or arrangement of according physical objects. And as man inhabits a physical world before he is able to establish himself in this universal context, he first learns to identify the architectural design of his natural surroundings. Prehistoric shelters, for instance l'Abri Pataud at Les Eyzies-de-Tayac, illustrate that initially man's architecture consists in an acknowledgement of natural design. In his long and cumbersome history the detailed planning of a work of architecture by individuals is but a most recent evolution. To a large extent man's institutional and explicitly planned production of his built environment is due to numerous initiatives of various individuals or groups operating in different phases of human history. At the end of the 20th century man's architectural activities have shaped his planet. In spite of the cosmological idea of a master-builder planning and building are context bound activities. And as such they depend stronger than many other cultural activities on the dynamics of society as a whole.

⁶ Cf. R. Kras 1997, p.124.

Works of architecture occur under local circumstances within a universal, physical context of human orientation. In this way they set forth specific spatial arrangements that tend to articulate an at least temporal order of functions. In an apartment for instance the separation of a number of rooms may coincide with a segregation of functions such as sleeping, eating and working.

Architectural design thus creates at least specific spatial structures, but it does not create space. The different areas it separates necessarily presuppose a perceptible physical order. Physical and spatial aspects of architecture are experienced as complementary phenomena conditioning one another.

The physical aspects of architecture's constitution might favour the erroneous idea that architecture could not be as context independent as other cultural products such as tools or long preserving food. Important examples like military camps or the itinerant homes of nomads easily refute this assumption. The functional design of these kinds of dwellings is consistent with their architectural design. Once they are put up they offer a stable context of interaction. Independence of a specific local or regional context can be meaningful in very different senses. In order to stress its territorial identity a state might use a particular style for official buildings in its various provinces. In a similar way an international company could indicate the strength of its autonomy. A systematic account of ways to avoid or oppose a genius loci should offer some valuable insight into basic human concerns.

Architecture can be invested with metaphorical or symbolic meanings. Its semiotic features and the similarities between architecture and language as a natural or formal means of representation and expression have been subject

to ample research.⁷ Likewise the possibility to provide a language sufficiently rigorous as to describe and design architectural objects has been investigated thoroughly. The present considerations do not touch upon these matters. For they are not genuinely architectural issues, but concern numerous kinds of cultural products. It is an explicit intention of this contribution to concentrate on those matters that make up the very essence of architectural design.

THE POLITICAL AND EXISTENTIAL SENSE OF ARCHITECTURAL DESIGN

In contrast with all other kinds of cultural products architectural objects establish a comprehensive, spatial and to some extent functionally ordered context of interaction and communication. An adequate understanding of architectural design requires to acknowledge its comprehensive organisation of human areas *as well as* its physical reality. For only the interdependence between both these features constitutes the cultural phenomenon of architecture.

Unlike little Alice we cannot move through a looking glass or a wall. Segregation and cohesion in our built environment depend on the fact that basically it consists of solid, physical objects. Their various qualities matter to our form of life in so far as they can endanger or secure the course of our existence. If there were no obstacles at all that prevented us from choosing our way from one place to another our world would be a universe of free spirits. The one, however, in which we happen to be is not of this kind.

At least for a limited period of time a work of architecture has to offer the possibility or actual realisation of an invariant functional disposition on which mutual orientation can rely. Otherwise architecture is meaningless and

⁷ For an overview cf. J. Järvinen 1992 and for most important historical aspects Lavin 1992.

does not exist. In order to fulfil its task it depends on the material preconditions of human experience. The kind and amount of power persons or institutions have over others depends essentially on their possibility to force a particular kind of built environment upon them. Our bodily as well as cultural condition requires that we can enter or leave a certain number of naturally or culturally defined areas. In numerous respects, not just the form and style of our life, but even our very existence depends on these dispositions. To a considerable extent political power over human interaction therefore consists in control over entrances and exits. In an analogous way political power over human communication consists in control over information channels.

Authoritarian regimes and institutions establish themselves through restrictions on mobility and the control of perception and speech. Architectural design is political in so far as it favours or hinders obstructions of these kinds. From an architectural point of view all sorts of annihilation consist in complete and persistent isolation. Where there is no entrance nor exit no human being can exist. The archaic form of executing persons by burying them alive is an accurate illustration of the political impact of architectural design. In this respect Sophocles' *Antigone* is a classical drama on the politics of architecture:

O tomb, my bridal-bed---my house, my prison
cut in the hollow rock, my everlasting watch!
I'll soon be there, soon embrace my own,
the great growing family of our dead
Persephone has received among her ghosts. ...
(v. 978 - 982)

Persons are individuals that matter to one another as being unique. In the course of our bodily existence we acquire self-referential knowledge of one another and acknowledge the universe to be the world we share. Due to this

disposition we are able to care for one another as unique persons. Accordingly, our world includes unique places relating to our personal existence. They are places where we belong, where we come from or live. When we die we expect others to single out a place where to remember and to honour us. Everybody, we assume, is entitled to be treated in this way. For everybody is valuable not just on account of his achievements, but likewise as a unique human being. A notion of architecture's cultural value is not adequate unless it explains how our built environment can acquire, have or lose existential value. The subsequent considerations try to offer an answer to this question such that it complies with the introduced concept of architectural design.

On the one hand architectural design consists in a comprehensive, spatial ordering of functional dispositions. In a sense it is a second order design presupposing functional design of various kinds. In view of its diverse possibilities to move around and to perceive the objective context of its movements the human being itself is a natural example of architectural integration. Its various architectural products thus tend to respond to its natural proportions. The spatial, but likewise functional notion of architecture accounts for its essentially indirect nature. At a first glance, works of architecture are meant to create spatial contexts that are functionally coherent. In this respect the architectural object and its various features do not matter as such, but in so far as they offer a stable context of orientation.

On the other hand, however, the design of an architectural object specifies the qualities of a perceptible, physical entity. In this respect a work of architecture is a genuine object of human experience. At times its scale and mass can make it dominate the scenery in which it comes forth. However, the sculptural appearance of a work of architecture does by no means

exclude that a comprehensive spatial as well as functional disposition ensues from its design. On the contrary, the aesthetic articulation of this design has to account for both these aspects of its nature through a particular kind of harmonious ambivalence. Our affective identification of a work of architecture can make us experience ourselves as belonging to a unique place, for instance the place where we passed our childhood. But at the same time its appearance has to offer this possibility in such a way that it includes and even stresses its potential value for our present orientation. Proust's famous description of Combray in *Remembrance of Things Passed* provides a subtle illustration of this ambivalence.

Combray at a distance, from a twenty-mile radius, as we used to see it from the railway when we arrived there in the week before Easter, was no more than a church epitomising the town, representing it, speaking of it and for it to the horizon, and as one drew near, gathering close about its long, dark cloak, sheltering from the wind, on the open plain, as a shepherdess gathers her sheep, the woolly grey backs of its huddled houses, which the remains of its mediaeval ramparts enclosed, here and there, in an outline as scrupulously circular as that of a little town in a primitive painting. To live in, Combray was a trifle depressing, like its streets, whose houses, built of the blackened stone of the country, fronted with outside steps, capped with gables which projected long shadows downwards, were so dark that as soon as the sun began to go down one had to draw back the curtains in the sitting-room windows; streets with the solemn names of saints, not a few of whom figured in the history of the early lords of Combray, such as the Rue Saint-Hilaire, the Rue Saint-Jacques, in which my aunt's house stood, the Rue Sainte-Hildegarde, which ran past her railings, and the Rue du Saint-Esprit, on to which the little garden gate opened; and these Combray streets exist in so remote a corner of my memory, painted in colours so different from those in which the world is decked for me to-day, that in fact one and all of them, and the church which towered above them in the Square, seem to me now more insubstantial than the projections of my magic-lantern; and at times I feel that to be able to cross the Rue Saint-Hilaire again, to engage a room in the Rue de l'Oiseau, in the old hostelry of the Oiseau Flesché, from whose basement windows used to rise a smell of cooking which rises still in my mind, now and then, in the same warm and intermittent gusts, would be to secure a contact with the Beyond more marvellously supernatural than it would be to make Golo's acquaintance and to chat with Geneviève de Brabant. (Proust 1981, pp. 52--53.)

Our existential needs are often even strong enough to let us attach ourselves to ugly or horrible places. The issue is an altogether subjective one that results from the contingent course of events in our personal history. But the political, in the last analysis existential meaning of a work of architecture resides in its design and therefore affects its planned production. The aesthetic balance between the orientational and the sculptural aspects of a work of architecture translates itself in our joint experience of being tuned to a specific form of life. Not knowledge and argumentation, but the aesthetic appreciation of an object's design brings about the harmonious tension in our emotional commitment both to a certain environment and to the yet unknown challenges it embodies. A similar kind of aesthetic experience occurs when a person's appearance is genuinely attractive, but still does not fascinate us to such an extent that we lose our sovereignty.

Our existential attachments and aspirations relate to individual places and events. They ensue from the intimacy of personal matters. Still they constitute universal attitudes. For the value and the form of our personal lives relate to the world we share as a whole. Alternative worlds in which our present existence might continue in a happier and more peaceful way are not accessible to us. When we leave this world we cease to exist in any conceivable way. The architectural metaphor is thus misleading. We will not discover an exit or entrance where previously there seemed to be a wall or even a looking glass. Places *beyond* our familiar concerns are inaccessible. We cannot even say what we mean by referring to such places. Behind the looking glass is a wall, and not a looking glass world.

By definition its places are *not* part of the world in which we know how to move from one place to another. Apart from this negative specification they are identified by an impossible type of movement like Alice's step through

the glass or simply by a fictitious name such as *Atlantis* or the less familiar *Soria Moria*.

Reference to and fascination of an inaccessible world thus rely on two presuppositions equally essential for an adequate account of architecture and its design: In the first instance there is an explicit breach with the material constraints of our actual existence. In the world we share the familiar laws of nature guarantee the possibility of our mutual identification and recognition in space and time. Beyond this world, however, the laws on which our meager pleasures here and now depend cannot be in force. Consequently, non-descriptive means of mutual reference and self-reference such as personal pronouns and proper names have to be at hand. For unless our mutual knowledge of ourselves is as context independent as possible we cannot know us beyond the present order of things. Lewis Carroll's description of Alice's passage to Looking-glass House and the world of an absurd game of chess clearly accounts for these presuppositions.

Mutual self-reference in a universe of material constraints constitutes the political and finally existential sense of architecture. Due to their comprehensive nature architectural planning and design have a radical impact on our bodily existence. It reaches the intimacy of our personal lives. For we cannot run away from the built environment we share. And the fascinating worlds we desperately hope to reach finally turn out to be quite similar to the one and only we know.

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Johann Heinrich Lambert's *natural perspective*

By Louise Pelletier

In his book *An Anthropologist on Mars*, Oliver Sacks tell us the story of Virgile, a blind man who, at the age of 50, received the incredible gift of sight. The long-awaited day came when the doctors finally removed the bandages, but the reaction of Virgile, newly endowed with sight, was rather unexpected. This man who had lived all his life with a tactile knowledge of objects and faces could not recognize the sudden flow of colors presented to him, and could not synthesize the transforming appearances of simple objects as they moved in front of his eyes, not even his own cat. Virgile fell into desperation and after a while was terraced by a stroke that made him blind once more. Sacks tells us that the difficulty to adapt to sight after a life of blindness is not so uncommon, since it demands the learning of an entire mode of perception and a complex set of conventions, at a time when other senses such as touch and hearing have already adapted to give the blind person his sense of orientation.

The hegemony of sight in our modern worlds blinds us to Virgile's desperation and prevents us from investigating the cultural dimension of visual perception and representation. Photographic documentation, video

recording, and the creation of cybernetic space indeed are all based on the premise that we do share a common perception of the visual world. Five centuries of submission to the rules of perspective representation have transformed the filter of perspective rationalization into a natural lens through which we perceive the world. This, of course, has tremendous repercussions on our attitude to the world, and for architectural representation.

Until the end of the 17th century, perspective was clearly understood as being a geometric construct. The abundant literature on the theory as well as on practical methods of perspective, culminating with Andrea Pozzo's universally acclaimed *Rules and Examples of Perspective* (1693), bears witness to this fact. Perspective was perceived not only as a tool for copying or representing the visual world, it revealed the symbolic order of creation and underlined man's position in a world created for him. This fascination with perspective, and mostly perspective theory, however, was drastically transformed in the second half of the 18th century, when Newton's *Mathematical Principles of Natural Philosophy* dominated scientific thought. His work was indeed the basis of a new Natural Science that sought to establish all of the laws and consequences of natural phenomena from observation and mathematical analysis. In the context of the growing influence of Newtonism, nature itself was believed to follow a coherent order that could be directly accessed through observation. There was therefore no need for man to impose on the world any constructed geometry. This cultural context partly explains the general disinterest with geometric perspective for over a century and the conspicuous absence of new perspective theories. Beside Brook Taylor's perspective theory, *New Principles of Linear Perspective* (London, 1719), the work of *Johann Heinrich Lambert* on the *Free Perspective* (1759) is the other significant exception.

Johann Heinrich Lambert (1728-1777), however, was not an architect, nor did he entertain any explicit connection with the artistic community of the time. He was primarily a scientist, one of the century's most distinguished mathematicians, a precocious geographer, and forward-looking cosmographer. He touched upon scientific disciplines as varied as hygrometry, phytometry, meteorology, and photometry to name only a few, in addition to his general interest in mathematics and astronomy. He proved the irrationality of "e" - which in mathematics is the basis of natural logarithms. Perhaps more significant for architecture and its inveterate quest for symbolic order and unity through geometry, Lambert was also the first to demonstrate the irrationality of π , the ratio between the circumference of a circle and its diameter, a crucial step in proving the impossibility of squaring a circle. Because of his interest for the mathematics of the circle and his developments in the field of spherical geometry, many claim that Lambert came very close to formulating a non-Euclidean geometry. He never drew the final conclusions of this major mathematical break through, for his geometry was ultimately finite.

His long-lasting accomplishment is in the field of cartography. Significantly, contemporary cartographers still use Lambertian projections (parallel, conic, central), since they are the basis of scientific cartography. This has significant consequences for architectural representation, since the question of cartographic projection was associated with *perspectiva artificialis* since the 16th century, through the work of Commandino on Ptolemy. This connection between projection and perspective was of great interest to architects such as Barbaro, but was finally established in scientific terms by Lambert.

Lambert was also a respected philosopher. Kant who was greatly impressed by Lambert's early philosophical writings considered dedicating his *Kritik*

der reinen Vernunft to him. We shall not expand on Lambert's widespread accomplishments in the fields of science and philosophy, for that would constitute too much of a digression from his perspective theory¹. In order to understand the general philosophical framework that motivated his speculations on perspective, however, it is paramount to consider the fundamental epistemological assumptions that underlie his cosmological studies, since his general understanding of visual appearances was directly related to man's relative vantage point on the world.

In the middle of the eighteenth century, space had long ago been postulated by Newton to be infinite and homogeneous, and this had become another basic assumption of the new sciences. Lambert, however, held a significantly different conception of space. Lambert remained influenced by Copernican cosmology, leading him to describe a hierarchical universe as the basic framework for human action. Lambert's writings on philosophy - particularly his cosmological writings - were directly influenced by Leibniz and the notion of a centred universe. Lambert's model of the universe consisted of a multiplicity of beings, and therefore a multiplicity of viewpoints and perspectives. This multiplicity, however, never contradicted his firm belief in an absolute centre and a hierarchical organization of the universe. While Leibniz considered the monad as the absolute centre that prevented relativity, Lambert was a good "Copernican" who believed that the centre of the world was occupied by an immense and stable core around which other sub-systems gravitated. At every scale, the centre of a system was occupied by a "regent" whose gravitational influence would dominate the whole system, but would itself be subjected to the Attraction of a regent of a

¹ For more on Lambert's life and the implications of his perspective theory, see Louise Pelletier and Alberto Pérez-Gómez, *Architectural Representations and the Perspective Hinge* (Cambridge, Mass.: The MIT Press, 1997), chapter 2.

superior order. Unlike Leibniz and the scientists of his time, however, Lambert believed in a *finite* universe, and insisted on assigning boundaries to the creation.

In his *Cosmological Letters*, Lambert explained astronomical phenomena such as the Milky Way, the denser strip of stars throughout the sky, as a perspective foreshortening of the stars of our own galaxy. In a letter to Johann Lorenz Böckmann, dated March 7th, 1773, Lambert described the principle that would justify this visual occurrence by explaining that the Milky Way was "in regard to the system of the fixed stars, what the elliptic is in regard to the solar system,"² thus applying his theory of a hierarchical universe where the structure of the solar system is reproduced at another scale to the galaxy. Lambert explicitly described the Milky Way as an "ecliptic of fixed stars" perceived from a standpoint located inside of it. His fascination with explaining the optical phenomena that causes man to perceive the flat disk of stars of our galaxy as a strip combined Lambert's simultaneous interest in the mechanism of perspective and his cosmological concerns.

Being simultaneously a scientist, a cosmographer, and one of the last authors to write on perspective, Lambert embodied the very complexity of the eighteenth century. His perspective theory was based on the assumption that perspective was first and foremost natural, since it is directly connected to the way we see. Being natural, perspective was not only a tool to represent the visible appearance of thing. For Lambert, perspective was mostly a device that allowed him to understand the structure of things, the order of nature. The identification of man's off-centred position in the galaxy was based on the same premise that guided his perspective theory: and "inverted

² Hans Blumenberg, *The Genesis of the Copernican World*, trans. R.M. Wallace (Cambridge, Mass.: The MIT Press, 1987), 577.

perspective," as he called it, that held the potential to determine the preset position from where the visual illusion had initially been created. This perspectivism that became a way of life in the eighteenth century, characterized by this ability to reflect on one's own standpoint, became a basic characteristic of the modern age.

The last and probably most influential section of Lambert's treatise on perspective is devoted to this reversibility of perspective: "On the Inverse Rules of Perspective." There, Lambert describes how to find the vantage point of the painter once a painting is complete, and how to find the horizon line in a painting of architectural subjects from the points of convergence of its parallel lines. The reversibility of perspective drawing (its potential to transform the plan of an object into a perspective view, or conversely, to deduce its plan from a perspective image) was a crucial aspect of Lambert's theory. It assumed the complete naturalization of geometric space. For Lambert, "natural perspective" was more than a set of phenomena that explains vision and the representation of objects; it was a metaphor for explaining the structure of the universe. As in his cosmology, the observer in his perspective theory occupied a relative position that was not assumed to be at the centre, it was a position that would vary with each observer.

By understanding the geometric rules that regulate vision, man could reflect upon and grasp his own relative position in the universe. Just as one could locate a painter's viewpoint because reality was indeed assumed to be the reality of perspective, epistemologically this implied that man's "place" in the world could be discovered by disclosing its implicit perspectival geometry. "While in the theory of perspective the thing is to grasp the mechanism of illusions so that one can produce them, cosmology has to reverse the process by using this knowledge for the purpose of discovering illusions to which we could be subjected as a result of our standpoint and our

motions in the universe."³ This conviction that man had a place in the order of the cosmos, even if the cosmos itself was not so explicitly *propter nos*, was ultimately the stable ground that prevented eighteenth-century from drifting into relativism.

While previous methods of representation based their principles on defining in plan the coordinates of the subject (or space) to be represented so as to prevent uncertainty and potential deceit of perspective distortions, for Lambert, perspective derived its principles from optics, and was therefore natural. Thus the image was preferably generated from the object itself, while its plan could always be deduced *afterward* in relation to a given angle of perception. Lambert's definition of optics was more than a simple system of visual rules, "optics proscribes appearances, he says, and insists instead on truth so as to disclose the mistakes that could deceive the eyes."⁴ It is clear that for Lambert, optics was already a geometric discipline which purpose was not to regulate visual appearances, but to infer from them the true "tactile" and measurable shape of things.

Lambert's refusal to rely on the *plan géométral* and his insistence on starting directly from the object are characteristic of a novel identification of optics and perspective that could take place only after perspective became accepted as the objective way we see the world, and only after the Enlightenment expressed radical scepticism about the presence of supernatural phenomena in the human world. Lambert went even further in associating geometry and optics: he claimed that his horizontal scale governing the perspective construction of an image could simultaneously measure the real angles of an object, as well as its coordinates. He declared that "all that Geometry teaches

³ Ibid, 534.

⁴ Johann-Heinrich Lambert, *La Perspective affranchie de l'embras du plan géométral*, Zurich 1759 (Alburgh: Archival Fascimiles, 1987), 3.

us concerning the orthogonal plan can be applied in similar terms to the picture plane (...) with some perspective operations; the image of an object can be drawn in perspective as quickly as the orthogonal plan itself, if we had wanted to start by drawing it according to the ordinary rules."⁵ Undoubtedly, for Lambert, the whole world was *already* perspectival.

Lambert's concept of perspective as natural perception was becoming the basis of a common understanding of visual perception in the eighteenth century. It was already implicit in Ferdinando Galli da Bibiena's *scena per angolo*, in which perspective as a natural ground of perception was already applied to architecture and theatre. Lambert's perspective theory ultimately was based on optical laws in a *finite* world. He coined the word "phenomenology" in his *New Organon* (1764), which presents his theory of appearances. In that context, phenomenology was defined as the possibility to go beyond sensory appearances, since appearances themselves lead to the scientific understanding of the world, i.e., to truth. It would be naive to claim a direct filiation with twentieth-century phenomenology, itself defined in widely different ways by Edmund Husserl and his disciples, but an interesting connection is suggested. Lambert's conception of a finite cosmos coupled with his emphasis on the priority of phenomena in his natural perspective, combined to avoid the pitfalls of relativism. Some of these concerns became indeed key questions for later Continental philosophy and hermeneutics. While there is no evidence that Lambert might have had a critical understanding of the limitations of a mechanistic psychology of perception (*partes extra partes*) of the Descartes/Locke tradition, in which sensations are received one sense at a time, and perception is reconstituted in the brain as a purely intellectual phenomenon, nevertheless in the

⁵ Ibid, 13-14.

epistemological landscape of the eighteenth century, his observer of perspectives was not the passive autonomous subject of nineteenth-century democracy.

Lambert's perspective theory acknowledges the imminent assimilation of lived space to geometric space that set the condition for perspective to become an instrument of reduction, assuming a precise correspondence between the image of the world and reality, but implicitly, Lambert's theory also offered the possibility to transcend the homology of lived space and geometric space. Geometric perspective lost its privilege status as a "symbolic form" to dictate the configuration of the world, yet it would be misleading to assume that perspective was all together abandoned as a practical tool in the eighteenth century. The Newtonism that dominated the scientific world at the time, and that disregarded any theory that was not explicitly derived from empirical and quantitative observation, had a simultaneous impact on geometry and all its ramifications. Nature was believed to be ruled by coherent laws revealed to us through observation, and since perspective itself had become natural, there was no need for any theoretician to impose geometric laws onto the perceived image of the world. Nature itself was considered to be completely rational. As opposed to Baroque geometrical perspective that mediated between man and the world, the 18th century believed that the presence of God in the order of nature was directly accessible to the rational mind.

Once perspective was assumed to be natural, it became identical to the visual appearance of things, thus collapsing the space of interpretation between the image of the world and the world itself. But since perspective was extracted from experience, from the phenomena of perception, some artists took the licence of exploding the expected rules of perspective and the linearity of its construction in order to reintroduce in the image the temporality of

experience in the hope of revealing the poetic structure of the world. Painters and architecture such as Giovanni Battista Piranesi (1720-1778), Jean-Laurent Legeay (c. 1710-c.1786), and many of their students and disciples during the 18th century explored the crumbling boundaries of a world that was fast becoming an infinite and homogeneous extension, and developed new ways of fragmenting the linearity of perspective in ways that revealed a new depth and interiority. In their architectural *fantasies* or *capricci*, and their numerous series of engravings, they brought together heterogeneous systems of perspective space guided by a multiplicity of points of view.

A renowned teacher, Legeay influenced a whole generation of architects, from Boullée to de Wailly and many others. Like Piranesi, he did not only teach them a new way of presenting their architectural ideas, he questioned the very nature of representation, favouring the virtuosity of the idea over the buildable quality of the project. Perspective drawing became not only a tool, but the aim in itself. More than a technical revolution in the mode of presenting architectural ideas, Legeay and Piranesi questioned the very relationship between architecture and its representation, as well as between architecture and building.

More than two centuries later, perspective clearly has become our nature. We are faced more than ever with the dual nature of perspective: the world of simulation constantly collapses the distance between the world and the image that is made of it; some works, on the other hand, in the tradition of Legeay and Piranesi, force this critical distance that may somehow allow us to understand our place in the world.

Historical studies and architectural criticism

By John **McKean**

My work is in the study of architecture - of urban places, of designers and often of individual buildings. I offer here a few reflections on my experience. Unfortunately, naming this work sometimes seems to cause problems. *Historical Studies and Architectural Criticism*, by the way, is also the title of Reyner Banham's professorial lecture at the Bartlett School of Architecture, London, in which he discussed much the same issues though rather differently, many years ago. (Banham 1963)

Perhaps history is a misnomer for the study of architecture with which I am engaged; there are certainly strong advocates simply to call it criticism. Richard Wollheim, for example:

"Most of the criticism I have of existing art history are already conceded in the name it goes by: *art-history*. Standardly, we do not call the objective study of an art the history of that art. We call it criticism. We talk of literary criticism, music criticism, of dance criticism..." (Wollheim 1987)

Or Northrop Frye:

"Physics is an organised body of knowledge about nature, and a student of it says that he is learning about physics, not nature. Art, like nature, has to be distinguished from the systematic study of it, which is criticism. Criticism is to art what history is to action and philosophy is to wisdom: a verbal imitation of a human productive power which itself does not speak." (Frye 1957)

My own enquiry in the world of architecture, its processes and products, comes from a curiosity: first, about *how* and *what* (for so many of us so much of the time don't even see that clearly); and then - for only then - is it possible to explore *why*, to elicit meaning in this physical world around us.

As a critic, there are themes which I repeatedly find useful in my explorations: exposing ambiguity, for example; or, for another, revealing the formation processes in an architectural event. Before naming any other themes, let these two point to their value in the education of designers (which has been the major concern of my career).

Paradox, complexity and ambiguity are inherent in life, indeed they could be called the hallmarks of reality. No work of architecture is without contradiction and paradox, and pointing them in critique makes a poignant link to the situation of contemporary design practice and education for that practice. Similarly the explication of process bears on current design practice; process always engages student designers, as it offers roles for their own practice to model. In a sense those who were involved in the subject under scrutiny became their 'colleagues' engaged in parallel practice to their own, however far apart their actual dates.

Tim Benton once remarked that it was a poor teacher of architectural history who begins: "Gropius designed the Fagus factory". This, he argued, is because a gothic, brick-clad scheme by the little-known designer Werner

was already on site before Gropius became involved, its pier foundations already cast; then Benschmidt was also engaged in the planning of both schemes, while Meyer contributed centrally to the built version, not least in its detailing ...

My response is that this kind of teaching is poor not just because it is inaccurate. Its main problem is that it denies the centrality of the process of architectural formation. In an educational context, this essential engagement with the process in the wider educational field reinforces, enriches and enlivens the concept of architectural design embedded in the social world.

Rigorous study of architecture (call it criticism or history), a concern with its formation - within cultural ideas, following intellectual strategies, bound by wide-ranging constraints - helps a student of design approach Alberti, say, with the same immediacy that a student of creative writing approaches Shakespeare. It seems obvious to me that such a study of architecture is a central tool in the education of the designer. (It is, however, often undervalued.)

* * *

Undertaking such study is often called research, but once again naming can inhibit the practice. Before we get caught between the physical sciences, social sciences and humanities, and the fences erected round what each considers the content and methodologies of 'real' research, we can agree that any good research demands rigour, revelation, relevance and return.

RIGOUR needs no debate: it presumes an understanding of the field and a precision and accuracy of navigation within it. The emphasis is on a high standard of scholarship; for this reflects a certain care and precision,

befitting a designer. It reinforces the first simple rule, as E.H.Carr quoted Housman, "accuracy is a duty, not a virtue. " As Carr expanded :

"to praise a historian for accuracy is like praising an architect for using properly mixed concrete. It is a necessary condition of his essential function." (Carr 1961)

(It is no easy task to convey this simple necessity to today's undergraduate designers. But similarly, educators must clearly see the difference between what is important in design education and what is essential for competent, professional action while often remaining, beyond that, unimportant.) Rigour, therefore, is often unimportant, being simply essential. Yet, merely by cleaning the lens as thoroughly as possible, and noting what is seen through it with empathetic clarity, this process can illuminate, and thus offer fruitful insight. Even clear articulation of data involves choices; describing the *what* with care can begin to illuminate the *why*.

REVELATION is the contribution to knowledge; obviously we have here the conclusions drawn from analysis of empirical data, the interpretation of quantitative research and the articulation of generalisable propositions. More interesting to me, here we find (as one is allowed in the humanities to say without embarrassment) the production of insight; revelation which can illuminate widely by its very specificity.

RELEVANCE demands not generalisability as much as the contribution to the field - for us to the world of building, more widely to society, or more specifically within the discipline of design study itself.

RETURN concerns the public value or social benefit from the work. This question should be asked of all research. My argument here for my own work would be in its role in helping designers and students understand the

nature of the world with which they are engaged, and the role of their own creative contribution in these processes.

* * *

One of my first published critiques, *Essex University* (McKean 1972), explicitly raised issues concerning the appropriate tools for research in architecture. It generated this comment from Bill Hillier:

“Since prevailing ideas still associate research only with techniques involving statistics, computers, graphs and so on (on the whole this is all you can get paid to do), the title research will probably be denied to McKean's "anthropological" approach. This would be a mistake. Research is not about techniques but about theories. McKean's study *tests* no theories, but it is *about* all the matters that should be of theoretical concern in architectural research, namely: how society, with some intervention from designers, turns itself into built form. There ought to be a name for this type of anthropological study if only to make it more respectable. I suggest the name : environmental ethnography. Ethnography is always concerned to describe buildings, their design history and social outcomes from as many points of view as possible. The general idea is that the important things to be discovered, understood and theorised about are the relations between the social background of the design, the final form of the buildings and the social effects of both. For Essex, McKean has shown admirably how the social becomes spatial and creates a physical environment that is also a social experience.....” (Hillier 1972)

My study of Essex University was published parallel with, and in direct contrast to, another building study by David Canter (later Professor of Psychology at Surrey, now Liverpool University). A note on the contrast may help elucidate my position. I had known Canter for some years (we were both at The University of Strathclyde in 1967-8); I was very worried by the deterministic behaviourist base of his research work. His obscurantist "Psychological analysis" of a new hospital, with many charts based on his extensive 'psychological' data collection and its analysis was a special issue of *The Architects Journal* (Canter 1972). The publication of my study as

another special issue of the same journal two weeks later offered an opportunity for the methodological contrast to come into the open.

The journal's full page editorial made its own comparison, arguing that

"in architectural theory, as in most fields of contemporary scholarship, there has been for some time a powerful trend towards the *nomothetic* approach, a growing preoccupation with making knowledge 'scientific'. [...] McKean's, on the other hand is a *holistic*, humanities-oriented approach ... [and put words into my mouth:] the author does not believe that those aspects which involve human experience can be validly reduced to numerical analysis." (AJ 1972)

Other published comments on my text suggest it achieved some of my goals:

"This report is a powerful vindication of the explanatory potential of predominately non-quantitative scholarship. He has provided an inestimably valuable quality: *insight*." (Lipman 1972)

"This study is important, raising again what we mean by research in architecture.. This study should be a model for students and research workers.. McKean's study is rich in suggestive possibilities that may have a highly general nature.." (Hillier 1972)

"It gives a very organic view of the hidden processes at work in the shaping of a building." (Haenlein 1972)

Today, 25 years later, there is a very live debate about whether architectural design can be considered research. A generation ago Hillier supported my rather lonely argument that critical/historical studies like mine might similarly be considered research; an argument now won. My belief is unchanged that worthwhile architectural study must be concerned with the three elements - society, ideology (including architectural "theory"), and built form - bringing to light how they link and influence each other. Hillier's description of 'ethnography' in his concluding sentences quoted above is exactly my area of study.

While happy to let these other voices speak for me, I did join the debate, contrasting my study with the 'science' of Canter's:

"the crux is his search for objectivity, mine for meaning. It seems to me totally subjective for Canter to assume the only reality to be in total objectivity, and to assume numerical measurement to be the only genuine form of appraisal. [...] We all consider it important to develop a way of communicating about the environment and our existence in it. I believe this must be more responsive and 'real' than building science has often allowed; it must constantly be thinking down to the 'lived world' (*Lebenswelt*), as it were, rather than raised to fit rarefied mathematical constructs. [...] All my evidence stands by itself in direct quotation rather than processed into graphs of conceptual configurations of satisfaction. Canter says he could read something of me in this study; I only tried to make the author's presence clear rather than pretend it was not there." (McKean 1973)

Over the years, I have investigated methods and ways of talking about buildings, to elicit the rich layers of their meanings - often in my studies it is explicit that only certain meanings can be searched for, while others have to be put to one side. Aware that perception is not a transparent medium, that it can *only* make sense grounded in cultural history and personal memory, I have tried to be self-conscious in my studies. At the least, being explicit about prejudice allows another to see the prejudging. In that study of *Essex University*, for example, I set up a number of frames:

- I listened with utmost precision to those I questioned - client, architect or occupants - noting the precise words they used to describe their aims and their experiences to me; the emphases and the pauses.¹
- I quoted images as carefully as words, asking why photographers took the pictures they did, asking why *The Architectural Review* laid out a page as it

¹ Essex University was written as part of my masters degree, 1971. It was accepted by The Architectural Press as a book, but subsequently published, condensed, as a complete special issue of *The Architects' Journal*. Its methodology was strongly influenced by Pessac de Le Corbusier by Philippe Boudon (Paris, 1969); I had also recently read Freud's *Psychopathology of Everyday Life*. When Boudon's book was subsequently translated (as *Lived-in Architecture*, London 1972) I enthusiastically reviewed it in *The Architects Journal* (10.1.1973).

did; tracing magazine critiques to clients' press statements, and in some cases way back beyond reality to the vaguest of early intentions.

- I proposed a dialectic frame of my own within which I placed the various positions of the actors, often thus exposing (at times fatal) flaws in their various models.

- I used other critical tools as well; for example metaphor and analogy. Tricky, slippery, difficult; but with care they can aid precision, attention, help offer insight. Moreover the personality of the author is never denied, another quasi-transparent layer is added to the palimpsest.

* * *

My blurring of history and criticism allows me to bring 'the historical imagination' to bear on work of our own time. I cannot see the problem which calls for 'historical method' to be applied to data over half a century old, but gets agitated about memory - with its inherent fallibility, potential for fabrication and simply its fading - being a major resource when engaging with more recent material.

The distortions of memory, insofar as we acknowledge them, are in themselves most revealing; its persistence shapes how we frame our action.

A few years ago, the English historian and critic Jeremy Melvin wrote a piece based on the contrast (from Hegel's *The Philosophy of History*) between history written by those engaged with the events and that written out of reflective and philosophical method. He argued that the 1950s - a period whose buildings I have studied - lies on the cusp between two eras: on the one side is the dominance of fresh memory, a land where historical method is an unwieldy baggage; on the other side is the fading distortion of

memory and increasing theoretical strength given by critical distance (Melvin 1992).

While appreciating his argument, I replied (inter alia): Melvin seems seriously to limit the possibility of critical history by sticking with his polarity of “experience” versus “interpretation”; of “history written by those who lived it” versus one written by those “using reflective and philosophical methods.” The latter being only possible when distanced at least as far as the ‘50s are today; the only difficulty for us being that the former - the participants - still survive.

Were he to allow that critical methodology can be directed to the *present*, and not just await the privileged new generation far enough away from the data, he might notice a wider range of possibilities - stretching from scientific laboratory methods, anthropological and sociological methods, via the psychoanalytic to the critical methods of artists - all of whose data is, inevitably, *now*.

We (as architects) have burned our fingers so badly with misapplying the methods of others - both in the processes of providing buildings and in those of observing them - that we seem now utterly scared off. As producers, cynically accepting face values, as observers either criticising with the same acceptance or leaving our trust in neatly footnoted, acceptably methodological, and adequately distanced historians. (We can all sense the irresistible rise of the connoisseur of Modernism in the UK today.)

We need distance, Melvin admonishes us, for memory distorts. But what’s wrong with memory? *Especially* if we acknowledge how it distorts - that in itself is most revealing. The very historiography of Modernism through

which Melvin wades exemplifies the truth (always acknowledged by the best designers): that meaning migrates.

What's wrong with anecdote? If used with precision! Anecdote as used by Reyner Banham as much as by Le Roy Ladurie or Carlo Ginsburg. When I said, in a recent study of building in 1949, "every British housewife queued for two hours each day," it is obviously anecdotal. Is it useful? Is it literal truth? I immersed myself in the sources of the moment before daring to say that; but who knows it's not just the flip remark of a survivor? Readers can only judge from experience and context. (By the way, *anekdoton* to the ancient Greek meant "something new, unknown; something secret which is revealing." It recalls Nietzsche's remark that historical truth is revealed by anecdote: "one can sum up any historical character," he said, "with three anecdotes." *Anekdoton* taps directly into myth, which is basic to our understanding.)

The recent history of building *can* be removed from the monocular, omnipotent perspective of the designer, first separating what was intended from what they said they did, and both from what they actually did; next showing the roles of all other agents, so it can also *be grounded in the reality of its social and material formation*. To investigate recent architecture like this, demands a more difficult, coherent world view. But, with effort, we may find our wits sharpened - and even our designed results improved - improved, to use Zevi's fine phrase, by more "history written with a dagger".

* * *

Sometimes, trying to take in too wide a focus, may allow the subject slightly to slip in definition - that lets the reader off the hook, as it were. I will exemplify this with my *Crystal Palace* (McKean 1994a). In that book I tried

to join two threads. One, a narrative through time, echoing the linear, “common-sense” logic of the building’s designers; written in the present tense and thus stressing the urgency. The other a contemplation on the sense of openness, light, formlessness and so on, and thus how this new spatial context reframed the contemporary cultural achievement. Perhaps these two were inadequately integrated; for it seems to have allowed readers (or at least reviewers) to hold on to an image formed by their own expectations.

On the one hand, a respected historian of the 19th Century writes:

"An excellent account of how the building was constructed ... as in 1851, McKean shows a perceptible decrease in interest once the building had been completed. It was the way in which it was constructed that caught the imagination. ... John McKean seems reluctant to consider the fact that it remained a prototype with few imitators..." (Thorne 1994)

and the tone of the rest of Robert Thorne's review criticises the limitations of writing *from the author's presumed modernist architect's position*.

On the other hand, a well-known modernist English architect writes:

"The Crystal Palace is our prototype for prefabrication... McKean's interest is in philosophic and aesthetic issues, rather than engineering and the techniques of manufacture and construction... McKean is unhappy about many aspects of the modern world and hence the Crystal Palace.. He takes a few sideswipes at the Modern Movement..." (Winter 1994)

and the tone of the rest of John Winter's review criticises the limitations of writing *from the author's presumed anti-modernist position*.

* * *

At other times, I have interwoven different threads more self-consciously. In *Learning from Segal* (McKean 1989) for example, there were alternate chapters on his biographical career and on his philosophy of architectural practice. In addition, one chapter near the centre, 'The Colour Supplement', was consciously in another voice. This was the only place where the subject was called "Walter" and the author appeared as "I"; where psychological speculation on his personality was allowed and private photographs of his person appeared.

The differing voices being quite explicit (and the use of long quotations from Segal clearly in conversation rather than in writing), aimed to clarify the authorial role. Avoiding also uncritical hagiography, the goal was to portray the many facets of an unusually integrated character who (I argued) exemplified the professional architect. Happily, reviews suggested it achieved some success; for example

"..McKean's written portrait of Segal is an almost exemplary text for architecture today..." (Krawina 1989)

* * *

With another project the text was approached as a range of facets, in conscious memory of Hokusai's *Thirtysix Views of Mount Fuji* (Hokusai 1831) but, more close to home, remembering Henri Riviere's *Les Trente-six vues de la Tour Eiffel* (Riviere 1902) and then, the logical conclusion - where the mountain or the tower has become a banal incident of no intrinsic interest beyond its varied portrayals by a range of different voices - Raymond Queneau's brilliant *Exercices de Style* (Queneau 1947).

In my study of James Stirling and James Gowan's Leicester building (McKean 1994b) I used a range of voices very consciously, each indicated

by its chapter title ('The Art Critic', 'The Functionalist', 'The Psychology', and so on. Some are lengthy; one chapter 'Signifier and Signified' is just two short sentences.) The range of voices, which can even contradict each other, keeps live the essential ambiguities I mentioned right at the start. In this case it also helped integrate the perspectives of two very different architects, one of whom, having recently died, was inconveniently unavailable for comment, the other keen to tell his now incontestable story.

While I feel *Leicester University Engineering Building* has been my most successful attempt to develop this technique so far, I'm encouraged that it is appreciated by readers:

"John McKean's text fluently re-evaluates its historical context and explores its background... It interweaves intellectual context, architects' intentions and description in an absorbing and unlaboured way. This book is informative, entertaining and hits just the right tone between critical seriousness and the deadpan humour so characteristic of Big Jim himself - I recommend it wholeheartedly." (BD 1994)

* * *

I have used other tools as appropriate, framing the material in particular ways: such as a building complex seen as a garden, or a city seen reflected in the various building type-forms of one architect. The former was a study of Carlo Scarpa's Brion tomb (McKean & Daffarra 1995); the latter a study of the Nineteenth-Century Glasgow of Alexander Thomson, arguing that this approach might illuminate both Glasgow and Thomson. This essay in its first form was published in an Italian book on Glasgow (hence the self-conscious, and slightly ironical, use of the terminology and methodology of Aldo Rossi's *The Architecture of the City*). (McKean 1991a) Its later publication in English is in the Edinburgh University Press book on Thomson. (McKean 1994c)

For the same Italian book, in the late 1980s, I also developed a quite different way of working on the city of Glasgow - using a dialectic of light and dark. In what I think is an original essay on the “personality” of the city (more influenced by Walter Benjamin than Nikolaus Pevsner), I developed some threads stretching back at least to my Essex study 20 years earlier - particularly in my use of 'evidence' (images and their juxtaposition, etc) and in the setting up of a dialectic frame ('dark and light') whose ambiguities I could then debate. (McKean 1991b)

I had earlier used a similar set of dialectic opposites in a long, fragmentary essay on Santa Maria della Scala, the mediaeval hospital of Siena then about to be vacated as a hospital and considered for reuse. This had originally been a lecture, in 1984, to teams at the International Laboratory of Architecture and Urban Design (ILAUD) design master-class who were starting to propose the building's transformation. (McKean 1985)

* * *

Most of my work has concerned the Nineteenth- and Twentieth-Centuries. However, the final example I will mention focuses on an architecture far more ancient even than Siena's mediaeval hospital: the Athenian Parthenon. Can we avoid being the architectural tourist, dumbly consuming the foreign country which was this distant past? (Just as our cameras consume it, “taking” photographs.) I have published two studies, both partial and part of larger work in progress. Progress is currently halted through the indecision of the initiating publisher, though I have recently received a research award to encourage me to continue. But if I get a go-ahead, how will I proceed?

While I have studied the actual building process (procedures, finances, techniques) and its object (archaeologically reconstructed), I have not added

to the considerable publication in this area. I was interested in what no-one seemed to be writing about: “what was it all for, then?” and “what does it mean for us, now?”

My two (partial) essays, “Searching for the Parthenon” and “Looking at the Parthenon” approach from diametrically opposite ends. The one in the ‘light’ of all we know today, the other in the dark interior of the new Akropolis temple in the Fifth-Century BCE.

The former begins:

“How can I ever reach this place, which has been used as a mirror held up to current culture for so many centuries? Navigating upstream, we first pass centuries of heritage which has become billboard or backcloth.....” (McKean 1998)

And I look at its use to validate everyday experiences, to support contemporary culture and, obviously, to inspire architects from the 1990s back through Kahn, Corbusier, and Cockerell to Sangallo; collaging fragments in foreign brains through deconstructive theft from Elgin back to the Roman general Sulla in 86 CE; its meanings through Ottoman, Byzantine, Roman and post-Periklean Greek times.

The latter begins:

“Black. Thick black; not an absence of light but palpable, solid blackness. Darkness as a dense vapour, thick with the souls of the dead. ... At first it is completely dark; deep, cool, limitless, throbbing, hollow; ... absence of sound leaves it quite pure. It is known, this glorious cave; it is in the heart of every Athenian, but in this completeness it is experienced only by Athéné herself.” (McKean 1997a)

My aim (in this essay in a refereed, learned journal) was, initially, to attempt to inhabit this distantly lost place; to understand what it might have been

like, slowly letting light into it; and thence to explore *why*. My work here was largely bound up with close study of the pan-Athenaic rituals.

Finally I have also used the metaphor of standing and sitting - studying the myriad meanings of the contrast between the standing and sitting positions - to elucidate meanings in the two Akropolis temples, that we call Erekhtheion (sitting-couchant) and that we call Parthenon (standing-rampant). (McKean 1997b) Here, once again, I come back (in true Athenian fashion, of course) to a pair of dialectical opposites as an armature for argument and, hopefully for insight - just as I did with the opposed concepts of “university” and “anti-university” in the study of Essex University.

At that time, reviewers beyond the world of architecture commented on my Essex study:

"It pinpoints absolutely the problem of the modern university." (*THES* 1972)
"Stimulating, well-researched and impressive. It will be a long time before the university gets equally careful, fair and sophisticated analysis." (Essex 1972) "Very impressive and interesting. I like the style of analysis very much and the way it explores the underlying contradictions of the university's conception. I think it would be well worth publishing as a book - an aspect of social history as well as an architectural critique." (Marris 1972),

I keep hoping that my more recent work might also be able to break through the closed professional doors. For:

"The important things to be discovered, understood and theorised about, [to repeat Hillier's words quoted earlier] are the relations between the social background of the design, the final form of the buildings and the social effects of both"

And this aim is of importance to us all.

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The study of the city as an artifact.

Theories of urban form since the Enlightenment and their epistemological backgrounds

By Pier Giorgio **Gerosa**

THE EPISTEMOLOGICAL PROBLEM OF THE CITY

This article examines some fragments of the process of the formation of cognitive theories on the city as an artifact¹, a process which is obviously not completed. Speaking of theories of the *making* disciplines, one is naturally inclined to favour the normative (or prescriptive, or productive) theories, those that set criteria pertaining to *poiesis* or the production of artifacts². It is however more important to realize that all voluntary actions, all the actions directed on deliberate objectives, produce unintentional results. In order to understand them, we need a cognitive theory of the city, which doesn't exist

¹ A broader treatment can be found in: P.G. GEROSA, *Éléments pour une histoire des théories sur la ville comme artefact et forme spatiale (XVIIIe - XXe siècles)*, Strasbourg: Université des Sciences Humaines, Collection «Villes, sociétés, idées», vol.7, BF Editions, 1993, 284 p.

yet, but of which we can try to find some imprints. The setting up of a theory of the city continues to be an ongoing problem just because it is obvious that there does not exist a theory of the city, or a science of the city, with the same status as the theories or sciences that exist for other objects. The city is present in the theoretical formulations of diverse *making* disciplines (architecture, engineering, hygiene, social and political practices): we can call them praxical-poietical disciplines, after the classification of Aristotle, because they belong to *praxis* or acting and to *poiesis* or making. The city is also present in another kind of discipline: in philosophy and in the sciences (history, sociology, psychology etc.): these are the theoretical, reflexive, and critical disciplines (again, according to the Aristotelian classification, they belong to the third science, the *theoria*). But we also see that these diverse approaches manage to interact only with difficulty between themselves to form a unified picture. The reason for this situation is the fact that the city belongs to diverse modes of being and exists in various modes. It is a gathering of men but also an object made by man, an artifact. As the city participates in diverse modes of being, it can also be interpreted within diverse sectors of knowledge and diverse epistemological fields. That is the origin of the plurality of the theories, and in certain cases of their incommensurability. For that reason, it would be improper to build an illusory unity of the theoretical approaches to the city: on the contrary, we have to assume the fragmentary character and the absence of a unique orientation among the accounts which have appeared over the last two and a half centuries.

² The history of normative theories has been studied by: F. CHOAY, *La règle et le modèle. Sur la théorie de l'architecture et de l'urbanisme*, Paris: Seuil, 1980; English translation: *The Rule and the Model. On the Theory of Architecture and Urbanism*, Cambridge MA: MIT Press, 1997.

THE ENLIGHTENMENT AND THE BEGINNING OF MODERNITY

In fact, the problem of a non-prescriptive knowledge of the city is closely linked with the emergence of the last (or penultimate!) phase of modernity³, that begins with the Enlightenment and the autonomization of the cognitive processes⁴. With the Enlightenment, space acquires a uniform, fungible, open status, where places are interchangeable. In the same way, the person, the subject, acquires a unique status, of liberty and of equality. That change in values and statuses will, on the level of spatiality, produce the largest revolution since Antiquity. The growth of the cities, the forming of hypertrophied capital cities, the urban chaos which has appeared since before the industrialization are the result of those revolutions. As a consequence, the theories of the Enlightenment set down, by means of empirical research, the foundations for the study of the socio-economic processes of the growth of the city (Giovanni Maria Galanti⁵), and launch hypotheses on urban form as a controlled chaos⁶ (Marc-Antoine Laugier⁷), yet also propose the classification of urban activities for the establishment of the spatial order (Pierre Patte⁸).

THE NINETEENTH CENTURY

The problem of the creation of instruments for the spatial control of the city is developed all through the 19th Century and, just before the First World War, leads to the creation of a new discipline, *Town Planning*, endowed with an autonomous character and its own professional, praxeological,

³ On the multiple definition of modernity, see: P.G. GEROSA, «Idols of urban modernity: an aspect of long-term transformations of urban form», in *Urban Morphology. Journal of the International Seminar on Urban Form*, vol.3, n.1, 1999 (in press), 10 pp.

⁴ J. HABERMAS, *Der philosophische Diskurs der Moderne*, Frankfurt a.M.: Suhrkamp, 1985.

⁵ G.M.GALANTI, *Descrizione dello stato antico ed attuale del Contado di Molise*, Napoli, 1781.

⁶ A. VIDLER, *The Writing of the Walls: Architectural Theory of the Late Enlightenment*, New Haven: Princeton University Press, 1987; A. PICON, *Architectes et ingénieurs au siècle des Lumières*, Marseille: Parenthèses, 1988.

⁷ M.-A. LAUGIER, *Essai sur l'architecture*, Paris: Duchesne, 1755 (2).

⁸ P. PATTE, *Mémoires sur les objets les plus importants de l'architecture*, Paris: Rozet, 1769.

institutional, didactical and communicative apparatus⁹. The fundamental characteristic of urban planning, as it has taken shape over the 19th and 20th Centuries, is therefore to set objectives concerning both society and space. To be more accurate, it is to solve the problems of society by acting on space or on its spatialization, and that is precisely the origin of the problems and of the epistemological indeterminacy which still exists today. Nevertheless, the formulation of productive theories was not considered sufficient by the contemporaries, and ever since the 19th century cognitive theories of the city have been elaborated. Two among them are worth mentioning because they take into account several aspects of the epistemic plurality of the city.

About midway through the century, in 1867, the Catalan engineer Ildefonso Cerdà¹⁰ identifies two fundamental urban activities: movement and rest, to which urban dynamics are reduced. He sets them in search of homogeneity (or of egalitarianism) in regard to spatial opportunities and draws a parallel between them and the independence of the components of the city: the independence of the individual within the home, the independence of the home within the city, and the independence of the various forms of movement in urban life. The exhortation which Cerdà puts forward in the epigraph of his book, «ruralize the city, urbanize the country», makes him the precursor of the theories of today on the disappearance of the city and on its replacement by an urbanized continuum.

The other contribution was developed in the direction of the recapture of the interests of the city as an artifact and as a form. In 1889, the Viennese

⁹ W. HEGEMANN (Hrsg.), *Der Städtebau nach den Ergebnissen der allgemeinen Städtebau-Ausstellungen (...)*, Berlin: Wasmuth, 1913; A. SUTCLIFFE (ed.), *The Rise of Modern Urban Planning, 1800-1914*, London: Mansell, 1980; F. CHOAY, *The Modern City: Planning in the 19th Century*, New York: Braziller, 1969.

¹⁰ I. CERDA, *Teoría general de la urbanización*, Madrid: Imprenta Española, 1867.

architect Camillo Sitte¹¹ realizes the epistemological invention of urban space. Sitte speaks of streets, squares, urban environment, groups of buildings, the relationship between full and empty in the city, and he considers them as aesthetical objects. The main discovery of Sitte is that the empty spaces, such as squares and public buildings, have a mutual relationship: squares can be considered as extensions of public buildings or their vestibules, because urban activities extend from one to the other. Squares are therefore hypaethral buildings, buildings open to the sky. In that way, Sitte formulates the first theory of the unity of the built world (the object of knowledge is no more the individual building but the urban ensemble composed of full and empty spaces) and brings forward the possibility of a cognitive global theory of the city, grasped by way of visual perception.

THE BREAK INTRODUCED BY THE AESTHETIC AVANT-GARDE AND THE RATIONALISTS

During the twenties and at the beginning of the thirties, an abrupt change in the formulation of theories of the city occurs, a real rupture which is almost twofold: aesthetic (and therefore spatial) and epistemological. The break primarily deals with the modes of creating the city and is due to the emergence of new spatial and aesthetic conceptions, going from the visual arts to architecture and the city considered as a particular artifact. The convention of representation based on perspective was rejected and replaced by taking into consideration the fourth dimension, hence the integration of time, the movement of the point of optical perception, and the non-Euclidian geometries. At the same time, the architectural composition (the design)

¹¹ C. SITTE, *Der Städte-Bau nach seinen künstlerischen Grundsätzen. Ein Beitrag zur Lösung modernster Fragen der Architektur und monumentaler Plastik*, Wien: Graeser, 1889; G. a. C. COLLINS, *Camillo Sitte and the Birth of Modern City Planning*, New York: Random House, 1965.

based on forms and related elements belonging to the historical iconic universe was rejected. The previous inventory of composition was replaced by aesthetic and morphological experimentalism and by the design of new forms which refer to elementary aesthetic feelings and prevent every connection with the past.

On the epistemological level, the break was also caused by radical changes in the philosophical backgrounds of the work of the architect-urbanist and of the theories about the city coming from architecture and urbanism or planning. In the most simplistic way, the new fundamentals correspond to the arrival on the scene of theoretical orientations such as Marxism (with its principles of planning and of the identity between knowledge and action), anthropological-sociological functionalism, and finally neopositivistic reductionism.

The urban theories of the break are primarily elaborated within the International Congresses of Modern Architecture (CIAM), the association which was founded in 1928 to promote the new architectural language. In that circle, which is characterized by the encounters and clashes between Le Corbusier, Sigfried Giedion and Cornelis van Eesteren, the theory of the functional city is produced, which reduces the city to the relationship between the three activities considered prevalent (dwelling, work and leisure), joined together by a fourth one, circulation, which re-establishes the temporal link between the spatially separated activities. The two main texts of CIAM, the Declaration of La Sarraz of 1928, and the final Statements of the fourth Congress (Athens 1933), later autonomously taken up by Le

Corbusier under the title of Athens Charter¹², testify in a drastic way to the reduction of the city to the concepts representing activities, the assignment to these activities of segregated spatial parts, the rejection of historicity (and the condemnation of the past) and the impoverishment of the post-perspective spatial conception, which also expresses itself as the loss of a human scale considered as corporeity. In this conceptualization of the city, the positivist and idealist paradigms are substituted by the functionalist abstraction and by the physicalist reductionism that assimilates the real world to the concepts which themselves make possible its description¹³.

THE FUNDAMENTALS OF THE TYPOLOGICAL APPROACH

As early as the Fifties, some new and more complex theories of the city began to be formulated, which explore avenues that are different from those of functionalist reductionism and which are based on other philosophies. These comprise the theoretical approach called “the building typology approach”, which re-establishes the link with the historical disciplines and extends to the scale of the city and of the territory where it appears as the study of urban and territorial morphology, and turns to temporality. Studies on the city taken as a unity and as a totality, as a built and temporal fact, originated in Italy, thanks to the research of Saverio Muratori¹⁴. Their starting points are the awareness of the crisis brought about by modernity and the conceptual foundation of the city as a built work, an artifact, with its own specific logic of morphological organization. The philosophical

¹² The Athens Charter is the emblematic and mythical example of this reductionism. See the recent collective book: P. DI BIAGI (ed.), *La Carta d'Atene, manifesto e frammento dell'urbanistica moderna*, Roma: Officina Edizioni, 1998, and in particular our contribution: P.G. GEROSA, «I testi della città funzionale, dai CIAM alla Carta d'Atene (1928-1943). Esplorazioni ermeneutiche ed epistemologiche», *ibid.*, pp.73-105.

¹³ R. CARNAP, *Der logische Aufbau der Welt*, Hamburg: Meiner, 1928. A different standpoint is that of Otto Neurath, one of the founders of the Vienna Circle, who takes part in the fourth CIAM of 1933. E. NEMETH, F. STADLER (ed.s), *Encyclopedia and Utopia. The Life and Work of Otto Neurath (1882-1945)*, Dordrecht: Kluwer, 1996.

¹⁴ S. MURATORI, *Studi per una operante storia urbana di Venezia I*, in *Palladio. Rivista di storia dell'architettura*, fasc.III-IV, 1959; *Id.*, *Studi per una operante storia urbana di Roma*, Roma: Centro studi di storia urbanistica, 1963.

foundation of Muratori is neo-idealism and historicism which he draws from Benedetto Croce, the most important Italian philosopher in this school of thought, and more specifically from his system of the four stages of intellectual activity (logics, economics, ethics, aesthetics) which correspond to the four degrees of objectivization of the idea. Relying on this philosophical basis, Muratori defines the building type as an aprioristic synthesis of the idea of the building, open to a process of identification and transformation. That universal category, the type, is not a static entity, but it evolves throughout historical time and across space. The main theoretical consequence is the separation between the so-called "basic" building (which is the essential residential building) and the building which is called "specialized" (in other words the public buildings). The next step is the emergence of the concept of fabric, that is the clustering or association of buildings, areas of pertinence and paths, which appears in two fundamental historical forms: a continuous fabric, in which the buildings are arranged in connection or in contiguity with one another, and a discontinuous fabric, in which the buildings are isolated from one another¹⁵. The expanding of the concept of type and of its links with the other manifestations of civilization lead this school of thought to conceptualize a continuity in the structuring of the built environment, following a progression of four scales (the building; the association of buildings in a fabric; the city, the territory) which corresponds, according to that theory, to the levels of societal structuralization. The four scales of the built environment are linked together by a shift from one scale to another: the last degree of a scale, the built individual, assumes the significance of a type and becomes the first degree of the upper spatial scale. Therefore, this school of thought enunciates the hypothesis of the unity of the built world.

¹⁵ G. CANIGGIA, *Strutture dello spazio antropico. Studi e note*, Firenze: Alinea, 1976.

THE TIMELESS ELEMENTS, WHICH CONSTITUTE THE CITY

The change in the paradigm which first occurs in the Fifties and Sixties also becomes obvious when it turns to human sciences, explores the possibilities offered by mathematical and geometrical analysis, or refers to other philosophical orientations. The general characteristic of those theoretical approaches is the atemporality or timelessness of the city, the widening of functional thought, and the non-textual formalization of the concepts.

The turn can be illustrated by Christopher Alexander, whose works first followed the rationalist-functionalist approach, but then took a separate and autonomous path. In the theory of the «patterns»¹⁶ morphological research facilitates the definition of the atemporal and transcultural elements of the city, on various spatial scales, in relation to different activities, and linked to moments or existential attitudes of the inhabitants. The scope which underlies those patterns, and which becomes obvious in his subsequent research, is the study of the fundamentals of building and of the meaning of the built forms. It is in fact an attempt to elaborate a philosophy of the built environment in its existential aspects.

Another approach is based on visual perception, considered by way of empirical research. Its most important representative, Kevin Lynch, undertook in the early Sixties the formalization of the visual elements that constitute the city¹⁷, in the wake of works on the psychology of vision, and he took a position parallel to that adopted in the psychology of space, and continued the program of research initiated by Sitte on the form of urban space. Lynch defines four types of fundamental elements that constitute the urban form: paths, margins, districts, landmarks. That framework is not

¹⁶ C. ALEXANDER, *A Pattern Language. Towns, Buildings, Constructions*, New York: Oxford University Press, 1977.

¹⁷ K. LYNCH, *The Image of the City*, Cambridge MA: MIT Press, 1960.

objectivist because one and the same concrete element can be considered differently according to the observer and according to the scale considered. For that author the task of design is that which renders the city intelligible (above all, in its manifestation as a metropolis), which extends and helps the cognitive effort of the subject in the construction of a dialogical identity with the environment.

Moreover, within spatial planning, new theories on the constitutive elements of the city are elaborated during the Sixties. A particularly important contribution is that of Melvin M. Webber¹⁸ who, starting from the awareness of a radical transformation of the city, substitutes the concept of neighborhood unit (Clarence Perry¹⁹), and that of spatial hierarchy (Walter Christaller²⁰) with a theory that takes into account new methods of communication and brings in a spatial order based on the idea that the city is produced by interaction without proximity and no longer by place.

The search for theories of the city as an artifact also follows the philosophical orientation of phenomenology according to the formulation given by Martin Heidegger in his works on dwelling. The credit for this transfer belongs to Christian Norberg-Schulz²¹. He clarifies the problem of space by introducing the concept of existential space (which enables him to take the subject into account) and the concept of architectural space (with

¹⁸ M.M. WEBBER, «Urban Place and the Non-Place Urban Realm», in M.M. WEBBER et al. (eds.) 1964, *Explorations into Urban Structure*, Philadelphia, University of Pennsylvania Press; M.M. WEBBER, «The Post-City Age», in *Daedalus*, vol.97, n.4, 1968, pp.1091-1110.

¹⁹ C. PERRY, «The neighborhood unit», in T. ADAMS (ed.), *Regional Survey of New York and Its Environs*, vol. VII, pp. 20-141, New York: Committee on Regional Plan of New York and Its Environs, 1929.

²⁰ W. CHRISTALLER, *Die zentralen Orte in Süddeutschland: eine ökonomisch-geographische Untersuchung über die Gesetzmässigkeit der Verbreitung und Entwicklung der Siedlungen mit städtischen Funktionen*, Darmstadt: Wiss. Buchgesellschaft, 1933.

²¹ C. NORBERG-SCHULZ, *Existence, Space and Architecture*, London: Studio Vista, 1971.

which he aims at the concretization of the existential space by means of the artifact), and by defining its constitutive elements: center and place (or node), direction and path (or path and axis), area and field (or field and district). Those elements are organized according to spatial levels or scales: the landscape, the city, the house, the object.

The city as an artifact also becomes the object of research and theory formulated in the human sciences. We can only mention sociology and Maurice Halbwachs who creates the concept of «social morphology», to indicate the spatialization and the rooting of societies by means of artifacts; psychology and Abraham Moles who creates the micropsychology of space, which also takes into account the problem of spatial scales²²; and finally history, where the new specific fields of urban history and planning history stress temporal dynamics and the integration of various fields of knowledge²³.

THE RESEARCH PROGRAM OF URBAN MORPHOLOGY

One might think that the diverse lines of research and the diverse theories of the city as an artifact (founded on diverse philosophical assumptions) have remained separate up to the present day. To a certain degree that is so, above all for the directions which are ideologically strongly characterized. But it is also true that the theories, first formulated from different horizons, have a common object in sight, which is reflexive and critical knowledge of the city.

That objective was first revealed in the attempts to create a science of the city or of urbanization, or of territory. The attempts go from Cerdà in 1867,

²² A. MOLES, E. ROHMER, *La psychologie de l'espace*, Paris: Castermann, 1972.

²³ G.S. CHEKLAND, «An Urban History Horoscope», in D. FRASER, A. SUTCLIFFE (ed.s), *The Pursuit of Urban History*, London: E. Arnold, 1983.

to Doxiadis in 1968²⁴, in addition to others, and remain unresolved because the city is the meeting point of diverse epistemic areas, and above all of diverse inquiries. It is therefore illusory to think of creating a science of the city which, in its methods and in the questions it puts to reality, might enjoy a preeminent status among the other sciences. In fact, research on the laws that govern the city, and on the concepts to be adopted, continues within the sciences which first take shape in the Enlightenment and which have gradually acquired the spatial dimension: in geography, in sociology, in economics, in anthropology, in psychology, in history and in archaeology. The most relevant new fact is the beginning of the formulation of a reflexive and critical knowledge coming from architecture and from urbanism.

In the early Eighties, a new and more modest form of research into a global theory of the city appears, which originates from the above mentioned directions of research. It is an inquiry which assumes, as a last referent, a single epistemic field among the many that make up the city: it is the field of the artifact. The issue concerns form, and the new orientation of study is that of urban morphology. The novelty lies in the awareness of the need to orientate the explicative effort towards form, hence towards the form which, already according to Aristotle, has ontological and epistemological priority because it constitutes the ultimate data on the basis of which we can grasp entities.

The study of urban form appears in architecture, where it occurs as the two species of the unitarian theory of the built environment and in relationships between building type and urban morphology; in history, with the concepts

²⁴ C.A. DOXIADIS, *Ekistics. An Introduction to the Science of Human Settlements*, London: Hutchinson, 1968.

of the city as an artifact or of the city as a work of art²⁵; and particularly in English urban geography, the branch that takes urban morphology as its new field of research, thanks to the works of Michael R.G. Conzen and of Jeremy W.R. Whitehand²⁶.

Conzen's interpretation of urban morphology is based on three principal aspects: the urban plan, the building types (considered as a whole with the plots) and land use. In that way, Conzen manages to bind together the spatial forms and the societies which produce them, and to take into account the historical dimension. That is possible by defining the morphological unities in the city which are reconstructed thanks to historical sources, and which are characterized by their homogeneity and by the period in which they were formed. That method also applies to the scale of the city, where urban growth and form are interpreted as the succession of urban fringe belts in which the land use and the buildings correspond to the waves of growth of the city and remain inscribed in the built forms. The philosophical fundamentals of Conzen are also surprisingly close to those of Muratori. He moves within the area of idealism, even if it is not linked to historicism. In that way, according to Conzen, the city corresponds to the «objectivisation of the spirit of an age». Jeremy W.R. Whitehand takes another step forward by linking urban form and artifacts to economic theories²⁷. Thus, the possibility of relating various epistemic areas and of striving for more global

²⁵ J. SUMMERSON, «Urban Forms», in O. HANDLIN, J. BURCHARD (eds.), *The Historian and the City*, Cambridge MA: MIT & Harvard Univ. Press, 1963, pp.165-176; D.J. OLSEN, *The City as a Work of Art. London, Paris, Vienna*, New Haven: Yale University Press.

²⁶ M.R.G. CONZEN, *Alnwick, Northumberland: a Study in Town-Plan Analysis*, London: George Philip, 1960; J.W.R. WHITEHAND, *The Urban Landscape: Historical Development and Management. Papers by M.R.G. Conzen*, London: Academic Press, 1981.

²⁷ J.W.R. WHITEHAND, *The Changing Face of Cities: a Study of the Development Cycles and Urban Form*, Oxford: Blackwell, 1987.

theories²⁸ arises again. Those developments give us hope for the strengthening of the epistemological cohesion of theories of the city. At the same time, they make more obvious the need to found urban theories on a more appropriate basis, relating to the philosophy of knowledge.

CONTEMPORARY DIRECTIONS IN THE PHILOSOPHY OF KNOWLEDGE AND THE CITY

The last fragment we can take into consideration consists of contemporary directions in the philosophy of knowledge and in its relationships with the formulation of theories on the city²⁹. Those orientations nevertheless diverge and differ from one another with respect to the subject - object relation and to ontological distinctions.

What lies farthest from the path of philosophy is epistemological functionalism, which restricts itself to the heuristic elaboration of connections and levels of complexity, and which refuses to take an ontological standpoint. That orientation (which we can in particular recognize in the paradigm of complexity, in the systems theory, in the sciences of the artificial, in the theory of fuzzy sets³⁰) produces knowledge which is not only incomplete and intentionally oriented, but also fragmented into fields or levels which allow coherent elaboration in delimited spheres, always leaving open questions about the globality of the object to be grasped and constructed by means of cognitive operations.

²⁸ A. VERNEZ MOUDON, «Urban morphology as an emerging interdisciplinary field», in *Urban Morphology*, 1997, v.1, n.1.

²⁹ P.G. GEROSA, «Philosophie de la connaissance et ville en mutation», in Chr. YOUNÈS (éd.), *Maison - mégapole. Architectures, philosophies en oeuvre*, Paris: Éd. de la Passion, 1998, pp.101-113.

³⁰ A. ATLAN, *A tort et à raison*, Paris: Seuil, 1986; E. MORIN, *Introduction à la pensée complexe*, Paris: E.S.F., 1990; E. MORIN, «Pour la pensée complexe», in *Science avec conscience*, Paris: Fayard, 1982. Pour un recueil: G. BOCCHI, M. CERUTI (ed.), *La sfida della complessità*, Milano: Feltrinelli, 1985.

The opposite line is that of the pluralist-emergentist ontology of Karl Popper and John Eccles, and of the existence of three ontological worlds, where World 3 (the one of ideas, theories, and values), can subsequently be autonomized in the hypothesis of World 4 (of artifacts) and World 5 (of social entities)³¹. According to that philosophy, the city is part of the ontological worlds of artifacts and societal entities, but it also contains the ideas, theories and values which orientate its constitution, and moreover it reinvolves the subject. But, when we accept the plural character of the object of knowledge which results from this last orientation, we have to allow the intervention of the knowing subject and intentionality. That means we have

to adopt the approach of phenomenology and to admit the impossibility, for the knowing subject, of assuming all of the cognitive intentionalities which point in the direction of the diverse epistemic-ontological fields that make up the city.

The encounter of the different modes of being of the city occurs in virtue of the intervention of space³². The fundamental character of the city arises from the fact that it is the very means by which the subject and the social entities position themselves in an empirical space, spatializing and rooting themselves by means of the exercise of transitivity. Therefore, it seems pertinent to take into account a subject and societal entities, with ontological statuses and epistemic fields of their own, which move through a process which allows them to inscribe and root themselves in an empirical space. Through this movement, they annex other forms of being, they cause the emergence of other more or less material, more or less stable entities, which

³¹ The formulation of pluralistic ontology can be found in: K.R. POPPER, J.C. ECCLES, *The Self and Its Brain*, New York: Springer, 1977; K.R. POPPER, *The Postscript to the Logic of Scientific Discovery II. The Open Universe*, London: Hutchinson, 1982.

³² On the problem of space, see: J. PATOCKA, «L'espace et sa problématique», in Id., *Qu'est-ce que la phénoménologie?*, Grenoble: Millon, 1988, pp. 17-96 and 311-316; E.S. CASEY, *The Fate of Place. A Philosophical History*, Berkeley: University of California Press, 1997.

belong to other ontological worlds, and which require other epistemic fields and other levels of description.

The rooted entities which result from that process, and among which the city is included, are not to be considered from an objectivistic perspective. On the contrary, they are ontologically unstable entities, that emerge from the structural coupling of the subject (or of societal entities) with empirical space (or the environment), so long as that coupling lasts. The novelty of these conceptions follows from the recent epistemological direction called the middle way of knowledge or production³³, the approach which conceives knowledge as a middle way between a knowing subject and an object (in the case of the city it is about an environment), which are mutually constructed by conditioned co-production. It is therefore possible to formulate correctly the problems of the temporality of the city, of the layering of urban artifacts, of the breaks which interrupt periods of continuity, and of the relationships between subjects and societal entities on the one hand and the artifacts which carry out their rooting on the other hand.

The above review of some approaches towards the constitution of a reflexive and critical knowledge of the city, even though it is necessarily incomplete, allows us to imagine a new research period, when the formulation of urban theories interacts closely with the most advanced hypotheses of the philosophy of knowledge.

³³ F. VARELA, E. THOMPSON, E. ROSCH, *The Embodied Mind. Cognitive Science and Human Experience*, Cambridge MA: MIT Press, 1991.

Spatial planning as a design discipline

By Barrie **Needham**

INTRODUCTION

In this contribution to the Reader I put forward a way of looking at spatial planning, which emphasises that spatial planning is a ‘making’ (in my terms ‘designing’) activity and that it is a discipline. To do this I use the idea of ‘the design disciplines’ in general, then I place spatial planning within the general group of design disciplines. The central part of this contribution is a description of what spatial planning involves when it is seen in this way. This way of looking at spatial planning has clear implications for education and training in spatial planning: these I spell out. Finally, it is good to know that there are alternative ways of looking at spatial planning: regarding it as a design discipline is by no means undisputed. Therefore I position briefly this way with respect to other ways of looking at spatial planning.

In this contribution I make much use of the concept ‘paradigm’: it is useful to give a brief definition straight away. ‘A paradigm can be regarded as the assumptions and practices of thought and research that a group of people

share among themselves. To be thought of as sharing a paradigm, scholars have to refer to each other, use each other's work and address each other's puzzles' (Innes 1994, based on Kuhn 1970). In other words, people (academics) make theories about a given object. If a number of academics use the same theory, or a set of theories which complement each other, if they build upon and refer to each other's theories, and if they work to ensure consistency between each other's theories (resolving Kuhnian puzzles), then we can say that those academics are working within the same paradigm.

THE PARADIGM OF THE DESIGN DISCIPLINE

The idea of a design discipline is taken from Van Aken (1994). He sets out what he describes as the paradigm of the design disciplines. This is, very briefly:

- disciplines such as technical sciences, medicine, business studies, law
- the aim is to develop knowledge for designing artefacts or for improving existing situations
- the test is the pragmatic one of whether the knowledge, when applied under the specified circumstances, leads to the intended results
- this knowledge is meant to be used by professionals (e.g. architects, aeroplane designers, psychotherapists) in order to solve a normative problem (c.f. a 'truth' problem)
- the professional is asked to solve a unique and specific problem, as defined by the 'client'
- the professional analyses the problem (perhaps redefining it), designs measures for tackling it, takes the measures (or they are taken by the 'client'), and evaluates the results
- the professional designs:
 - the situation to be aimed at (the end situation);
 - the process for realising that (the steps that must be taken);

- the process which the professional and the client must follow in order to design the end result and how to realise it.
- the professional must be able to justify his/her work to the 'client'. To do that, the professional has to be able to make use of a store of ready knowledge (e.g. the doctor making a diagnosis)
- the academic aim of a design discipline is to develop and spread knowledge which the professional can incorporate into his/her store of ready knowledge
- this knowledge can be developed by the 'reflective cycle':
 - class of situations is selected;
 - one example is chosen;
 - the application of a measure (or measures) is studied;
 - the results are 'reflected upon';
 - this is repeated for a second example from this class;
 - this is repeated until no more improvement or refinement in the knowledge is made (convergence).

APPLYING THE PARADIGM OF THE DESIGN DISCIPLINE TO SPATIAL PLANNING

Spatial planning can be regarded as an example of a design discipline if we delimit it in the following way.

The *activity of spatial planning* is designing and taking measures and designing policies in order to shape the spatial disposition of buildings and spaces and the activities that take place within them, also the activities on the unbuilt land (in short, the spatial disposition of activities, buildings and spaces)¹. We restrict the term to the activity when it is carried out by a body of the public administration.

¹ 'Spatial disposition' is my translation of the Dutch terms 'ruimtelijke inrichting' and 'ruimtelijke orde'. In Needham (1988) I have translated this with 'spatial layout' or 'spatial configuration'. Chapin (1965) uses the terms 'space organisation', 'spatial distribution', 'distribution of land use' with a similar meaning.

The *attitude taken to this activity* is the following. The activity as practised can be studied in order to understand it better and to explain it (an empirical theory). However, as a design discipline the aim is to improve it (a normative theory). The attitude is further that the goals of the activity are set by the public agency and that that agency should try to achieve those goals by ways which answer to the general norms for bodies of the public administration: these include effectiveness, efficiency and openness.

It must be recognised that there is a very important difference between the design disciplines which Van Aken (op.cit.) names (medicine, architecture, aerospace design, law, psychotherapy: Van Aken himself comes from business studies) and spatial planning. This is that the agency which wants to bring about the change (being a public agency which commissions and adopts spatial policy for a particular area) is usually not able to implement it directly. For in most cases, the spatial disposition in a particular area is created and changed by very many actors (public and private, individual and corporate) acting both in their own interest and in what they see as the interest of others. As a result, most public bodies which practise spatial planning have only a small and indirect influence on the spatial disposition.

For that reason it can be misleading to think of spatial planning - as a design discipline - as being mainly the designing of the spatial disposition of activities, buildings and spaces (e.g. making a spatial plan, although that is indeed part of the activity). 'Designing' the spatial disposition is mainly a question of deciding what measures to take in order to influence the actions of those who *do* shape the spatial disposition, so that the way they do that shaping results in a *desired* spatial disposition. So, in most cases spatial planning is an *intervention in*, or an *influencing of*, the creation and use of the physical environment by others. Then it is better to think of spatial planning as the *designing of a policy* for realising a desired spatial disposition of activities,

buildings and spaces. That places special demands on the way the policy has to be 'designed'.

In spite of that important difference between spatial planning and the design disciplines such as architecture, business studies, law, I still consider it useful to apply the paradigm of the design disciplines to spatial planning. The main reason is that in many countries there are public agencies which have been given the responsibility of carrying out the activity as described above and that I consider this activity to be important²: in that case it is desirable that it be carried out better. In connection with this, many graduates from planning schools find employment in those agencies and they need to be prepared for doing that well!

THE PARADIGM OF SPATIAL PLANNING AS A DESIGN DISCIPLINE

The activity

Spatial planning is the activity of a public body when it takes the responsibility for bringing about change (or protecting from change) the spatial disposition of activities, buildings and spaces and the activities that take place in and on them, also the activities on the unbuilt land.

A private body too can try to influence spatial disposition, but only by choosing its own activities. Examples would be the management of a large private estate, or a firm planning its activities on its own huge site. Some of the technical considerations are similar to when a public body practises spatial planning. Nevertheless, it is useful to restrict the concept of spatial planning to the activities of a public body. The reason is that the public body

² I consider it important because in order to achieve a good quality of physical environment - however we define that quality - it is necessary in my opinion that a public agency takes on the responsibility and is given the powers for trying to realise it.

is trying to influence the activities of others, the private body of itself only. The public body is therefore faced with questions of legitimacy in the exercise of public power and with the fact that most of its actions can be effective only by influencing others (see above). Moreover, the public body is usually obliged to take account of the external effects of its actions, which the private body is not.

The concept of spatial planning is restricted to those cases in which a public body tries to influence the spatial disposition of many aspects of a particular area so as to achieve a coherent distribution of land uses and activities (for example, not just a solution to parking problems, but a co-ordinated approach which will resolve parking problems in a city centre, make the conditions there more pleasant, encourage more people to live in the centre, take into account the firms working there, and stimulate the forum function of the town centre).

With this restriction we make a distinction between the taking of separate measures (a familiar example would be applying the building regulations), which can be ad hoc; and the activity of choosing a coherent package of separate measures to be applied in a particular area. We make the restriction not because we think the separate measures taken separately are unimportant, but because the choosing of a package of measures specifically to be applied to a particular area is a vastly more complicated activity, which deserves separate attention. It will be seen that spatial planning in this sense implies the making of a policy document setting out the desired spatial disposition of an area. This document need not refer to a map, but it usually does. The reason why it can be useful to take not separate measures but a package of integrated measures is described below - methodology. The public body tries to bring about change (or to protect from change) the

spatial disposition of buildings, activities and spaces as a way of achieving various goals which it sees as being in the public interest.

The public body is directed by politicians who want spatial planning to achieve politically determined goals. Then we find reasons such as: economic growth, employment growth, economic efficiency, pleasing buildings and spaces, nature conservation, environmental health, resource conservation, safer surroundings, better living conditions, more equitable distribution of opportunities, etc. There are in addition operational norms which should affect the way in which the public body carries out spatial planning; e.g. democratic openness and accountability, equity, efficiency, effectiveness. These latter are not specific to spatial planning and are logically separate from the reasons for carrying out spatial planning (see below - choosing the actions). The public body can try to change the spatial disposition for the benefit of its own operations too e.g. providing accommodation for the public administration. This does not fall under spatial planning, as it is not an attempt to influence the spatial disposition so as to achieve a coherent pattern of development.

The actors and their actions

There is a 'planning subject', i.e. a public body which has and takes the responsibility for trying to ensure that the spatial disposition in a specified geographical area meets certain objectives.

This is a crucial part of the argument. We assume the existence of a planning subject, in the sense given by Alexander and Faludi (1990) (although others claim that in practice there is often no planning subject in that sense, or that the planning subject has but a marginal influence on the spatial disposition of activities, buildings and spaces). In the 'specified geographical area' which the jurisdiction of the planning subject covers, there might be more

than one public body trying to change the spatial disposition ‘in the public interest’ (e.g. a municipal government and a regional government). Whether or not they actually take account of each other's actions is an empirical question. How they *should* take account of each other's actions is considered below under ‘choosing the actions’. The spatial disposition in a particular area is created and changed by very many actors (public and private, individual and corporate) acting both in their own interest and in what they see as the interest of others. Those actions are strongly influenced by the institutional context of norms and values, prices and finance, economic possibilities and constraints, legal and administrative structures, etc. The planning subject also is influenced by that context.

The planning subject may take one or more of the following types of measure to change the spatial disposition in a particular area:

- a measure to change directly the spatial disposition:
E.g. constructing a road, allocating housing, managing a nature reserve, assembling ownerships of adjacent plots of land. Shaping by means of actions which *directly create* the physical environment is not common; although it occurs more in some countries than in others.

- a measure to change indirectly the spatial disposition by regulating or influencing directly others who can directly change it;
E.g. letting it be known that permission will be given to develop a certain plot of land in a particular way, and that that permission will be refused if it is desired to develop it in a different way; subsidies or taxes for particular types of development or in particular locations; trying to influence the perception of where development should take place; trying to persuade people to use public transport instead of the car.

- a measure to change indirectly the spatial disposition by influencing indirectly others who can directly change it;
In such cases, the planning agency is not superior to those it wishes to influence, so it has to persuade the other actors voluntarily to do what the planning agency wants. De Bruijn and ten Heuvelhof (1995) distinguish two ways of doing this:
 - by applying instruments which persuade e.g. trying to persuade a public agency to provide infrastructure (what they call - 1991 – ‘second generation steering instruments’);
 - ‘strategic steering’ i.e. modifying the structure of and processes in a network (what they call - 1995 – ‘network management’).

- a measure to change indirectly the spatial disposition by influencing other (lower) planning agencies when they try to change it;
e.g. publishing national policy guidelines which another public body should follow in granting or refusing planning permission.

Most planning subjects have very few possibilities for changing the spatial disposition directly: they must work mainly indirectly. Achieving their goals is dependent on the actions of (often very many) others. This largely determines the measures taken in, and the approach taken to, spatial planning.

A public body may take separate measures in isolation to change the spatial disposition, or it may try to co-ordinate the separate measures by preparing them in combination. Only if the public body has the powers and responsibility for doing the latter can it act as a planning subject.

We have restricted the term ‘spatial planning’ to when actions are taken to influence the spatial disposition of a particular area so as to achieve a coherent pattern of development: that is, to those situations when measures are applied to a particular area in a co-ordinated way. To do that requires specific public powers and responsibilities.

Choosing the actions

The planning subject chooses the measures for changing (or protecting from change) the spatial disposition after considering the goals to be achieved, the means available for achieving them, the probable effects of the measures, and the context within which the measures are to be taken.

This statement refers to general administrative norms to be used when choosing actions. They usually include effectiveness and efficiency: they might include also political norms for how a public body should act, such as openness, accountability, equity. At this stage we have to remind ourselves of the distinction between the empirical study of spatial planning and the normative study. For the empirical study, the statement has the form of a hypothesis - that the planning agency does in fact choose actions in that way - and the hypothesis might be incorrect. For the normative study, the statement is that the planning agency should apply those general norms.

Methodology of spatial planning

From this point in the argument, we work out the paradigm of spatial planning as a design discipline explicitly with the aim of improving the way that practitioners carry it out. This is the same, logically, as working out a methodology of spatial planning (where a methodology is the theoretical basis for the choice and application of methods - Faludi, undated).

When choosing what measures to take, the planning subject should take account of how the spatial disposition is created, changed and used. The

objectives of a particular exercise in spatial planning are to be realised by changing the spatial disposition. The planning subject takes measures which, directly or indirectly, affect the actions of those who create, change or use that spatial disposition. This requires knowledge about how people create and use the physical environment; about the distributive effects of the physical environment; about the environmental consequences of the spatial disposition; etc. Spatial planning requires knowledge also of how those who change the spatial disposition directly react to measures taken to influence their actions (prohibitions, stimuli, persuasion, etc.). Both types of relationship (about the creation and use of the spatial disposition, about the reaction to measures) might be contextual, i.e. they depend on the circumstances. A general theory of how a public agency should choose measures in order to realise its goals, where these require that actions be taken which influence directly the actions of very *many others* and where the causal relationship (ends-means) might be influenced by the context, is given by 'instrumentation theory' - see e.g. Bressers, Klok (1987). An earlier attempt to work this out for spatial planning has been called 'the action oriented approach' (Dekker, Needham, 1989). Sometimes the public agency can have its goals realised by influencing the actions of just a *few others* (e.g. a few developers, financiers, interest groups). Then the planning subject can try in a more directed way to influence the actions of those others, by direct negotiations, forming partnerships, etc.

When choosing what measures to take, the planning subject should take account of the fact that the effect on the spatial disposition might depend on how other public bodies incorporate those measures into their own actions.

Often the effectiveness of many of the measures taken by a planning subject depends on their being adopted and thereafter implemented by other public bodies. A regional authority, for example, might make a plan which is not

binding, but which the regional authority wants a local authority to adopt and then incorporate into a binding plan. Or a national authority might issue planning guidelines which the local authority is supposed to follow. It is often the case that those other public bodies have some freedom to ignore or interpret the measures passed down to them by the planning subject. How they use that freedom affects the effectiveness of the measures taken by the planning subject. This process and how the planning subject can work within it is the subject of 'performance studies' (see e.g. Mastop, Faludi, 1997). Under these circumstances, the planning subject can increase the likelihood that its goals for spatial planning are realised by taking actions such as: how it makes its spatial plan (e.g. trying to gain consensus for and commitment to the plan while it is being made); choosing the content and presentation of the spatial plan; influencing the way issues are looked at ('shaping the discourse') in a way which is favourable to the goals of the planning subject; by informal lobbying, negotiating, horse trading, networking, etc. (Needham, 1997). Adapting the content of the planning to the way in which its receivers act is also included in the 'action oriented approach' mentioned above (Dekker, Needham, 1989).

When choosing what measures to take, the planning subject should take account of the fact that it might want to take many more measures in the same geographical area, and that the various measures might interact. The individual measures will then be more effective if they have the form of a package of mutually co-ordinated measures.

It is characteristic of measures that change the spatial disposition that they influence each other. This means that for effective actions, the planning subject should take account of the interaction between separate measures so that they reinforce each other, or at least not work against each other. Co-ordinating the various measures to be taken for one area is often best done in

the form of a spatial plan (land-use plan). Then the plan is a package of mutually co-ordinated measures (which might go so far as picturing the desired spatial development of the whole area).

The planning subject should take account of any spatial planning being pursued by other public bodies for the same area.

There might be another public body in a legally superior position: it is important for the planning subject to know to what extent it is bound to follow the instructions of that superior body (see below - administrative and legal context). There might be another public body in a legally inferior position: it is important for the planning subject to know to what extent the inferior body can ignore the instructions of the planning subject (see above - performance studies). There might be another public body for which the hierarchical relationship to the planning subject is unclear: then various strategies are possible, including incorporation and co-operation.

When choosing a measure or a package of measures, the planning subject should take account of the possibility that the considerations which led to this choice will turn out differently in practice.

Decisions about the content of spatial policy often have to be taken under conditions of great uncertainty. How to cope with this uncertainty has received much attention, for example in the strategic choice approach put forward by Friend and Jessop (1969). The decision centred view of environment planning put forward by Faludi (1987) can be seen as a translation of those ideas into spatial planning. Methods for coping with uncertainty have also to take account of the wish of the citizen (in one or more of the roles of householder, investor, producer, builder, activist, etc.) to know with some certainty how a particular area is going to develop. One

method commonly propounded for reconciling the desire for certainty with the harsh fact of uncertainty is that a plan which has been made for other than immediate and concrete implementation (a strategic plan as distinct from an operational plan - see Faludi, van der Valk, 1994) should be used flexibly and as a framework for the concrete measures which will later be taken, not as a rigid prescription of those measures. However, such a plan should be made so that it can indeed be used in that way (i.e. the plan is robust enough to allow deviations from it without it losing its value as a stable framework).

When choosing a measure, or package of measures, the planning subject should take account of any administrative, legal, financial and political matters which might prevent the measures being taken effectively.

These matters include: the public powers which the public body has for taking its measures or for obliging other public bodies to take those measures; the procedures to be followed, insofar as failing to follow the prescribed procedures would lead to the plan or the measures being declared invalid; the finance likely to be available for taking the measures; the political acceptability to those outside the planning subject; the content of any spatial planning being pursued by other planning subjects for the same area, and the extent to which that is binding on the planning subject choosing the measure(s). If the planning subject considers that such matters constrain its actions too much (in particular, that they prevent it tackling problems which it wants to try to solve), then the planning subject can always try to loosen those constraints. Much creativity in planning is to be found in such tactics!

SOME IMPLICATIONS FOR EDUCATION AND TRAINING IN SPATIAL PLANNING

Primary activities under spatial planning

Most of the ways in which a planning agency can shape the spatial disposition of activities, buildings and spaces are *indirect* (i.e. measures to influence the actions of others who create and use the physical environment) or *double indirect* (i.e. measures to influence the actions of planning agencies which try to influence the actions of others who create and use the physical environment). The following activities which fall under spatial planning have already been identified:

- choosing and taking actions (measures) to change the spatial disposition directly.
- choosing and taking actions (measures) to regulate or influence directly what others do, when they change the physical environment directly.
- choosing and taking actions (measures) to influence indirectly what others do, when they change the physical environment directly.
- choosing and taking actions (measures) to influence what other (lower) planning agencies do when *they* try to shape the physical environment.

It is very often useful to have a framework for guiding the choosing of those separate measures. The reason is not only to increase the effectiveness of the separate measures (see above) but also to avoid arbitrariness in regulating the actions of others (the need to give the citizen - and also other public bodies - legal certainty). So the activity of spatial planning includes making such policy frameworks (e.g. spatial plans, ordinances, sectoral plans).

Although a planning agency will often find it useful to make a policy framework (whether or not it be in the form of a land-use plan), it will often

not be in a position to implement it. For 'lower' public bodies might have some freedom to ignore or interpret the measures passed down to them by the planning subject (see above). And almost always, private bodies have the freedom not to take those actions which the planning agency would like them to, if its policy is to be realised: moreover, for some types of policy, the co-operation of a few such private bodies is essential (e.g. large-scale redevelopment projects financed privately). There is much experience of this 'implementation gap'. Pressman, Wildavsky (1973) point out that there are so many slips from policy formulation to local implementation that, given even a small slippage at every step, the chances of implementation are slim. Moreover, the planning agency might for democratic or financial reasons choose procedures which increase the possibility of the implementation gap. For example, if you deliberately enter into a partnership with implementors (public or private) you have to accept that the implementors will want to influence the policy content (e.g. private financing for infrastructure). And if you deliberately allow those who must realise the policy to have more influence ('street-level discretion'; Elmore 1979) then you have to accept that you cannot hope to realise your policy in as much detail as you might have hoped.

Nevertheless, the agency which makes the policy will not be indifferent to what happens to it: it will want to see it being realised, even if that is not in strict conformity to what the policy statement says. The planning agency will want its policy to 'perform' (Mastop, Faludi, 1997). Then it can take actions for increasing the likelihood that the policy will be realised.

In that way, the activities which fall under spatial planning include not only choosing the *content* of the policies but also choosing the *procedures* for realising them. This we have called choosing a 'performance strategy' (Needham, Faludi, Zwanikken, 1997) for increasing the probability that the

desired policy content (however, chosen) is realised. Note that I do not talk of the policy statement - e.g. plan - being implemented. I talk of the policy content being realised as a result of the policy statement performing well. A performance strategy can include choosing the way the spatial plan is made (e.g. trying to gain consensus for and commitment to the plan while it is being made and before it is formally adopted); choosing the content and the presentation of the spatial plan (e.g. such an attractive vision of the future that others will want to follow it); influencing the way issues are looked at and the terms in which others think and talk about the spatial disposition ('shaping the discourse') in a way which is favourable to the goals of the planning subject (e.g. by gaining influential positions in the arenas where discourses are shaped); informal lobbying, negotiating, horse trading, networking, etc.; postponing contentious issues that are so difficult to resolve that they would jeopardise agreement on other issues; building 'flagship projects'.

In summary, the primary activities which fall under spatial planning are:

- choosing and taking actions (measures) to change the spatial disposition directly;
- choosing and taking actions (measures) to regulate or influence directly what others do, when they change the physical environment directly;
- choosing and taking actions (measures) to influence indirectly what others do, when they change the physical environment directly;
- choosing and taking actions (measures) to influence what other (lower) planning agencies do when *they* try to shape the physical environment;
- making policy frameworks for guiding the choosing of those separate measures;
- choosing, instituting and following procedures in order to increase the chance that the desired policy content will be realised.

Obviously there are very many other activities which are carried out under spatial planning: examples are making spatial analyses, evaluating spatial policies, managing a planning process, consulting others about a proposed plan. These activities are, however, 'secondary' in that they are derived from the primary activities.

Knowledge and skills for those primary activities

Working from the above list of activities, it can be deduced that the *knowledge* which is required for carrying them out can be divided into categories as follows.

a) Knowledge for choosing the measures which influence those who change the physical environment directly.

Here we make a distinction between measures which will affect very many others, who are unknown to the planning agency (e.g. people using a shopping centre, people choosing where to live), and measures designed to influence the actions of just a few others (e.g. a few developers, financiers, interest groups). The planning agency can try in a more directed way to influence the latter, by direct negotiations, forming partnerships etc. The interaction between the many unknown actors and the planning agency we call 'unbonded', between the few known actors and the planning agency 'bonded'.

a.1) Knowledge for unbonded interactions. This includes:

- how people create and use the physical environment;
- how those decisions are influenced by the context;
- the distributive effects of physical development.

a.2) Knowledge for bonded interactions.

The theories applicable for unbonded reactions are still relevant, but often they claim their validity from 'the law of large numbers'. That does not work for bonded interactions: the particular characteristics of the 'other actor' might differ from the average assumed by the theory (e.g. a particular investor might at that moment be more interested in establishing itself in the region than in making profits). Also, the nature of the interaction is different: then knowledge of negotiative skills and game theory might be more important.

b) Knowledge for choosing a package of measures.

That is, how measures, each with an 'address', can effect each other. For example, it is not just that new houses are being built in location A, but also that new shops are being built in location B, a new bus route between A and C, old industry in location D is being demolished, etc. If there is knowledge about this, it is more often gained from experience when similar packages of measures have been applied than from human geography.

c) Knowledge of (natural) ecological processes.

This is relevant when the aims of the spatial planning include natural processes such as water quality, bio-diversity.

(A), (b) and (c) are fields of knowledge that have been called 'substantive theories for planning' (Faludi 1973 pp.7). These include human geography, regional geography, real estate studies, environmental psychology, etc. recently supplemented with the environmental sciences.

d) Knowledge for choosing measures which can be legitimately taken, and for making policy frameworks which can legitimately be realised, within the given procedural context.

This includes knowledge of planning powers and procedures, also the general constraints on a planning agency as part of the public administration.

e) Knowledge for choosing measures which the planning agency itself is likely to execute.

Instrumentation theory points out that policy is not always executed (the measures are not always taken) as the designers intended. This can arise because, for example, within one planning agency the department for policy implementation is often different from that for policy design. This we can call knowledge of *intra*-organisational processes.

f) Knowledge for choosing measures and policies which are likely to perform well.

The effect of a plan is the outcome of what all relevant bodies do with the statements in that plan (see the discussion above about 'performance'). These statements give rise to a 'chain of decisions', which have, finally, direct effects on the spatial disposition. In that way, policy is 'produced' not just by the initiator (the planning agency) but by all those who use the initial policy statements. These are the 'co-producers' (Zwanikken et al. 1995). If the initiators of the policy take this into account and use it purposefully, they aim the policy statements at the co-producers. To do this requires social interaction theory: knowledge or expectations of how other agencies will react to the plan, the measures in it, the publicity around it, etc. (see Kickert et al. 1997; for case studies see De Lange 1995). We can call this knowledge of *inter*-organisational processes.

g) Often the necessary knowledge is grouped into 'bundles'.

When making spatial plans it is common to make use of plan concepts (or 'principles of spatial organisation' - Faludi, Van der Valk, 1994, p.18), consisting of a tried and tested combination of separate measures (e.g. the

compact city, high density/low rise, corridor development). For each of the concepts, there is knowledge and experience of how they can be realised and of their probable effects for realising planning goals, also of their side effects.

The knowledge listed above can be learned from 'books' at two levels: the abstract level of theories, or the concrete level of 'this was tried out in practice and the results were ...'. The knowledge can also be learned directly from practice, what can be called 'clinical knowledge' (Needham, Friend, forthcoming).

The *skills* which the spatial planner needs to have are those for carrying out the activities listed. They can be grouped into:

- skills for designing measures which will work effectively and efficiently within the procedural constraints;
- skills for designing policies (e.g. land-use plans) which will perform well and thus realise the policy goals effectively and efficiently, within the procedural constraints;
- skills for designing procedures which will increase the probability that the desired policy content is realised;
- skills for instituting those procedures and steering the processes in such a way that the desired policy content is realised.

Obviously, there are many skills which are required in addition to the above: but they are derived from the above listed skills. Examples include the well-known (but not thereby less important):

- skills for making projections of demand, need, etc.;
- skills for evaluating measures and policies;
- skills for presenting plans and policies;
- skills for designing and carrying out relevant research.

Some general principles for planning education

It follows from the above argument that planning education should be designed and given in such a way that students acquire the knowledge and skills listed above. How that should be done - which lecture courses, which literature, which practicals, given in which sequence, the relative importance of the various components, etc. - is not my concern in this paper. However, it will be clear that if you regard spatial planning as a design discipline, then design skills have to be learned, and learned thoroughly. These are not only the traditional design skills of making a land-use plan but also the skills for designing spatial policies in other forms, for designing individual measures, and for designing procedures. Learning such skills requires lots of project work in which measures, policies and procedures have to be designed.

How that knowledge and those skills should be learned depends on the general aim of the education. In what follows, we direct our statements to education in universities, where there is the wish to give the students an 'academic' training.

Where that is the aim, it is not sufficient that planning students acquire knowledge solely in order to apply it in practice, and learn skills as an apprentice does under a (studio) master. There are two reasons why that is insufficient. One is the obligation to give our students an 'academic' training. That means that they should learn not to apply knowledge uncritically, that they should want to improve knowledge, that they can choose the applications and methods appropriate to the practical situation, that they can respond flexibly to new situations in the future.

The other reason why spatial planning must not be learned parrot-fashion is that it can have a big effect on the lives of others. In the paradigm of the design discipline, the problem which the professional tries to solve is given

by the 'client': applied to spatial planning, the goals of spatial planning are determined by the planning agency (municipality, regional government, national government). I think that this is correct: it is not for the spatial planner to determine those goals (however strong the temptation be to think that you know better than short-sighted and biased politicians!). It is, however, also incorrect for the spatial planner to lend him or herself to advising how to achieve goals, or to pursue policies with side-effects, which he or she considers to be unacceptable.

Both those requirements (academic thinking and normative reflection) can be met if the planning education is given in such a way that the student learns how to be critical - about the knowledge, about the skills, and about the goals. Also, the student should learn to be critical of his/her own knowledge and normative stance³.

If design skills are to be learned critically, then the project work must be more than setting students design problems, saying that design cannot be taught but can only be learned by trial and error, then permitting oneself the luxury of sitting as a jury when the design is presented and criticising on the basis of one's wide experience! We, as planning teachers, have the obligation

³ The following quotations are taken from Innes (1994).

'A profession's legitimacy rests on its knowledge'.

'If knowledge that makes a difference is constructed through a process in which a planner is not only a player, but a guide and manager, initiating and framing questions and directing attention, then ethical principles for this planner become even more essential'.

'Knowledge that is generated and validated through social processes involving its users becomes embedded in the taken-for-granted assumptions and practices of these users. It becomes institutionalised and is not longer examined, evaluated or criticized'.

'US planners struggle to be ethical, but are beset by competing loyalties and mandates. As a group they are uncertain about what authority or knowledge gives them the legitimacy to act as they do. They are uneasy about the capacity of elected bodies to represent the public or to make morally acceptable, informed decisions. They are uncomfortable with the expert role for themselves, recognizing that they have their own biases and that expertise has its limits. They have strong beliefs about the kind of society that is desirable, but they do not know how to work towards this within their professional roles.'

'These are not the limited professional ethics questions that have commonly been addressed in planning curricula, but much broader substantive and procedural ethics'. In a similar vein, Forester (1989) talk about 'critical self reflection'.

to teach students design methods which themselves can be critically evaluated.

If knowledge is to be learned critically, then there are other means of doing this than following lectures and reading books and articles. Two ways in particular I can recommend (and not just to students, to us academics also!).

One way is the critical study of policy theories used in practice. A policy theory is defined as 'all the assumptions on which a policy is based' where, crucially, the assumptions are about relationships (Hoogerwerf 1987: 24). An *ex ante facto* study of policy theories means that when designing measures or policies, the assumptions which are being used are made explicit, then checked to see if they are based on established or verifiable knowledge. An *ex post facto* study of policy theories should uncover the (often implicit) knowledge which the policy assumes and make it explicit: then the success or otherwise of the policy can be studied in the light of the theories used. If policy theories were studied more systematically and on a large scale, that would lay bare the knowledge base of spatial planning as a design discipline!

A second way of learning knowledge critically is by a thorough study of the practice of spatial planning. This not only makes explicit the policy theories used but also uncovers the ways in which measures, plans, and policies work (or do not work) in practice. We the spatial planners, but also politicians and others involved in spatial planning, have the naive inclination to think that when a decision is taken to implement a measure or to adopt a plan, then that will produce the results we wish. It is only by painstaking empirical studies that we have learned that this is often not so, and only by even more detailed studies can we learn why the measures, plan and policies have not worked as we had hoped. I give as an example the research carried out in the Netherlands into the performance of strategic spatial plans (Needham, Faludi,

Zwanikken, 1997) and into the use made of local land-use plans (Van Damme, Verdaas, 1996). The disillusionment might be painful: but we can learn a lot from it also. From the point of view of spatial planning as a design discipline, we can learn how to design policies with a greater chance of being realised and procedures for increasing that chance.

THIS PARADIGM COMPARED WITH SOME OTHER WAYS OF LOOKING AT SPATIAL PLANNING

The paradigm of spatial planning as a design discipline selects, integrates and develops a number of existing theories about spatial planning. There is a great variety of such theories and they are not all compatible with this paradigm. Put more strongly, some of them reject, implicitly or explicitly, this paradigm! It is instructive to end this article by placing the paradigm of spatial planning as a design discipline in a theoretical framework which enables it to be compared with some of those (incompatible) theories. This we do very briefly.

We distinguish two dimensions along which theories about spatial planning can be placed:

- variety in the activity on which the theory focuses;
- variety in the attitude which the theory takes to the activity.

Variety in the activity on which the theory focuses

The paradigm of spatial planning as a design discipline focuses on a particular activity, namely 'designing and taking measures and designing policies in order to shape the spatial disposition of buildings and spaces, and the activities that take place within them, also the activities on the unbuilt land' (see above). It is claimed that this activity can be found in the public administration of many countries today. The paradigm refers to a generalised praxis.

Other theories about spatial planning focus on a different activity (or on an activity which is delimited rather differently), or approach the activity in an ideal way (it is postulated that there is an activity of that sort), or refer to practice only under certain historical or geographical circumstances.

Variety in the attitude which the theory takes to the activity

The paradigm of spatial planning as a design discipline takes the following attitude to the activity as described above: that the goals of the activity are set by the public agency and that that agency should try to achieve those goals by ways which answer to the general norms for bodies of the public administration (see above).

This is a 'normative' approach to the activity: other theories approach it 'positively' (i.e. wishing to describe and explain the practice, but not to improve it). But even within normative approaches to the practice of spatial planning there are attitudes different from those taken by the paradigm of the design discipline. In order to discuss these, it is useful to refer to the well known distinction between functional rationality and substantive rationality (Mannheim, 1940). Functional rationality refers to the systematic evaluation of means in order to achieve a given end, substantive rationality to the systematic evaluation of possible actions in terms of values such as efficiency, legitimacy, justice. We can then identify:

- Theories which suggest how present practice should be improved, so as to be more effective, or more efficient, or more open. This category of theories accepts the goals of spatial planning as given by the political process, and says that they can be achieved better, using general norms for measuring the performance of the public administration. This kind of normative theory aims at functional

rationality. In the terms of Snellen (1998) this is 'prescriptive administrative science'.

- Theories which prescribe what the aims of spatial planning ought to be. Examples are: planning should be 'the search for, and the bringing about, of the best reciprocal adaptation between space and society' (Rouge, 1947); the aim of planning is 'to develop the capability necessary to guide technological development and social change at the local and regional levels' (this is one example of the many statements in this vein quoted by Healey 1983, pp.7-8). Such theories aim at substantive rationality more than at functional rationality.

- Theories which prescribe how spatial planning ought to be carried out. The idea that rationality provides a methodology for planning (Faludi, 1986) is a clear example of this, as are the other two of the 'three paradigms' that Faludi distinguishes (1982), the systems view of planning put forward by McLoughlin (1969), and the statement by Steigenga (1964) that planning should proceed by plotting, working out and evaluating the development tendencies in an area, the 'principia media'.

It will be clear that the paradigm put forward here of spatial planning as a design discipline falls within the first type of normative approach, namely it is a 'prescriptive administrative science'.

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Reflections on span and space.

Towards a theory of criticism of architectural structures

Doctoral dissertation of 2000 by Bjørn Normann **Sandaker**

THE AUTHOR'S SUMMARY

The summary starts with a presentation of the *main* objectives and aims for this work, aims that follow from an initial assessment of what problems we might identify as being the central ones regarding this particular topic. It then gives an account of the structure of the thesis itself, before going into each of its three parts, explaining their most important points. Finally, it discusses the outcome, the findings of this research work, as these are summed up in the conclusion.

PROBLEMS AND AIMS

The title of the thesis, or rather the sub-title, indicates the primary concern, that of contributing to a *theory of criticism of architectural structures*. Both engineers as well as architects undertake, or may undertake, such a criticism. A criticism is usually an activity that takes place *after* some work has been proposed or erected, therefore the thesis mainly aims to offer a tool for evaluation; it is post-design oriented. On the other hand, however, we all

know that critical analysis and discussions take place continuously while a project is being developed, which means that a knowledge of the problems raised by this work may also be of some importance to the actual design process.

The formulation of problems in the present thesis is the outcome of experiences from years of teaching structural design at a school of architecture, and in the capacity of being consultant to architects doing projects. In those situations, the theoretical as well as the practical knowledge of the structural engineer very quickly meet structural problems of a different nature. We might say that today, the challenges for architectural engineering come from the new and increasing complexity of architectural concepts of space: Recognising that traditional materials like steel and reinforced concrete are more than ever capable of adapting to virtually any structural form, the current problem is not one of implementing the paradigm of a “structural honesty” that puts its imprint on the architectural spaces, but rather a question of being able to recognise structural qualities in a time where the ideals of structural efficiency might be seen to be challenged. In general, we may ask on what grounds one could establish a criticism of structures that also takes the architectural intentions for the space into full consideration, and in particular in such cases where the structural form and the intentions for the architectural space are so tightly interwoven that the latter may violate the basic concepts of efficiency of the former.

There are clearly good reasons for reflecting on structural forms anew. There seem to exist very few documented discussions of how a *wholesome* criticism of structures could be constituted, particularly in a context of architecture. Most writers from the field of engineering, with some notable exceptions, seem to deal with the criticism of structures from a purely mechanical position, discussing structures which are seen as systems

materialising the relationships of load, force and form. This is obviously highly relevant, but does not serve to explain, or to interpret, a large number of structures that have strong additional reasons for their being. On the other hand, in some rare cases, architectural theorists engaged in the aesthetics of architecture address structures explicitly, but there seems to be a tendency here to consider structural forms, not as *structures*, but as any other form, investigating their abilities to create a certain atmosphere, or looking for their particular expressive qualities that *may* relate to strength etc. In many works of this kind, structures are approached and appreciated in a more general way as forms only, not as loadbearing structures that are composed of specific materials and generating a logic of their own.

The primary objective of this thesis, therefore, is to contribute to raising the discussions of the design of architectural structures to a level of *professional discourse*. The main strategy for achieving this is to try to establish a dialogue between theoretical (or epistemological) disciplines and the particular knowledge possessed by the actual professions involved, namely engineering and architecture. This dialogue takes the form of a discourse between theoretical references and professional references in the form of buildings and writings on buildings. A particular aspect of this dialogue is that it involves two professions which really belong to two different research traditions: While engineering engages in scientific and technological research, architectural research primarily involves the humanities. Both traditions meet in, and share, the design objects they have in common, namely the structures and the buildings. A theoretical elaboration of this difference is the particular task of Part 1 of the thesis.

Interpretation is at the core of pedagogical work, which is very much a driving force of the present thesis. An interpretation of *structures* means to point out those *language games* that structures take part in, to use

Wittgenstein's concept, to point out the various contexts that surround the object in question, and of which the object is a part. To be able to identify these, methods and concepts from both of the two professions must be invoked: Reflecting from the position of engineering, a socialisation with the methods and concepts of architecture seems necessary. With the ambition of bringing together, to a certain degree, the two traditions in the discourse on structures, the thesis aims at raising the discourse to a level where the particular knowledge of the two professions may confront epistemological disciplines such as mechanics, the philosophy of science as well as aesthetics. The thesis therefore confronts the difficult problem of proposing a coherent conceptual system that takes account of the problems encountered by engineers and architects alike.

CONTENTS

The thesis is organised in three parts: the first part being an *Ontology*. Here is elaborated a so-called "material ontology", an ontology of structures, and it aims at describing the particular features of architectural structures as a class of objects; how might they be characterised and what makes these structures different from other man-made objects? The result of this reasoning is a clarification of which methodologies are applicable to the present thesis.

The second part addresses the mechanical premises for structural form, and is termed *Pragmatics* because it aims at identifying and explaining the basic preconditions for structural actions, at establishing a dialogue between mechanical theory and building practice.

Thirdly, an *Aesthetics* of structures is proposed, leaning heavily on the two foregoing parts, the aim of which is a theoretical construct that may enable us to access the richness of our aesthetic experiences of structures, bringing

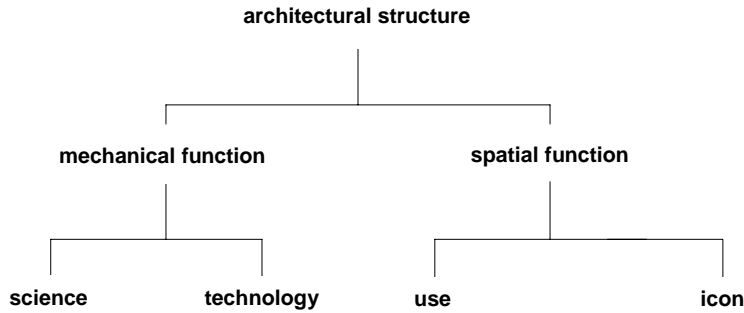
about an understanding of what we see and why we react. The aesthetic perspective addresses, therefore, the premises for structural *quality*.

PART 1: ONTOLOGY

It is proposed, here, as a basic assumption, that an analysis of structural form should be organised by means of two main categories or aspects: that of “mechanical function” and that of “spatial function”. At the core of such an understanding obviously lie concepts that go as far back as the works of Vitruvius and Alberti.

By taking a *mechanical* approach to the understanding of structural form, a part of the explanation is found by applying the *science* of mechanics, that is, by employing statics and by considering the reactions of stress and strain in materials, studying the elasticity and the strength of materials. By applying theory from these fields, aspects of structural form become mechanically *explainable*, not as *the* single design solution, but as one possible among many others. Facts derived from these scientific aspects act as constraints that will rule out, in principle, a range of other design proposals, and will help clarify why this particular solution was chosen.

We quickly recognise, also, that on a more detailed level the shape of a structure reflects its very making. The processing of the raw materials, the manufacturing of structural elements as well as the erection of the whole building, all put their imprint on the final result. This is called the *technological* aspect of structural form, and together with the aspects of the natural sciences comprises a wholesome explanation of structural form from a mechanical point of view.



The basic intention of a structure, what it is for, is obviously an extremely important factor in the understanding of its form. This is the utility aspect of its *spatial function*, and it deals with such issues as enabling people to cross a river, shelter from the climate in order to protect us from rain and cold winds, while simultaneously perhaps also providing a particular light condition.

It is also proposed that the spatial function of a structure, apart from its *use*, may also include an *iconographic function* that facilitates an understanding of structural form, in some cases, also as a representation of an object outside of itself. This being no “practical” aspect of structural form, we may nonetheless see it as a particular *function*, a function whose purpose is to enable us to see the structure as something it is not. This aspect differs from other formative aspects by not having a direct, existential connection with that which motivates the form. Without taking due notice of the possibility that structural form may encompass an iconographic aspect, an attempt to make a serious and thorough criticism of structural form will in some cases be inconclusive.

Fig. 1 Structural aspects in detail.

On this basis, a few detailed aspects of structures are suggested, aspects that relate to the mechanical and spatial functions. Those serve as *concepts* that enable us to comprehend structures from various points of view. The viewpoints they represent are tested throughout the treatise, seeking to establish whether or not structures may fruitfully, and more or less comprehensively, be understood by applying those particular concepts to their interpretation.

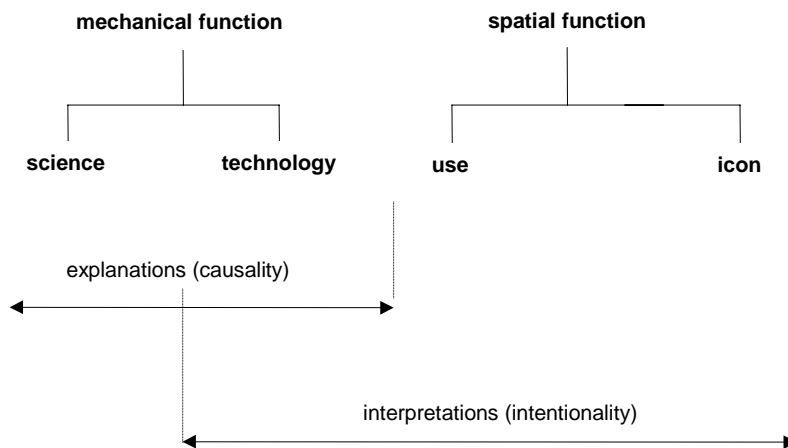
Some words on the methods applied: Structures are in this thesis seen from two main positions, a *pragmatic* and an *aesthetic* position. It is not, however, always simple to make a sharp distinction between them. Both may involve reflection and interpretation, but their *aims* are quite different: While the pragmatic position is concerned with the explanation of facts and also with trying to understand the practical reasons for structural form, the aesthetic position aims at understanding visual appreciation. There is therefore an element of judgement in the latter which is not present in the former approach. Where the pragmatic position raises such questions as “How is the structure made?”, “How does it work?”, and “What does it do?”, the aesthetic position aims at understanding the perceptual experience: “Why does it seem appropriate?” Reflecting from an *aesthetic* position is not possible without seeing the structure also from a pragmatic point of view, because, as is argued in Part 3 on Aesthetics, the aesthetic experience of structures is constituted through an interpretation of their pragmatic aspects.

Depending upon which formal feature of the structure is to be explained or interpreted, different *kinds* of explanations or different *modes* of understanding must be invoked: *Science* is concerned with describing natural processes and is thus able to establish *causal relationships* between various physical influences and the resulting effects on structural form. In that respect we may say that certain aspects of form exist because they are

necessary, their load-bearing function taken into account. Technology, on the other hand, *also* deals with *intentional acts*. So when mechanical aspects of structural form are explained by referring to issues concerning *the natural sciences*, the explanations are causal and based upon deductions from general laws. When *technological issues* are involved, causal explanations that refer to the manner in which the actual processes work or function must necessarily be accompanied by interpretations of the meaning or purpose of the actual technological acts. Technology, therefore, involves both causal and intentional relationships.

Furthermore, technology and science seek to find a practical solution, by way of materials, processes and form, to the *spatial functions* that are the structure’s primary aim. When, in making a critique, we comment on a structural form from the point of view of its spatial function, we are obviously not offering causal explanations, but instead, we try to *interpret* the meaning, purpose or intention behind the actual structures. What we do, in principle, when interpreting, is typically to infer from something that is observable (the physical form of the structure) something that is not observable (e.g. organisation of human acts).

Fig. 2 A diagrammatic model depicting the scientific methods that apply to the different aspects of structural form.



Lastly, some words on the methodologies applied when the basic assumptions of the thesis were made, and when trying to demonstrate their value. Those assumptions came about by formulating an insight which it is not possible to logically *deduce* from empirical material. On the contrary, the assumptions are the results of *induction*. They are made in order to explain structures on a general basis, trying to capture possible relationships that structures may be seen to be part of. And this is done by considering a few practical examples that may illustrate the points in question. Induction, therefore, is instrumental for establishing the cognitive models in a hypothetical form.

In order to verify, or to attempt to assess the models presented, a *pragmatic* approach is taken in this thesis. This approach implies that a discussion of the *building practice* serves to demonstrate the potential value of the postulates.

A FEW COMMENTS ON THE PART 2 OF THE THESIS: PRAGMATICS

The immediate problem here consists of identifying the concepts by which scientific and technological questions of structural form might best be studied.

It seems that structural form seen from the point of view of *mechanical* function can be studied satisfactory in this context as problems of

- the properties of structural *materials*
- structural *efficiency*
- structural *scale*

The intention of the proposed philosophy of *materials* is to try to link matter to form. Such questions are pursued by asking: What are the actual

connections between the various properties of structural materials and their inclinations or biases towards form? Another truly fundamental issue is the set of problems that can be treated as questions of *efficiency*, where this particular notion denotes the manner in which a structure responds to loads; what amount of material is necessary to resist those loads, and also to what extent can the actual manufacturing and construction of structural elements and systems be said to be efficient? To achieve as much as possible in terms of load-bearing capacity while spending as little resources as possible, is, for better or worse, one of the true paradigms of building construction. Reasoning about the degree of efficiency plays an important role when structures are evaluated, both visually and analytically.

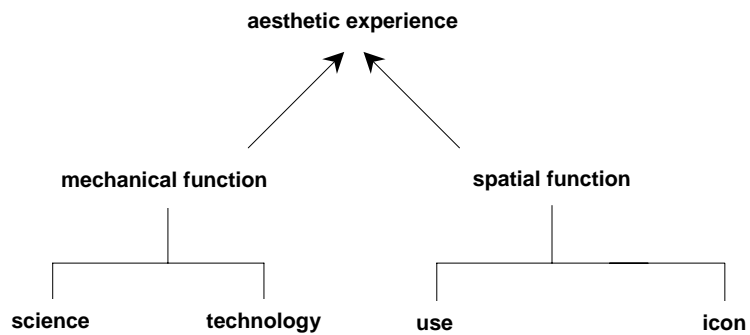
The chapter on efficiency acts mainly as a stepping-stone to the chapter on structural *scale*, and plays an important role as a background for the aesthetic reflections. Approaching structural form from a mechanical point of view, the actual scale of the structures in question is considered to be one of the most important basic form conditions. There is a certain relationship between the scale of a structure and the level of stresses involved in resisting the loads. This relationship requires applying different structural principles to the larger scale than to the smaller scale, even if the basic structural *types* are essentially the same. The aim is therefore to reach an *appropriate level* of structural efficiency suited for a particular structural scale, a level that will contribute to the structure's being aesthetically experienced as being appropriate .

PART 3: AESTHETICS

The function of an aesthetics of structures is to provide an aesthetic theory that takes a more direct material approach, involving process and structural performance more explicitly than is most commonly found in aesthetic theories of architecture.

The aim of an aesthetics of structures is *not* that it should enable us to answer the question of *how* structures of aesthetic merit are achieved. It is, firstly, rather to try to *understand the nature of the aesthetic experience of structures*; what does it consist in? Secondly, but not less important, my aim is obviously also to be able to understand *structures*, that is, *an understanding of structural form which may be brought about by the aesthetic experience*. Underlying this work is, therefore, a belief that it is possible, not only to appreciate an architectural structure aesthetically, but also to understand *why* some structures are found attractive, that is, to understand the origins of this appreciation. Ways to present arguments in support of a pleasing experience are studied, in order to be able to communicate an understanding that may be shared by many.

Fig. 3 The aesthetic experience as constituted by the concepts of the structure's mechanical and spatial function.



The position is taken that aesthetic intentions must be identified through a consideration of specified concepts that apply to the object in question. This is a result of an interpretation of the works of the two philosophers Ludwig Wittgenstein and Roger Scruton. Regarding structures, it is postulated that the aesthetic experience must necessarily be constituted by the specified concepts described by the natural sciences, and those of technology, as well

as those of the structure's spatial function. A case is made for this view. There is no way to experience structural forms aesthetically *as structures*, other than by invoking those concepts when the actual perception takes place.

Central is the idea that an aesthetic experience is always an expression of a relationship between an experiencing subject and the object in question, and that the experience is comprised of both feeling and thought: While the aesthetic experience is partly an experience of the senses, the feelings are in aesthetics *intellectually processed* and this processing is *a part of* the aesthetic experience. When we evaluate an object, and when we communicate with others on the aesthetic experience, we do that by referring to what seems to be appropriate for that particular aesthetic object.

Moreover, the manner in which we *think* about structures affects the aesthetic experience. It is taken as a point of departure that the aesthetic experience intimately relates to what the object actually *might be*, and what the object might be *for*. Without taking account of some idea of the object, a *concept* of the object, an aesthetic judgement will probably be impossible to make, inasmuch as the aesthetic experience, which is at the heart of an evaluation, will be "undermined" by our lack of ideas or thoughts, and a reasonable aesthetic understanding of the perceived object will be prevented. The actual perception therefore refers to some *conception* of what we are seeing.

It also seems clear that we are able to alternate between different aspects of the same work, which means that interpretation and perception imply the ability to *choose*. This is a central idea in Wittgenstein's aesthetic. We are actually able to choose between *ways of seeing*, and hence also between experiences. Different conceptions will make us *perceive* differently. The

result is a potential ambiguity in the aesthetic experiences of structures, that may result from the *choice* of seeing the structure as a mechanical object, or as an instrument for spatial function, respectively.

Part 3 of the thesis is followed up by applying the proposed aesthetic theory of structures to actual problems of criticism.

SOME CONCLUDING REMARKS

The new knowledge generated by this thesis appears on two different cognitive levels. The meta-level involves a knowledge that might be of interest to those who contribute to a general inquiry in the so-called “making professions”. Critics who reflect on the relationships that exist between the various practices and relevant theoretical references, might find it useful to follow a line of reasoning that has its point of origin in the engineering and architectural professions, but in order to contribute to a theory, will find it necessary also to establish a reflective framework that might have a wider interest.

Furthermore, we may note the new knowledge brought about by the present thesis on the cognitive level which is of specific interest for the “making professions”, namely that of the relationship between structure, form and architecture.

In general, the reframing of the concepts that construction involves has led to a critique of the selected structural examples that displays a wide perspective on structural form, and it is supported by rational argumentation. This would have been difficult without introducing a more abstract level of discourse. It is claimed that a theoretical construct which might be able to *unite* the two guiding principles of structures conceptually, has, up to now, been lacking.

It is also concluded that the structural *quality* of architectural structures in many ways can be seen to be dependant upon the spatial context. Not in every aspect, however, because mechanical deficiencies or an unreasonable lack of mechanical common-sense may still ruin a project, but the introduction of different concepts whereby we might understand an actual structural form in several ways, is a tool for a wider, and in part a spatially oriented, perspective. Therefore, this treatise also questions the relationship between architecture and the concept of so-called “good engineering”.

A final conclusion to be drawn from the thesis is, however, that somehow *aesthetics*, because of the way aesthetics is understood here, has become the final reflective arena where all aspects of structural form come together in a wholesome discourse, and where aesthetic evaluation can be seen to sum up both the intellectual and the sensual experiences.

The flat space.

Potentials and constraints of the image in poetics and practice of architecture

Doctoral dissertation of 1996 by Thorleif Uchermann **Skjønsberg**

THE AUTHOR'S SUMMARY

The title of the thesis, *The Flat Space*, is self-contradictory and ambiguous, which of course is intended. On the one hand it is about a "flat" architecture in several senses of the word, and on the other it is about the flat and plane drawing which includes a potential of space.

The background to this theoretical work is the author's experience from practice and teaching, leading to reflections and discussions about the way we perform our profession.

Today we face questions about the survival of the architectural profession, at least in its previous form. New conditions have emerged for architects' activities, and new technologies have appeared. Computers have entered the stage, seemingly a fantastic tool for architects in many domains of design

and in the building process. But where are the limits for their creative capacity related to that of the mind?

Architectural practice is under pressure both from outside and from within. The outside pressure comes from other professions taking over parts of the architect's commission. The clients and the public have less confidence in the professional work of architects. The pressure from within is a matter of dumping fees, resulting in unrealistic competition, and the reduced amount of time for the most important part of the building process: the design phase. This phase *really* requires time for inspiration, investigation and concentration.

In this situation, the core of architectural practice must be taken care of. The creative phase must still be given time and knowledge for making environment of meaning and appreciation. But things cannot be done in the same way as before. The situation calls for introspection and research. Contemporary architecture at its worst lacks properties of materiality and atmosphere, it seems lifeless and dull, having lost its flavour and meaning. Human needs for haptic and tactile experiences, for visual appreciation, and for context often seem forgotten. Architecture seems "flat". Our man-made surroundings are to an increasing degree being created by machines or by non-professionals, even in the creative stage of architecture. When certain properties of the architectural space are left out, the architecture itself becomes more abstract, which often seems the fact today. Some of these problems are in the realm of materials. Others are related to the coherence between two and three dimensions in the process of design.

In what way do we generate architecture? Today there seems to exist an image-paradigm, reinforced by the way we perceive and conceive the world through pictorial mass media. If there is a *flattening* of space-conception,

this is a crucial problem for the architect designer. Are several objects of contemporary architecture *conceived as abstract images*? In this thesis there is a discussion about this assumption versus a three-dimensional conception of *the real world* as the referent for architectural ideas.

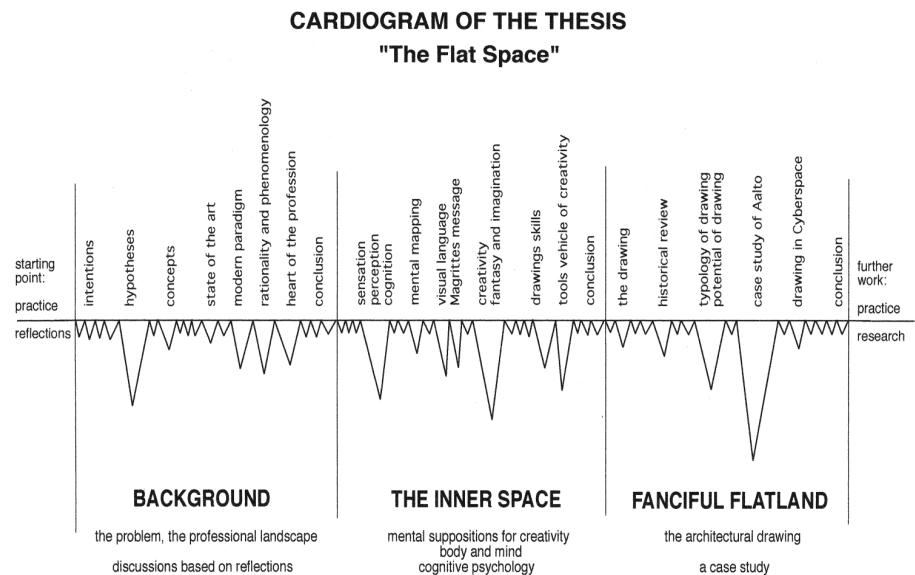
The focus of the work is upon the initial stage of design, where the first ideas of architecture come into the world by means of drawing, and sketches, in a process of graphic thinking.

The thesis consists of three parts, *Background*, *The Inner Space* and *Fanciful Flatland*.

Background aims to present the problem and define its context.

The Inner Space investigates human capacities of body and mind, mostly based upon cognitive psychology.

Fanciful Flatland focuses upon architectural drawing, supported by a central case study.



This illustration aims to reveal the substance and the structure of the thesis, providing a key to the different aspects of the work, and to their context. It also illustrates the pulse of the project, as in a cardiogram. The following text refers to this illustration:

The horizontal line represents the general level of research and discussion. Tiny deflections represent the pulse of many small case studies or examples, illustrated in the book on every second page. The bigger deflections, (the serious heart beats), are caused by deeper studies, being more central topics of the thesis. These are *hypotheses, perception, creativity, potential of drawing, and the case study of Alvar Aalto.*

BACKGROUND

The work aims at generating knowledge about the creative process of architectural design. The thesis does not focus upon the built work as such, but on the *conditions* for architectural design in our age.

Two sets of hypotheses are formulated:

The first set includes *three explicative hypotheses*, pointing out causal links between the contemporary image-paradigm and a deprived architecture.

Five normative hypotheses propose solutions to the problems:

- The first is about the importance of design tools, which interact with the mind and thereby have an effect upon the resultant building.
- The second is about the importance of drawing skills for designers to express their ideas.
- The third is about not leaving the free-hand sketch too early in the process.
- The fourth is about building up perception from reality, not only from images.

- The fifth is that rationality and intuitive processes together form the basis for design.

Concepts such as architecture, form, symbol and design are discussed, since their meanings are disputed.

State of the art discusses earlier and recent theories, and the location of the present work in this landscape. The thesis can be seen as belonging to the tradition of Design Theory and Design Methodology, emphasizing the cognitive aspects of these.

Modern paradigm is about the belief in technical superiority, and the image-paradigm of space-conception emerging since the Renaissance. This part contains a criticism of contemporary design practices.

Rationality and phenomenology defines the distinction between abstract space and lived space, of which I think the latter is the more important for architecture. Sources of reference here are Le Corbusier and Maurice Merleau-Ponty, among others.

Heart of the profession is presented as the architect's central competence to see wholeness, and to imagine and create meaningful spaces.

The conclusion in this part sums up the subject of the work.

THE INNER SPACE

Here, *perception and processes of design thinking* related to images and space are analyzed and discussed.

Mental mapping is a specific ability of memorizing image-structures, which is important for architects.

Language is discussed in relation to pictures and to architecture. Distinctions between verbal language, visual language, pictorial language, and a supposed language of architecture are discussed.

Rene Magritte is central in a discussion of language and pictures, as he breaks the conventions, and opens up for imaginative interpretations.

Creativity is widely discussed in the thesis where fantasy and imagination are central, but seen as two distinct faculties. Imagination is fertilised by fantasy and then forms a basis for the creative work.

Drawing skills are seen as important abilities related to creativity, as they facilitate the visualization and development of ideas.

Tools chosen for design are then discussed, as they seem to have an impact on the creative process as such.

The conclusion of this part supports the cognitive explicative hypotheses, where mental abilities and design capacities are supposed to have causal links to the contemporary image-paradigm and to an abstract architecture.

FANCIFUL FLATLAND

The fascinating world of *drawing*, the mystery of drawing, introduces this part. Drawing may both represent the world, and predict a future situation.

A brief historical review of architectural drawing is presented.

Typology of drawing, here the different categories of architectural drawings are defined, and their possible potentials as vehicles of creativity are discussed here.

Personal drawings include three categories: *Study drawing*, made from existing objects for exercise and practice. *Notation and reading* by drawing, often made on site in connection with a specific commission and situation; these notations often initiate the first idea. And the most important, *Imaginative drawing*, represents non-existing objects, such as an architectural project.

The other main area, *informative drawing*, is descriptive, made in order to communicate with others, like client drawing and technical drawing.

A deeper case study of Alvar Aalto's design thinking is carried out, as by texts, by drawing, and by the built result, he is representative of a tradition rooted in the physical and the real. He also represents a humane approach, which seems to be important for architecture also in the future.

Drawing in Cyberspace is about computers in design. Here the potentials and constraints of the tool are discussed. Computers are the perfect tool to handle an enormous body of knowledge. Its design-capacity connected to this is fascinating. But still it operates in an abstract world. An example is presented and discussed here: Steven Holl's and Juhani Pallasma's collaborate design of The Art Museum in Helsinki. The project was situated somewhere in Cyberspace above the Atlantic Ocean.

The conclusion of this part supports the normative hypotheses on how to create meaningful architecture.

CONCLUDING REMARKS

The present thesis, on how the architectural profession should best be practiced, intends to contribute to a reconciliation between knowledge and practice. The thesis is intended to elucidate, define and support practice. The work also has implications for the education of architecture students; building up perception of *reality*, initiating professional reflection, and developing skills in drawing, are some of these. It is hoped that this knowledge about practice, and how it is best performed in the immediate future, can inspire further investigation in the field.

Architecture and rhetoric.

Text and design in architectural competitions, Oslo 1939-90

Doctoral dissertation of 1996 by Elisabeth **Tostrup**

THE AUTHOR'S SUMMARY

The dissertation is a study of architectural competitions, which deals with the interrelated fields of architectural projects and the language used to advocate them. In particular it deals with the *rhetorical* dimension involved, that is, the ways in which the visual and the verbal competition material communicate the value orientations that are embodied in the designs.

Architectural competitions offer a unique opportunity to investigate the relationship between an architectural design and a text. Two major factors account for this: firstly, the significance that architectural competitions have as an institution both within the profession and in society in general; and, secondly, the fact that the competition material includes descriptive and evaluative texts that are directly related to the project material i.e. drawings,

models and photographs. The major function of competitions is to select one architect and one design from many. Hence, material from competitions expresses the hegemonic¹ architectural values for that particular period of time. I have chosen architectural competitions for public building projects held in Oslo during the period 1939-90 as the subject of this study; thirty-six competitions altogether. The study takes the official publications of these competitions and their results as its source and focus.

What, then, do I mean by *rhetoric*² or rhetorical dimension in this context? Rhetoric, in a wide sense, is essential in architectural competitions because all levels of presentation involve purposeful and persuasive argumentative discourse in which the speaker (*rhetor*), here the author or designer, deliberately attempts to bring others round to his way of thinking. The success of the project depends on the power of its appeal to the receptiveness of the as yet unconvinced. The notion that rhetoric only concerns the use of *verbal* language must here be abandoned in order to gain an understanding of how rhetoric operates in the context of architecture. All architecture is, in a sense, rhetoric. The architect attempts to persuade, to put across a way of seeing or living in space by means of the building itself. The process from design idea to building becomes a whole body of rhetoric and interpretation in which visual and verbal forms of expression are used as explanatory and persuasive means.

The rhetorical aspect of competition material becomes particularly interesting in relation to 'the audience', which is wide and differentiated.

¹ A weak form of domination which consists of a group forming an alliance with others in order to exercise power in such a way that they, in Antonio Gramsci's terms, form a hegemonic block.

² Rhetoric, from Gr. *rhetorike*, the rhetorical art: the art and science of using words [and in visual arts, images] effectively in speaking or writing [or design], so as to influence or persuade; *Rhetor*, from Gr. *Erein*, to say, speak. *Webster's New Twentieth Century Dictionary*, unabridged, second edition (New York, 1983), p. 1555.

Subjected as they are to assessment by specially appointed juries, architectural competitions not only act in persuasive advocacy of the goals and skills of the profession in relation to society, but likewise these goals and achievements are given authority in the inter-professional community of architects. To speak in such a way that professionals think it is good and non-professionals think it is true, in accordance with the goal of classical rhetoric, seems relevant in this respect.

**THE APPROACH: THREE RHETORICAL 'VOICES'
AND THREE KEY ASPECTS OF ARCHITECTURE**

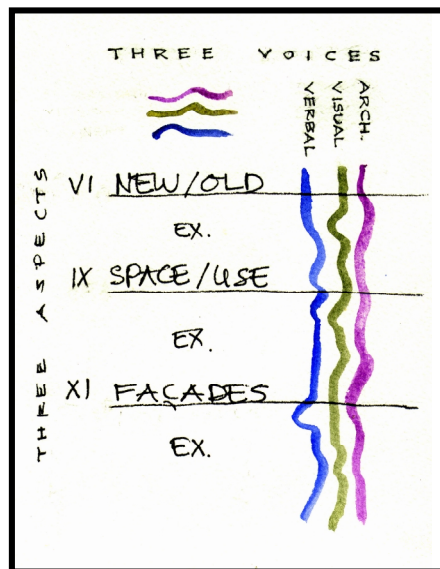
How was I to go about the task of investigating the extensive material of thirty-six competitions? And how was I to structure the communication of my findings and my reasoning in writing the dissertation? There were in fact no models to be found, since literature on competition material, visual architectural representation and architectural texts, was very scarce. I was faced with a large body of material which contained reproductions of the prize-winning designs and excerpts from the different kinds of text - that is, the juries' and authors' reports.

The specific *rhetorical material* in architectural competitions, then, consists of two forms of argument, the *visual* and the *verbal*. A further distinction is needed with respect to the *visual* rhetoric of competition material. Firstly, the design material of drawings and models yields a prefiguration of a *concrete* architectural design. This project, or this work of architecture, is rhetorical as it emphasises certain spatial, architectural qualities more than others. Secondly, the design representation, which is the graphic or *visual rendering*, is rhetorical in the sense that it implies a further selection of values, which are amplified or subdued in the presentation. Finally, the texts constitute a third rhetorical field as they mediate *verbally* a selection and articulation of the values involved; arguments that thereby relate the

message to a wider context of ideas and thoughts among architects and in society in general.

In architectural competitions, then, the core values of the hegemonic architecture are expressed by a *threefold rhetorical set*. My aim has been to study these different fields of expression and their influence on the perception of the value orientations which are prevalent in a specific period.

An attempt to discuss the *designs* and the *texts separately* proved to be difficult and insubstantial. The texts without the drawings can lead to all sorts of assumptions: they are vague and make it possible to imagine a multitude of different architectural responses. The designs serve as visual references for the texts. The drawings can be read without the texts, but the texts help explain and support the perception of the architectural qualities. Hence I decided to focus on the prize-winning projects in view of their *proposed realisation*, and to proceed by including the different rhetorical aspects in a *reciprocal process* of interpretation and demonstration. This decision was important, since it also made it possible to structure the



Three voices
- three aspects

monograph with a certain degree of *coherence* and clarity which simultaneously allowed an *ample* investigation of the different architectural aspects that were included, and which were presented differently by the various forms of expression.

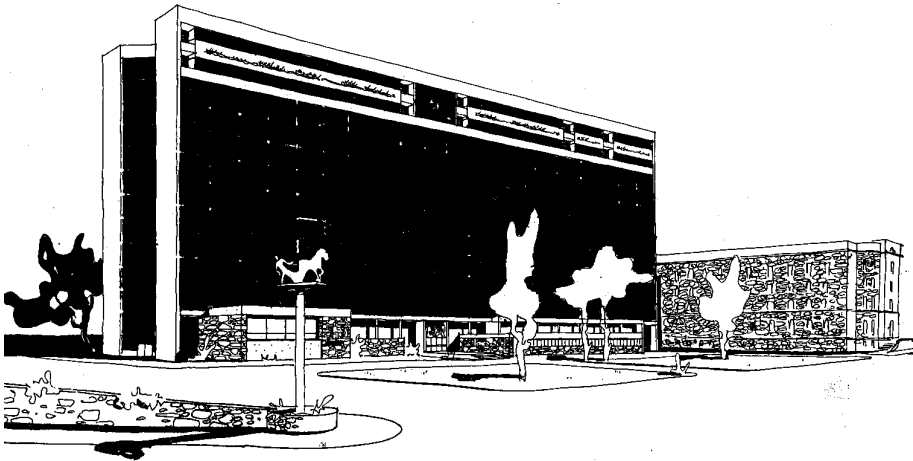
The competitions deal with architecture as a *whole* in accordance with the problems that are posed; they are not exclusively concerned with the inner spaces or the outer appearance, nor by specifically artistic or practical aspects. Regardless of whether one or the other aspect is explicitly stressed or toned down, architecture is bound to have an *appearance* and to be *used* at the same time. Therefore, the problem calls for a *structuring* which is sufficiently differentiated and sufficiently comprehensive to ensure that the selected competitions are subjected to an inquiry that covers different *key aspects* that are necessarily present, and important, in any architectural project. The choice in defining and delimiting these key aspects, as well as determining the succession of their presentation, is the result of thorough deliberation. The key aspects are: (1) the overall problem of the *new* architecture versus the *old* environment, (2) the *spatial* aspect including conceptions of *use*, and (3) *façades* and *interfaces*. This grouping also coincides with the conventions of architectural representation which are represented in the competition material.

I thought of the threefold rhetorical set (the proposed architecture, the visual and the verbal representation) as three different ‘voices’ running through the fabric of the text; as if the three main chapters were movements in a piano sonata in which the different voices are played by two hands, and in which more than one voice can be played by one hand. The analogy, here, includes the aspect of time: the span of the entire period as well as the length or linearity of the text. In this way, the structure of each separate voice and

their interrelationship can be studied. In treating the different architectural key aspects and their corresponding rhetoric, I discovered that the lines of development differed from one another and followed different rhythms. The development of each different aspect has its turning point or breakthrough at different points in time, implying that important changes in the hegemonic architecture can occur while, at the same time, a coherence and continuity are manifest.

The first aspect or theme (that of the *new* versus the *old*) is marked by *discontinuity* and contrasts; the second (that of *space* and conceptions of *use*) is characterised by a *steady* development, and the third (of *façades* and *interfaces*) by a relative *sameness*. In order to capture these different qualities, which is important in order to understand the development of architecture and the rhetorical implications, I decided to structure the three chapters differently, allowing for certain individual features in accordance with the findings in the material. Still alluding to music, for instance Beethoven's 'Sonata Pathétique', the first of these chapters is composed in a manner which features the *contrasts* in architectural attitudes to the matter (analogous to the discontinuity of *tempi* and keys in Beethoven's first

**Self-assertive newness:
New Government
Building, 1939**



movement). This part thus opens by presenting the first period of the fifty-one years, then the last period, and subsequently focuses on the turning point in between. The second chapter (on space) is structured chronologically and shows the steady *adagio* or *andante* pace of progress, and the third chapter (on façades and interfaces) communicates a matter-of-course, homogeneous lightness.

THREE EXCURSES

Each chapter is then followed by an excursion elaborating some particularly typical features of the value orientation as they appear in the preceding chapter. The excursions, then, represent a variant or a deepening of the arguments in a content analysis. Slightly like a *cadence* in a concert the themes and structures are chosen and performed more individually here. Each of these chapters has its point of departure in the study of the competition rhetoric treated in the preceding chapter, but brings the discussion to a more general level with respect to contemporary architecture and the rhetoric of architectural projects. Thus the first excursion treats the aspect of *monumentality, anti-monumentality and identity* in new and old architecture. The second excursion treats the *metaphorical* arguments in the texts, which, by way of their vividness and vagueness, act in contrast to the clean, regular structure of the spaces. The third excursion discusses the tendency in architectural projects to *dissolve* space, the ideals of lightness and open spaces and the consequences for the experience of architecture in the environment. These excursions are interrelated, and complement one another. The second excursion, called 'Order and spatial poetry' lends weight to the reasoning and the *verbal* competition rhetoric; whereas the third called 'Castles in the air, mirrors and foundations' focuses on the *visual* aspect, on how architecture presents itself by its proper architectural means in the design of buildings.

In addition, there are the *introduction* and *preliminaries* which outline the different and specific backgrounds needed for the actual study: one chapter treats the *tradition* of architectural competitions, the next *visual* representation followed by *texts* in architectural competitions, and subsequently the specific *material* of the study. Moreover, I wanted to give a brief background that could connect the competitions to the social *history* of Oslo and Oslo architecture in general before the Second World War. This is done in what I have called 'Three short preludes: images of Oslo and functionalism'. This general history is continued with respect to Norwegian architecture in the post-war period in a small chapter, an interlude, between chapters VII and IX.

The dissertation can be read on several levels: there are the concrete Oslo competitions in their context, there are the rhetorical implications, visual as well as verbal, and there is the discussion of contemporary architecture and the 'culture' of architecture with its rhetorical tradition. As these different analyses together constitute the structural totality of the monograph, they are in the end pulled together and viewed in a final, comprehensive perspective.

It should be emphasized that this study has its point of departure in architecture. It is concerned with deepening and enlarging the perspective from the point of view of practice and the teaching of design rather than architectural history and theory. This particular background is the basis for the reasoning and the choice of arguments that are presented. Thus, drawing on techniques acquired through training and practice, the prize-winning architecture and its argumentation are seen from the viewpoint of architecture as a profession.

FINDINGS

I would now like to sum up a few points briefly:

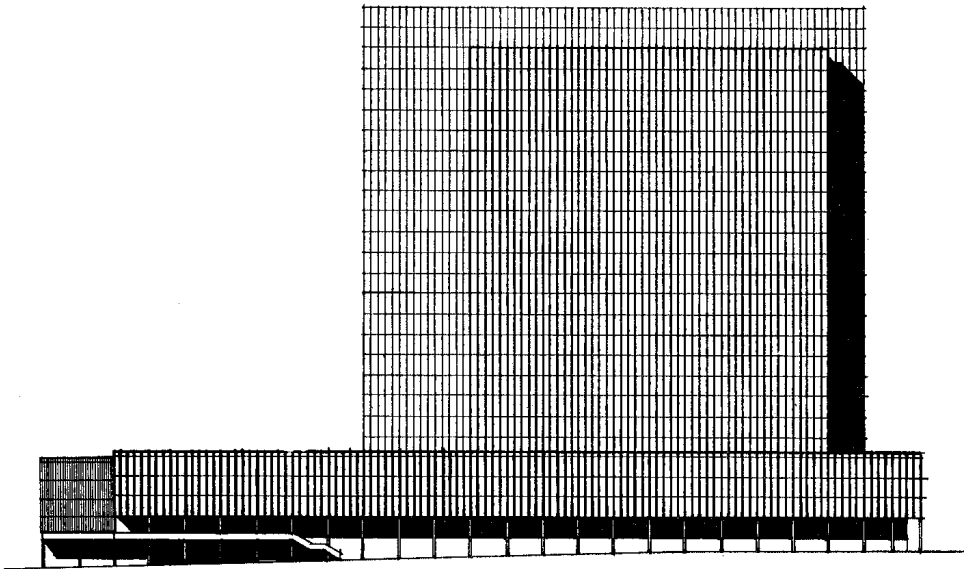
The threefold rhetoric allows a broad and many-sided advocacy of the hegemonic competition architecture. It mediates the implicit value orientations both as a response to the major energies and immediate issues in society, and as a more specific expression of the underlying artistic drives, and codes, within the profession of architecture.

The rhetoric manifests the belief in *progress* and the *new* welfare state that dominated the first period, while it alienates the *old* architecture. Later, adaptation of the new to the old is emphasized. At the same time the discussion of *monumentality* and *identity* elucidates the more subtle alienation of the old, by which the rhetorical advocacies perpetually legitimate the artistic liberty to create newness and contrast.

With respect to *space* and *use* the threefold rhetoric illuminates the complex problem of creating permanent, physical structures in an era devoted to the cult of movement, change and expansion. It tones down conflict by using metaphorical expressions which create vivid images of harmonious and pluralistic human life, such as the 'chess metaphor', the 'living organism' and 'nature' connotations persuasively suggest. The most striking feature of the visual rhetoric is the degree to which it exaggerates the openness and boundless movement in the spaces; a rhetoric which in this respect is clearly illusive.

The *façades* and interfaces provide images of an ordered, egalitarian society and of the hegemonic building industry, as these two fields develop from the firm unanimous manifestation of the welfare state to the diversity and vagueness of a market economy. Remarkably little is said on the issue of the

façades apart from favouring a calm, harmonious or skilful design without exaggerated expressionism.



Anonymous, business-
like, infinite
homogeneity:
Karl Johan kvartalet,
1962

CONCLUDING REMARKS

The rhetorical nature of competition projects and their verbal advocacy act persuasively by enhancing the altruistic and optimistic aspects. Simultaneously and inherently this rhetoric also enhances the relativity and ambiguity of communication and interpretation. The question may, however, be posed whether this kind of rhetoric can unambiguously promote fruitful debates on architecture in society, or whether the implicit vagueness also serves to prevent the discussion of fundamental, underlying principles. This is a difficult and sensitive question that touches the very core of architectural work and architectural culture. The gap, or the blind spots, between the actual proposed architecture and the project's representation, and in particular the verbal presentation and discussion of it, seem to be a typical feature in architecture; an implicit aspect of the profession.

On the one hand, the role of the architect presupposes that the creation of architecture can occur in a situation of mental freedom, spurred on by images and ideas, as if every case was new and unique. The explorative nature of the design process implies a fundamental state of uncertainty and expectancy. Moreover, there will always be important qualities in architecture that cannot be expressed in words.

On the other hand, a great degree of vagueness in communication leaves vast parts of the design process and architectural discourse unexplored, unuttered and unquestioned. The very purpose of architecture is indeed to be public. The tendency to leave the core professional values open to mystification and prophetic pretensions may sustain the traditional structures within the profession, but does not suffice to advance the authority of architects in a world which is constantly subjecting architecture to ever more complex and demanding conditions. The challenge of architecture as a public phenomenon, therefore, requires of the architect a great awareness of his professional work; an awareness that enables him to view his role and the nature of his work in a wide perspective. Such a professional self-awareness involves in my opinion an expansion of the realm of intuition with a heightening of the reflective, questioning and discursive elements within the professional culture.

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