Talking in the City: Three Books on Beirut. *Design Issues*, Volume 22, Number 3 (Summer 2006), pp. 74-77

Introduction

The current issue of the journal is what the editors sometimes call a "regular" or "open" issue, in contrast to a special "theme" issue. This means that the articles are diverse and not selected to explore a specific subject or topic. Nevertheless, there is a theme operating even in an open issue. It is the broad theme of reflection and inquiry that we believe characterizes the field of design. This is what gives coherence to *Design Issues* and, we hope, makes it valuable for anyone interested in design, whether a scholar, a student, a practicing designer, or a general reader. The first element is the relationship of past, present, and future. We believe that history, criticism, and theory must work together if our understanding of design is to grow strong. The subjects and discipline of thought in each is a corrective of the others. The second element is the value and the essential fact of pluralism in the design community. We believe that appreciation of the interplay of contrasting perspectives and approaches is the best way to advance our understanding of design. In short, the idea of an ecology of design culture—a pluralism of perspectives, grounded in an understanding of the past, present, and future of design—stands behind even our "open" issues of the journal.

We begin this issue of the journal with an article on one of the persistent challenges of design theory: how to provide an adequate account and explanation of how designers do their work, with a goal of better understanding and, in the long run, better design practice. The importance of this challenge is sometimes dismissed by practicing designers who are often more concerned with practice than theory. Yet, even the practicing designer is more and more called upon to explain what he or she does—called upon both by clients and by colleagues from other fields with whom the designer increasingly must work. Kees Dorst focuses on one aspect of the issue, characterized by Nigel Cross in his introduction to *Developments in Design Methodology* (1984) as the "*description* of the intrinsic nature of design problems." Dorst calls for a reconsideration of design as problem solving and, specifically, Herbert Simon's ideas about well-structured and ill-structured problems. In essence, Dorst argues that we should shift our attention away from trying to define a design problem—in his view at best a moving target and at worst indefinable—toward the designer and the paradoxes of discourse that surround the problematic situation the designer faces in practice. Drawing on diverse supporting work, ranging from Lucy Suchman's *Plans and Situated Actions* to phenomenology, he keeps alive the sometimes-faltering struggle to understand design methodology.

In contrast to explicit theory, Seçil Şatir provides an account of the rise of industrial design education in Turkey, focusing on the history of the State School of Applied Fine Arts in Istanbul. Both theory and, more obviously, national policy play a role in the establishment of this school and its development from the late 1950s to the present. National policy involved the gradual industrialization of Turkey and the interplay of fine arts, craft, and mass production—all related, of course, to the development of the university system in Turkey, as well. Also important, however, is the influence of postwar Germany in providing the theoretical and pedagogic foundations of the school. Bauhaus ideas, mediated through different institutions in Germany after the war, and then the Hochschule für Gestaltung Ulm, along with some influence from the United States, helped to shape the Turkish approach to industrial design.

In the next article, Elisa Giaccardi offers a case study of collective storytelling at the Virtual Museum of Collective Memory of Lombardia. *Design Issues* seldom publishes simple case studies, but when a case is well contextualized within a framework of design issues the result can be both interesting and valuable for readers. Giaccardi's account probes the idea of what it means to have a virtual museum in our time and how such a museum may be anchored in the social life of a region. This article provides useful ideas for the development of design thinking that should interest designers who are exploring digital technology and social communication. Watch the theme of "meta" in this article, because it begins to open the door to "meta-design" thinking.

Underlying the theme of information design in the virtual museum is the broader theme of the politics of information in museums and exhibitions. This is addressed by Nader Vossoughian in the next article, an historical account of the role of Otto Neurath in the interwar years in Europe as he sought to develop and implement the "Vienna Method of Pictorial Statistics" through the Museum of Society and Economy and the International Congress of Modern Architecture (CIAM). The interplay of Marxist dialectical materialism, Vienna-style positivism, and the poetic pragmatism of Moholy-Nagy make for a lively and informative narrative. Though the subject matter of Neurath's attention is architecture, urban planning, and the modern city, the reader will see many useful connections to the politics of graphical representation. In passing, we should also note the Vossoughian's account serves to illustrate an important point made by Tony Judt in his recent *Postwar: A History of Europe Since 1945*, namely the rise of "governmental planning" in the interwar years.

In this issue we also present a variety of items that we believe will interest our readers. One is a photo essay by Amir Berbić on "Dubai—Land of Contrasts." Berbić designed the cover for this issue of the journal, and we are pleased to offer his Dubai as "history rising." There are also two exhibition reviews in this issue. One is by Ezra Shales on the Museum of Modern Art's exhibition "Safe, Design

Takes on Risk." The other is by Caroline M. Hannah on the exhibition "Designing the Taxi," presented at Parsons. Finally, in addition to our annotated list of Books Received, we offer a review essay by Richard Becherer, "Talking in the City: Three Books on Beirut." These stories of design and designers in a troubled city should interest all of our readers.

Editors' Note: Beginning with the next issue of the journal, we will be joined by a new co-editor, Bruce Brown. Bruce was educated as a graphic designer and is currently Professor and Dean of the Faculty of Arts and Architecture at the University of Brighton. He is well experienced in the conduct and development of research, and he chairs the panel charged with the assessment of research across the United Kingdom in the arts and humanities. In addition to extensive experience in education and pedagogical research, his research in recent years focuses on various aspects of "graphic memory," including the relationship of visual memory to contemporary advertising and branding. He is a member of the "Memory, Identity, and History" research group at Brighton. Bruce will bring a valuable perspective to the journal. We are delighted to welcome him to *Design Issues*.

Richard Buchanan
Dennis Doordan
Victor Margolin

Design Problems and Design Paradoxes

Kees Dorst

Introduction

The problem-solving literature that arose in the 1960s and 1970s in the promising and exciting field of artificial intelligence has had a profound impact on Design Methodology. The introduction of these theories in Design Methodology, at the start of the 1970s, helped to systemize the models and methods of design existing then, and link them to models of problem solving in other fields. There were high hopes that the very nature of design could be captured in a description that was based upon considering design the solution to "ill-structured problems."

Although there have been many developments since then, the original work on problem solving and the nature of ill-structured problems, written by Herbert Simon, still looms large over the field of design methodology. The rational problem-solving paradigm, based on the conceptual framework that Simon introduced, is still a dominant paradigm in the field.[1] Design models and methods have been developed within this paradigm; the conceptual framework of rational problem solving has become the normal "language" of thinking and talking about design. There also have been many critiques of Simon's problem-solving approach and its applicability to the field of design, and many of the original statements in the problem-solving theory that deal with design have since been qualified and refined. However, these critiques have not produced a fundamentally different alternative to the conceptual framework.

In this piece, we will revisit the basic assumptions behind Simon's approach to design, notably the central concept of "ill-structured problem," and introduce some ideas that could lead to an alternative conceptual framework for thinking about design problems. First, we will revisit the original work by Simon at considerable length, and unearth the assumptions that underlie the conceptual framework that Simon uses to describe ill-structured problems. Then we will deal with some more recent developments within the problem-solving framework, and discuss some of the critiques on the rational problem-solving approach to design—again concentrating on the central notion of ill-structured problems. We will use this critique to propose a fledgling framework of alternative concepts that could be used to augment our understanding of the nature of

1 C.H. Dorst, *Describing Design: A Comparison of Paradigms* (thesis TUDelft, 1997).

"design problems." We will end with some further reflections and ideas for the development of an alternative framework for describing design.

The Core of Simon's Theory

In describing the core of Simon's conceptual framework, we first will concentrate on his classic 1973 paper: "The Structure of Ill-structured Problems." Unless otherwise stated, all quotes used in this section are taken from that paper. Of course, the conceptual framework that an author uses can be read from any paper, but this paper is especially suited because it is nicely explicit in its application to the field of design—although still broader in its orientation. The most important conclusions have been checked with other (later) papers by Simon.

Within Simon's theory, the issue of the solution of design problems takes the stage as an example of a wider category of problems—what he terms "ill-structured problems." In his paper, Simon sets out to explore the relation between ill-structured problems and "well-structured problems." He starts with the remark that many kinds of problems that often are treated as well-structured probably should be regarded as ill-structured. Even the limited problems ("limited" in the sense of taking place in an enclosed and well-defined world) that are used as standard examples in problem solving and AI literature, such as in playing chess, display elements of ill-structuredness on closer scrutiny:

> Even if we regard chess playing as a well-structured problem in the small, by most criteria it must be regarded as an ill-structured problem in the large (over the course of the game).

The stated goal of his paper is to show that there is no real boundary between well-structured problems and ill-structured problems, and therefore no reason to assume that the solution of ill-structured problems would require new and hitherto unknown types of problem-solving processes. To start the comparison, Simon lists the following properties of well-structured problems:

1. There is a definite criterion for testing any proposed solution, and a mechanical process for applying the criterion.
2. There is at least one problem space in which it can be represented as the initial problem state, the goal state, and all other states that may be reached, or considered, in the course of attempting a solution to the problem.
3. Attainable state changes (legal moves) can be represented in a problem space, as transitions from given states to the states directly attainable from them. But considerable moves, whether legal or not, also can be represented—that is, all transitions from one considerable state to another.

4 Any knowledge that the problem solver can acquire about the problem can be represented in one or more problem spaces.
5 If the actual problem involves acting upon the external world, then the definition of state-changes and of the effect upon the state of applying any operator reflect with complete accuracy in one or more problem spaces the laws (laws of nature) that govern the external world.
6 All of these conditions hold in the strong sense that the basic processes postulated require only practicable amounts of computation, and the information postulated is effectively available to the processes—i.e., available with the help of only practicable amounts of search.

In the cases where all these rules apply, they allow such a well-structured problem to be solved by a "general problem solver," a computer program that follows preset rules to arrive at a solution. Simon later adds an extra criterion that further limits the actions that are allowed within the problem-solving process:

> What some notions of well-structuredness require, however, is that these capabilities be defined in advance, and that we do not allow the problem solver to introduce new resources that "occur" to him in the course of his solution efforts. If this condition is imposed, a problem that admits restructuring through the introduction of such new resources would be an ill-structured problem. A problem that is not solvable with reasonable amount of computation when all knowledge must be expressed in terms of the original problem space may be easily solvable if the problem solver is allowed to use knowledge in another space.

Two important points can be picked up from these definitions. Apparently, if the problem-solving effort involves learning, or the redefinition of the problem, the problem cannot be considered well-structured. And there is a methodological point to be made: apparently, if we take item six in the definition of well-structured problems seriously, the ill-structuredness of a problem depends on the solution methods that are available to solve it. This opens up the way for suspecting that the ill-structuredness of a problem may not be an *a priori* property of the problem itself, but is linked to the capabilities of the problem solver. In this way, the subject that does the problem solving actually influences the very nature of the problem. Simon goes on to explain that:

> In general, the problems presented to problem solvers by the world are best regarded as ill-structured problems.

Nevertheless, Simon maintains that the problem-solving theory that is based upon the solution of well-structured problems should serve as the basis for **all** problem solving. He has been criticized for this standpoint, and later concedes that:

> ... there is merit to the claim that much problem-solving effort is directed at structuring problems, and only a fraction of it at solving problems once they are structured.

There is a basic assumption here that even though well-structured problems as such do not exist in the real world, the construction of well-structured problems from ill-structured problems is the way to solve an ill-structured problem. Simon then illustrates the solving of ill-structured problems by taking an example from design. The example involves designing a house, and concentrates on the technical problem of designing the layout of the house. In this case, the structuring actions that turn the ill-structured design problem into a well-structured problem are done by the architect:

> Additional specification will be obtained from the dialogue between architect and client, but the totality of that dialogue will still leave the design goals quite incompletely specified. The more distinguished the architect, the less expectation that the client should provide the constraints.

This is quite plausible, but Simon ignores the other conclusion one could draw from this example: namely, that even in the case of such a technical problem, with clear variables that allow for technical reasoning, and with the involvement of only one stakeholder, even here subjectivity creeps into the problem-solving process by the actions needed to construct a solvable problem. This means that, for the problem-solving theory to hold up as a good basis for the description of design, we now also need a detailed description of the problem solver, including an account of the earlier knowledge that the problem solver potentially brings to bear on this situation. One could even conclude that an ill-structured problem can't be modeled without taking these properties of the problem solver into account. The interpretation of the problem is important, even in the simple example that Simon describes. Interpretation becomes even more important when we see that design is a process of multiple steps, not a one-off decision making situation. New interpretations will be based upon the interpretation that has been taking place in the earlier steps of the problem-solving process:

> As a matter of fact, the whole procedure could be organized as a system of productions, in which the elements already invoked from memory and the aspects of the design situation already arrived at up to any given point, would serve as the stimuli to evoke the next set of elements.

This means that in a multistep problem-solving process, each problem solver will get the chance to pile interpretation upon interpretation, and thus end up taking the problem-solving processes in completely different directions. Therefore, the use of memory and subjective interpretation becomes a major influence on the problem-solving behavior of designers. If we take this seriously, then it undermines the very idea of having one, knowable problem at the start of the problem-solving process. But Simon misses this point:

> ... the architect will find himself working on a problem which, perhaps beginning in an ill-structured state, soon converts itself through evocation from memory into a well-structured problem.

This statement is not supported by the data provided by Simon in his own example. It is, in fact, a restatement of the assumption that only well-structured problems can be solved. This is one of the major points where the applicability of Simon's problem-solving theory to design has been questioned. It is important to note that, even if we were to agree with Simon that design problem solving would be based on the "normal" solution of well-structured problems, then this step of conversion becomes a major part of the problem-solving activity. This should be specified for the problem-solving theory to be complete. Simon later partially agreed to this by introducing an unspecified "noticing- and-evoking mechanism," speaking about the need for an "indexed memory," and placing the design process in an "effective problem space":

> ... the effective problem space will undergo continuing change throughout the course of the game (author's note: *problem-solving activity,*), moving from one subspace to another of the large space defined by the contents of the long-term memory.

Here again, the course of the problem-solving process and the very structure of the ill-structured problem are determined by the possibilities for action that the problem solver considers. These possibilities for action are closely linked to the interpretation of the problem and the content of the acting subject's memory.

Simon concludes his paper:

> ... the boundary between well-structured and ill-structured problem solving is indeed a vague and fluid boundary. There appears to be no reason to suppose that concepts as yet uninvented and unknown stand between us and the fuller exploration of those domains that are most obviously and visibly ill-structured. It suggests that there may be nothing other than the size of the knowledge base to distinguish ill-structured problems from well-structured problems, and that general problem-solving mechanisms

> that have shown themselves to be efficacious for handling large, albeit apparently well-structured domains should be extendable to ill-structured domains without any need for introducing qualitatively new components.

This conclusion is not supported by the data, and contains a logical weakness: the fact that it is hard to draw a line that distinguishes between well-structured problems and ill-structured problems doesn't mean that there is no difference. There may be elements within the process of solving ill-structured problems that can actually be more or less straightforward steps (that can be considered well-structured problems), but that doesn't mean that the solving of ill-structured problems can be reduced to these straightforward steps. There is no evidence to support the claim that both kinds of problem solving are the same. The problem here is that Simon models well-structured problems and ill-structured problems in the same way. He never escapes from the circularity in his argument, and shoves aside the obvious differences between well-structured problems and ill-structured problems.

Later Developments

The rational problem-solving paradigm has become a powerful tool for the modeling of design, inspiring and permeating a large part of design methodology. However, the fundamental weaknesses in the conceptual framework that were unearthed in the last section also can be recognized in these later developments of the problem-solving approach to designing. The main thesis in this paper will be that these weaknesses are such an integral part of the problem-solving inheritance that they cannot easily be solved from within the rational problem-solving paradigm. Two examples might illustrate this point.

In the substantial body of work on the "Function-Behavior-Structure" model of design that has been developed by the research group at the Key Centre for Design Computing and Cognition, under the supervision of John Gero, we can find several echoes of the same difficulties. For instance, the FBS model ascribes an equally large role to the use of "design prototypes" in determining the "framing" of the design problem, as Simon does to the "memory" and "experience" that a problem solver needs to transform an ill-structured problem into a well-structured one. This large role for "experience" and "prototypes" leads to grave methodological difficulties. Because of the very open-ended way in which the use of "design prototypes" is described in the FBS model, they potentially make up a vital part of the design process, actually bypassing the design process that is modeled in the core FBS model.[2] The neat and clear design process model looses most of its value if it is preceded by a very messy and overwhelmingly influential step called "the adoption of a prototype."

2 C.H. Dorst and P.E. Vermaas, "John Gero's Function-Behavior-Structure Model of Designing: A Critical Analysis" *Research in Engineering Design 16* (2005): 17–26.

In a recent paper, Dorst and Cross[3] have tried to find a way to arrive at a closer description of problem solving of ill-structured problems by using an empirical study to analyze and describe the design process as a "coevolution" of the design problem and the design solution. This coevolution model of design is based on the work by Maher et al.[4]

Based on their empirical study, they observe that the creation of solutions to ill-structured design problems seems to be a very gradual process—an evolution. Their analysis shows that creative design is not a matter of first fixing the problem (through objective analysis or the imposition of a frame) and then searching for a satisfactory solution concept. Creative design seems more to be a matter of developing and refining together both the formulation of a problem and ideas for a solution, with constant iteration of analysis, synthesis, and evaluation processes between the two notional design "spaces"—problem space and solution space. In creative design, the designer is seeking to generate a matching problem-solution pair, through a coevolution of the problem and the solution. Creative design involves a period of exploration in which problem and solution spaces are evolving, and are unstable until (temporarily) fixed by an emergent bridge, which identifies a problem-solution pairing. The description of design as the coevolution of problem and solution leads to the uneasy conclusion that, in describing design, we cannot presuppose that there is something like a set "design problem" at any point in the design process.

This leads to some very pertinent methodological questions. Can we still describe design in terms of problem-solving theories if we have to abandon the idea that the "design problem" can be identified at all? What then is the meaning of saying that design is a process running from "a problem" to "a solution"? We can probably stick to the problem-solving theory of design only if we abandon the idea that there is a definable problem at the start of the design process, and postulate that it will be constructed later on. This then begs the question how this problem is constructed, and whether this process of "problem construction" can be modeled at all. Also, if this process of problem construction could be modeled, whether that modeling should be done within the rational problem-solving paradigm, or outside of it.

In the next sections, we will introduce two different approaches that already have been taken to tackle this problem. First, we will consider the work of Dreyfus and Suchman, modeling design problems as situated problems; and then we will look at Hatchuel's ideas on "extended rationality." Finally, we will use this critique to present an idea for a fledgling model of design problems based on a radically different set of concepts.

3 C.H. Dorst and N.G. Cross, "Creativity in the Design Process: Co-evolution of Problem-solution," *Design Studies* 22 (2001): 425–37.

4 M.L. Maher, J. Poon, and S. Boulanger, "Formalizing Design Exploration as Co-evolution: A Combined Gene Approach" in *Advances in Formal Design Methods for CAD*, J.S. Gero and F. Sudweeks, eds. (London: Chapman and Hall, 1996).

New Approaches

The "rational problem-solving paradigm" developed in the 1960s and '70s largely was inspired by developments in AI and the cognitive sciences. The epic endeavor to build intelligent computer systems focused on the ability of such a system to solve ill-structured problems within an open context—somewhat comparable to designing. These systems, based on a rational problem-solving approach, represented the "relevant aspects" of the world, and set up formal procedures to manipulate these representations in order to solve a problem. This approach has failed.[5] Alternative approaches were developed based on situating problem-solving activity.[6, 7, 8] We will now explore whether considering design as situated problem solving will help us get closer to developing an alternative description of design problem solving.

Situated Problem Solving

The description of design as a situated activity involves two important shifts in standpoint. The first consideration in situated problem solving is the design problem as seen through the eyes of the designer, in the design situation. This means that we concentrate on the "local" design problem that a designer faces, and ignore the "overall" design problem as something of an abstraction. We also have to deal with the vagueness (i.e., lack of overview) and subjectivity inherent in local design actions and decisions. Seen from this perspective, "the design problem" as such does not really exist as an objective entity in the world. It is an amalgamation of different problems centered on the basic challenge described in a design brief. This amalgamation of problems discovered by the designer in the design process is partially created by the designer. The process of "approaching a design problem" or "dealing with a problematic situation" is a vital clue to understanding what design problems are. The second fundamental shift in standpoint is that, for much of the design project, the problem-solving steps can be quite logical, routine, and implicit; without any real choice by the designer. Dreyfus holds that problematic situations are the result of a "breakdown" in this normal, fluent problem-solving behavior. (The problem becomes "at hand," in Heidegger's terms.) These "breakdowns" are then the moments of real choice. It thus becomes very important to distinguish and describe the nature of these breakdowns—the critical situations in design.[9] These breakdowns are the points that Schön, in his work on reflective practice, describes as "surprises."[10] Schön describes them as the turning points in the designer's reflective conversation with the situation. Please note that the definition of a "design problem" has been narrowed, and limited to the situations where routine problem solving has failed.

If we can be convinced by Dreyfus and others that there is never a (complete) representation of the design problem in the head of the designer, then the only thing left for us to study is the "local"

5 H.L. Dreyfus, "Intelligence without Representation: Merleau-Ponty's Critique of Mental Representation," *Phenomenology and the Cognitive Sciences* 1 (2002): 367–383.

6 F.J. Varela, E. Thompson, and E. Rosch, *The Embodied Mind* (Cambridge, MA: MIT Press, 1991).

7 T. Winograd and F. Flores, *Understanding Computers and Cognition* (Norwood, NJ: Ablex Publishing, 1986).

8 L.A. Suchman, *Plans and Situated Actions* (Cambridge: Cambridge University Press, 1987).

9 E. Frankenberger and P. Badke-Schaub, "Modeling Design Processes in Industry: Empirical Investigations of Design Work in Practice" in *Proceedings of DMD'96,* O. Akin et al., eds. (Istanbul, 1996).

10 D.A. Schön, *The Reflective Practitioner* (New York: Basic Books, 1983).

network of links that a designer considers while tackling a design problem in the design situation. The incompleteness and subjective nature of this local network of problems means that we need a model of how designers approach a problematic situation.

Problem Solving and Design

Hatchuel[11] analyzes the work of Simon on design in its original context, as part of Simon's bigger project on the development of a theory about "bounded rationality." The aim of this project was to "explain human behavior by simple and constrained, yet informed, decision rules." The bounded-rationality project spans Simon's work in economics, artificial intelligence, and design. This lifelong background project can help us understand what Simon is trying to achieve in his writings on design. It also explains the strong emphasis that Simon placed on the solid ground provided by well-structured problems, and the rules for solving them, that we have seen in the section describing the core of Simon's theory.

For Simon, creativity and discovery in science, art, and design were all potentially describable within the bounded rationality perspective. In developing this perspective, Simon sees a strong theory of design as crucial. The possibility to develop a strong theory on design (the archetypal "science of the artificial") within this general framework of bounded rationality serves as a litmus test for the bigger project itself. Simon's drive to achieve this leads to poetic statements:

> The proper study of mankind is said to be man ... If I have made my case, then we can conclude that, in larger part, the proper study of mankind is the science of design, not only as the professional component of a technical education but as a core discipline for every liberally educated person.[12]

Hatchuel argues that Simon is overeager in his efforts to incorporate design within the general bounded-rationality problem-solving theory. Hatchuel illustrates the distinction that he thinks needs to be made between design and problem solving by an example in which two problem situations are compared. He pictures a group of friends coming together on a Saturday night. The one problem situation is that they are "looking for a good movie in town"; the other problem situation is that they set out to "have a party." The first situation is considered to be "problem solving," while the second situation is, in Hatchuel's terms, a real design project. Hatchuel argues that there are three important differences between these situations:

A. The first difference is that the design situation includes the (unexpected) expansion of the initial concepts in which the situation is initially framed ("a party"). This makes the solution process a "project" instead of a "problem." There is no dominant design for what a party should be, so imagination needs to be applied at this very fundamental level.

11 A. Hatchuel, "Towards Design Theory and Expandable Rationality: The Unfinished Program of Herbert Simon," *Journal of Management and Governance* 5:3–4 (2002).

12 H.A. Simon, *Sciences of the Artificial* (Cambridge, MA: The MIT Press, 1992), 159.

B. A second difference is that the design situation requires the design and use of "learning devices" in order to get to a solution. These "learning devices" are sub-processes that help us "learn about what has to be learned or should be learned." They include experiments and simulation techniques.

C. Finally, in designing, the understanding and designing of the social interactions is part of the design process itself. The group of friends needs to develop a way of reaching a solution that cannot be supposed to exist before the design situation arises. This point comes very close to the work of Louis Bucciarelli, who claims that: "Design is *fundamentally* a social process."[13]

From this comparison, we can conclude that design undoubtedly includes stretches of ill-structured problem solving, but that it also contains other processes. For Hatchuel, design includes problem solving, but it cannot be reduced to problem solving. He states that any model or description method that tries to reduce design to problem solving is bound to miss important aspects of the design activity. This observation ties together our earlier conclusions, and the remarks made on the modeling of design as coevolution and situating design problem-solving activities.

All of this means that the very notion of "design problem" becomes extremely problematic. If the "design problem" in general is not knowable at any specific point in the design process;[14] and if it is evolving in the design process—at least until the creation of the design concept, and possibly beyond that point;[15] and if the connotations of the very concepts that are used to describe a "design problem" are shifting as a part of the design effort;[16] then we need to radically reconsider our use of the term "design problem." The fundamental question that now presents itself is: What is the real meaning the term "design problem," and how we can use it in design methodology?

To explore this, we will use a philosophical technique called "bracketing" that was pioneered by the phenomenologist Husserl in the early years of the twentieth century. In bracketing, we first establish that the notion of design problem, though deceptively simple, is just too complex and complicated to be useful in studying design. We have tried to show in this paper that the notion of design problem is so riddled with difficulties that it actually is obscuring our vision of the phenomenon that it tries to cover. So we propose to "bracket" the notion of design problem, meaning that we are temporarily going to describe the underlying phenomenon without using the term itself. Once we have this description and analysis of the underlying phenomenon, the bracketed word can be reintro-

13 L.L. Bucciarelli, *Designing Engineers* (Cambridge, MA: MIT Press, 1994).

14 H.L. Dreyfus, "Intelligence without Representation— Merleau-Ponty's Critique of Mental Representation," *Phenomenology and the Cognitive Sciences* 1 (2002): 367–383.

15 C.H. Dorst and N.G. Cross, "Creativity in the Design Process: Co-evolution of Problem-solution," *Design Studies* 22 (2001): 425–37.

16 A. Hatchuel, "Towards Design Theory and Expandable Rationality: The Unfinished Program of Herbert Simon," *Journal of Management and Governance* 5:3–4 (2002).

duced, in a way that it is better connected to the other terms that are used to describe the phenomenon within the nomological network. This latter step is important: if the bracketed word is widely used in vernacular descriptions of the subject (as surely is the case for "design problem"), then it would be foolish to ignore that use.

Paradoxes and the Modeling of Design as a Discursive Activity

In this section, we will attempt to create a new description of the design situation without using "design problem," while accommodating some of the difficulties that we have encountered in our analysis of the use of the term within the rational problem-solving paradigm. Setting up of an alternative conceptual framework is an open-ended problem in itself: design can be described in numerous ways. For reasons that go beyond the scope of this paper, we have chosen to develop a fledgling theory of design centered on "paradox" and "discourse." The reader should take the description of design that is presented in this subsection as one example of many possible ways to describe the same phenomenon. We hope to inspire the reader to develop additional ways.

The use of the term "paradox" is inspired by the work of Caroline Whitbeck. In her book *Ethics in Engineering Practice and Research*, she remarks:

> ... The initial assumption [author's note: within moral philosophy] that a conflict is irresolvable is misguided, because it defeats any attempt to do what design engineers often do so well, namely, to satisfy potentially conflicting considerations simultaneously.[17]

This description of paradoxical situations defines the nature of the problematic relationship that designers and engineers are dealing with through their design thinking.[18] "Paradox" is used here in the sense of a complex statement that consists of two or more conflicting statements. In the initial state of the paradoxical problem situation, all the statements that make up the paradox are true or valid, but they cannot be combined. A paradox, a real opposition of views, standpoints, or requirements, thus requires a redefinition of the problematic situation in order to create a solution. An example from product design would be that a certain product, that cannot be moved, needs to be there to perform its function at one moment in time, and it needs to be invisible and not take up space at another moment in time. The creation of solutions to a paradoxical design situation often requires the development and creative redefinition of that situation.

The elementary statements that make up the paradox, and the viewpoints and ways of thinking that underlie these statements, will now be described in terms of "discourses." The term "discourse" was introduced by the philosopher Michel Foucault, most extensively in his book *The Archaeology of Knowledge*.[19] He uses

17 C. Whitbeck, *Ethics in Engineering Practice and Research* (Cambridge: Cambridge University Press, 1998).

18 This situation of being hampered in the normal, routine problem-solving activity has been described in terms of "surprises" (Schön, 1983), or "critical situations" (Frankenberger, 1996).

19 M. Foucault, *The Archeology of Knowledge* (London: Routledge, 1969, 1989).

this term to describe the complete structure of terms and relationships that lie at the basis of the thinking and discussions within an area of human activity. These terms and relationships can, for instance, be captured in textbooks and in well-known examples of "the normal way of working." Because the terms and relationships within a discourse make up the very elements of human thought, the discourse in a field spans the *complete* breadth of human thinking within that domain. "Discourse" can be loosely compared to Kuhn's use of "paradigms,"[20] but Foucault doesn't support Kuhn's idea of the wholesale "revolutions" as the origin of these discourses. In his own work, Foucault traces the changes in the meaning and use of key concepts within a domain, rather than looking for revolutions.

In most design disciplines, there are many discourses that somehow have to be linked in the creation of a design solution. In product design practice, for example, relevant discourses include the bodies of thought about technology, form an aesthetics, ergonomics, etc. These are called the "aspects" of a design.[21] Discourses also can be embodied in a design situation by the roles and the value systems of the different stakeholders involved in the project. The creation of a solution to the paradoxical design situation thus also becomes a social process.

The designer, in his/her paradoxical problematic situation, needs to construct a design that transcends or connects the different discourses, in a general sense (by the construction of a meta-discourse), or just in the concrete instance of the design-to-be-developed. To do this, the designer has to step out of the ways of thinking embodied in the discourses. This step is likely to include a strong intuitive element. Based upon a clear understanding of the discourses, and upon earlier experiences with paradoxical situations, a solution is created that needs to be evaluated from the standpoints of all the different discourses (i.e., to see that the solution is valuable within the relevant discourses). Designers use their understanding of the ways of thinking within the different discourses to create a framework in which a solution is possible for the paradoxical situation. The paradoxical problem situation works as both a trigger to creative imagination and as a context for the evaluation of the design. For the solution to *be* a solution, it needs to be recognized as such in the contexts of all the relevant discourses. (In practice, this often means, first and foremost, that it should be acceptable to all the relevant stakeholders.)

Discussion

In this last section, we have constructed a model of design in which the nature of "design problems" is further specified. A "design problem" is taken as a paradox, made up out of the clash of conflicting discourses. The nature of creative design is the forging of connections between these discourses, on a general level or in the concrete design. It should be stressed that this is just a fledgling theory, meant

20 T.S. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962, 1969).

21 C.H. Dorst, *Describing Design: A Comparison of Paradigms* (thesis TUDelft, 1997).

to solve some methodological problems, but undoubtedly creating new ones. At least it does shed some new light upon the three main problems with the use of the term "design problems" in design methodology identified earlier:

1. *The "design problem" is not knowable at any specific point in the design process.*[22] With the adoption of the design situation as the unit of description, the question of defining the design problem as a whole becomes irrelevant. The paradox that drives the design process within a problematic situation, at a certain moment in the design process, should be determined from the designers' actions and words. The next task we then encounter in the quest to really understand design is, of course, to define the structure of the discourses. This could be difficult, although Foucault has developed some basic methodologies for this in his original work on the history of the discourse on mental illness.
2. *The "design problem" is hard to identify because it evolves in the design process.*[23] This is partly covered above. We could add that the discourses hardly evolve within a design project, but that paradoxes (the point at which the discourses clash, and the way in which they do) may evolve throughout the design project.
3. *The connotations of the very concepts that are used to describe a "design problem" are shifting as a part of the design effort.*[24] The central notions that make up the paradoxes the designers are dealing with indeed are meant to shift in the course of creating a solution. A clear view of the original discourses that play a part in the design project will provide an anchoring point for understanding these shifts.

This model needs to be extended much further, for instance by defining the link between the notion of discourses and the aspects of a design, the stakeholders involved in a design project, and the designer's level of expertise. But we must leave this here for now.

Concluding Remarks

We hope to have effectively argued that the conceptual framework that underlies much of design methodology, while perhaps not flawed, is full of assumptions that may be questioned. Some of the problems inherent in Simon's theory are inherited by people using the conceptual framework that he introduced. Our argument has focused on the term "design problem." The widespread use of this term in the vernacular discussions within and about design make it one of the basic terms in a methodological description of design activities. But we hope to have demonstrated that the term "design problem" is very problematic in a scientific context. In the scientific

22 H.L. Dreyfus, "Intelligence without Representation— Merleau-Ponty's Critique of Mental Representation," *Phenomenology and the Cognitive Sciences* 1 (2002): 367–383.

23 C.H. Dorst and N.G. Cross, "Creativity in the Design Process: Co-evolution of Problem-solution," *Design Studies* 22 (2001): 425–37.

24 A. Hatchuel, "Towards Design Theory and Expandable Rationality: The Unfinished Program of Herbert Simon," *Journal of Management and Governance* 5:3–4 (2002).

study of design, we cannot say that the design activity consists of reasoning from "a design problem" to "a solution"—at least it becomes meaningless to say so if we cannot define the notion of "design problem" or pin it down in empirical descriptions of design activity.

Temporarily bracketing the term "design problem" allows new frames of reference and descriptions of the design activity to emerge. Within this paper, that process has resulted is an alternative way to describe the design as *the resolution of paradoxes between discourses in a design situation.* This alternative way of describing design potentially sheds new light on the nature of design, and on the kind of creativity that is part and parcel of design. The next step would be to confront this new description of design with the existing models and methods within design methodology, and see if this produces interesting insights into the nature of design.

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German *Werkkunstschules* and the Establishment of Industrial Design Education in Turkey

Seçil Şatir

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Introduction

Istanbul has been the pioneering city for product design instruction since the inception of this academic field in Turkey. The current umbrella organization, under which industrial design instruction is governed, is the State Academy of Fine Arts. In 1972, a separate division at the Academy (the "Interior Architecture and Industrial Design" division) was formed to specifically address instruction in industrial design at higher schools and universities nationwide. The precursor and inspiration for this division was the State School of Applied Fine Arts, an industrial product design school which opened in 1957.

Originally a three-year school, in 1962, the State School of Applied Fine Arts became a four-year institution and its name was changed to the Istanbul State School of Applied Fine Arts. Following the example of the State School of Applied Fine Arts, a private school for the applied arts which opened in 1968, but was taken over by the State Academy shortly thereafter (during the period in which private universities were banned in Turkey). This second applied arts school was renamed the School of Applied Industrial Arts, and included a department of industrial design until the 1980s.

While the establishment of the State School of Applied Fine Arts, which forms the core of this article,[1] was still in progress, the rapid developments seen in the State Academy of Fine Arts were realized thanks to the personal efforts of Önder Küçükerman, who, at the time, was head of the Interior Architecture Department. At the same time, researchers in the field considered the State School of Applied Fine Arts to be the pioneering school for industrial design training in Turkey. H. Alpay Er has observed:

> It can be claimed that training for industrial product design in Turkey stemmed from two main roots. One of them is the two important art schools in Istanbul: the Istanbul State Academy of Fine Arts and the State School of Applied Fine Arts. Although not much was written about the latter school, relatively more resources are available to study the foundation of instruction at the Istanbul State Academy of Fine Arts. The Istanbul root that developed from the

1 The subject of this article first was presented as "An Overview of the State Academy of Applied Arts and the Influence of German *Werkkunstschules* during the Establishment and Development Period of Industrial Product Design in Turkey" at "Mind the Map, Third International Conference on Design History & Design Studies" (Istanbul, July 2002, organized by the Istanbul Technical University in cooperation with the Kent Institute of Art and Design).

instruction in product design in continental Europe, and especially in Germany, and its effects on contemporary Turkish product design training is an area of research all its own.[2]

Marmara University's Faculty of Fine Arts, initially known as the State School of Applied Fine Arts and later, after it became a four-year school, as the Istanbul State School of Applied Fine Arts, deserves recognition for the inception and progress of industrial design in Turkey. This school was founded and developed in the style of the German *Werkkunstschules*, a continuation of the *Kunstgewerbeschules*, which were effective in the establishment of the Bauhaus in Weimar Germany. The staff of the *Kunstgewerbeschules* included renowned designers such as Henri van de Velde and Peter Behrens. These schools also were significant in terms of the ongoing "form value" and "economic value" of the industrial design sector of the German economy. They paved the way for this sector's later restructuring. The fact that the establishment and initial development of the system of the State School of Applied Fine Arts was modeled on these institutions clearly shows how industrial design in Turkey has its roots in, and was largely influenced by, the Bauhaus.

The Establishment Period of the State School of Applied Fine Arts

The official preparations for founding the State School of Applied Fine Arts in 1955 were aimed at removing the insufficiencies in applied arts then existing in Turkey, and creating an institution that would form the base for the future development in applied fine arts. The preparations were initiated in the Ministry of National Education by Ferit Saner, General Manager, Vocational and Technical Education, and were made official through a resolution by the Cabinet dated November 1, 1955. Prof. Dr. Ing. Adolf G. Schneck from the Stuttgart Academy of Fine Arts was assigned as the expert to determine the curriculum, and build and teach the staff. "Prof. Schneck came to Turkey and prepared the draft curriculum."[3] Prof. Sabri Oran, then working in the Faculty of Architecture at Istanbul Technical University took a leave from the university and was appointed Headmaster of the school. He resumed his job at the university after the preparations were completed and instruction began. The school officially opened in October 1957,[4] but lectures actually started in December (see figure 1).

Initially, there were sixty students, in groups of twelve, in five respective departments, with an expert teaching staff from Germany and Turkey. The school began in an historical building known as the Woodcutter's Hall in Dolmabahçe Palace.

According to Ismail Özisik, Prof. Schneck, who was a retired German lecturer, was the advisor at the time of the school's establishment. He visited the school every two weeks in the beginning,

2 H. Alpay Er, "Training of Industrial Design in Turkey: Its Onset and Structure," *Arradamento Mimarlik* 100:26 (June 2000):122–123.

3 Brochure of the Istanbul State School of Applied Fine Arts (History of the School Section), 1970–71 Academic Year.

4 H. Alpay Er, Fatma Korkut, and Özlem Er, "U.S. Involvement in the Development of Design in the Periphery: The Case History of Industrial Design Education in Turkey, 1950–1970," *Design Issues* 19:2 (Spring 2003): 26, footnote 51: "Meanwhile, in Istanbul, the School of Applied Fine Arts (TGSYO) was founded in 1957 as an independent initiative from the ICA program. The school comprised decorative painting, graphic arts, textile arts, ceramics, and furniture-interior design departments. It was financed and administered by the Ministry of Education, and was supported by a group of German tutors. However, the industrial design program in this institution was officially started in the early-1980s."

Figure 1
The opening ceremony of the school in 1957, in *Hayat* magazine, November 15, 1957, no. 58, page 1.


TATBİKÎ GÜZEL SANATLAR

Geçen ayın 25 inde Beşiktaş'ta, Maarif Vekili Tevfik İleri'nin de katıldığı bir törenle açılışı yapılan Tatbiki Güzel Sanatlar Okulu, sanatsever gençlik arasında alâka ile karşılanmıştır. Yukarıdaki resimde açılış törenine katılan davetlileri, sağda ise kordelenin kesilişini görüyorsunuz. Okulun bilhassa, Seramik, Klâsik Sanatlar ve Kumaş Desenleri Bölümleri fevkalâde alâka görmüştür.

and two times a year in the ensuing years to follow its development and results. When the State School of Applied Fine Arts was established, it was a three-year educational institute similar to the *Werkkunstschules* in Germany, where experimental workshops were very important. When Özisik started, he set up a "wood experiment workshop,"[5] where he lectured on wood workmanship and its applications. Additionally, he taught a technical drawing course. The school was not rigidly departmentalized; all five of its departments taught both handicrafts and design for industrial purposes. Textile, Graphic Arts, Interior Architecture, Ceramics, and Decorative Arts programs were designed to train high-level experts. At that time, industrial products in Turkey were predominately handicrafts. Ateliers and little factories also had machines to produce these handicrafts. Therefore, at the State School of Applied Fine Arts, both manual and machine production was taught. The programs of the Ceramics and Decorative Arts departments, in particular, were designed to address both the training of individual craftsmen and the needs of mass production. The latter included instruction in wall cladding and wall decoration; as well as mosaics, frescoes, stained glass, sgraffito, and similar techniques. Also, there were experiments with various materials.

During the developmental phase, Özisik was sent to Germany in the fall of 1960 to gain additional experience. Besides learning about "Akademie der Bildende Künste" in Stuttgart and other German technical schools in his field, he met Prof. Eduard Levsen, Headmaster of the Kiel Muthesius Werkkunstschule and Lecturer for the Department of Interior Architecture, at an educational conference. Prof. Levsen gave Özisik reference materials concerning Werkkunstschules, including a book on the subject that explained

5 Memories of Ismail Özisik, obtained by interview.

the differences between the *Fachschules* (Vocational Schools) the *Werkkunstschules* (Schools of Fine Arts), and the *Kunsthochschule* (Higher Schools, or Academies, of Fine Arts). The book discussed the *Werkkunstschules* of the time—defining the structure and organization of these technical schools—and dealt with the problems of their development and provided some suggestions for their reform. Özisik used the book as a guide in developing the structure of the State School of Applied Fine Arts.

It was not by chance that the programs of the State School of Applied Fine Arts, were not arranged as an Akademie der Bildende Künste (Academy of Fine Arts), akin to the Stuttgart school where Prof. Schneck had taught, but rather according to the *Werkkunstschule* model (which also were three-year schools). This arrangement came about because there already was a State Academy of Fine Arts in Istanbul at that time. The departments there predominately dealt with individual art forms such as art, sculpture, engraving, etc. The school also had a department of architecture. The need for training and education in applied arts and industrial design was evident. Therefore, the program of the State School of Applied Fine Arts looked like a combination of the department programs of the *Werkkunstschules*, which trained students in the field of applied arts (i.e., ceramics, knitting, weaving, stylistics, lithography, mural painting, and fabric printing), and the programs of other departments which were more focused on the fields of art and architecture (i.e., interior architecture, painting, applied graphic arts, and textiles). Prof. Schneck suggested the addition of five lecturers to the staff, and brought them from Germany.

The Factors behind the Establishment of the State School of Applied Fine Arts

There is an historical background for the exclusively German, and not French or any other European, influence in the establishment of the State School of Applied Fine Arts. Prof. Dr. Horst Widmann dealt with the history of universities in Turkey in four main sections in his work, "Atatürk and University Reforms."[6] The first, second, and third periods, which are not directly related to our subject matter, lasted from 1827 to 1950. During the fourth period (1950–1960), while the development of the State School of Applied Fine Arts was in progress, a strong collaboration with the U.S. resulted in the establishment of universities in Ankara, Izmir, and Erzurum. In 1932, A. Malche, a Swiss national who worked in Germany as a professor of pedagogy and also held a political office, received a request from the Turkish Government for his help with the changes to be made in institutions of higher education. The Turkish Government, and especially Resit Galip, the Minister of National Education at the time, thought it worthwhile to employ Malche. [7] Among the many German immigrants, the following three people are considered particularly important in terms of product design.

6 Horst Widmann, "Atatürk ve Üniversite Reformu," *Kabalci Yayinevi* (Istanbul, 2000): 58.

7 Jan Cremer and Horst Przytulla, Exil Türkei —*Deutschsprachige Emigranten in der Türkei 1933–45* (München: Verlag Karl M. Lipp, 1991), 20–21.

The first is Martin Wagner, a professor of city planning who had been instrumental in creating the massive housing projects in Berlin during the 1920s. The second is Hans Poelzig, the architect working at the Academy of Fine Arts. Finally, there is the architect Bruno Taut, "who upon the death of Poelzig was appointed to the Department of Architecture, Academy of Fine Arts, Istanbul, with the help of Martin Wagner."[8]

Following WWII, Germany underwent rapid developments in techniques and technology. During this period, Turkish students were keen to go to Germany for advanced training. Sabri Oran was one of these students, and before Prof. Schneck retired, Oran had been one of his students at the Akademie der Bildende Künste in Stuttgart.

The Development of *Werkkunstschules* and Departments of Industrial Design in Germany as the School of Applied Arts Was Being Established in Turkey

A restructuring took place in postwar Germany with the significant help of the American "Marshall Plan," and along with this American influence, a widespread *Stromlinienform* (Streamlining) left its mark on the period. At the same time, design developments were coming into fashion that indicated a desire to reestablish ties with the "examples of good form" from the undisciplined prewar periods. This led to a renaissance in the old German tradition of product culture.

During the 1950s, "there existed *Industrielle Formgebung* (Industrial Design) departments in Germany in four *Werkkunstschules,* which were added to some preexisting departments in two *Werkkunstschules* especially established in Berlin."[9] The preparatory class, or "elementary design," was modeled on the pedagogical model of the Bauhaus masters. *Werkkunstschules* were established in twenty cities and *Kunsthochschules* in nine cities in Germany by 1956. They continued their teaching "to systemize a formalized Bauhaus instruction," where the definition of traditional art was classified as both handicrafts and industrial design, and rested upon the fundamental definitions of form developed at the Bauhaus, until the establishment of the Hochschule für Gestaltung Ulm in 1955, which included programs in the sciences, the theory of communication, sociology, the basic connections of shaping theory, systematical shaping experiments, and specially developed designing methodology.[10]

The instruction started with a preparatory class for all branches to develop perception in terms of both visual and tangible manipulation within the scope of "Elementary Design." Immediately following the preparatory class, the term was supplemented by experiments with colors and form, and included musical training as an important part of strengthening a student's personal training. "Experimental Product Design" was a very important course for the

8 "Bruno Taut 1880–1938," *Ausstellungskatalog Akademie der Künste* (Berlin: Brüder Hartman Verlag, 1980), 161.

9 Werner Glasenapp, "Die Gestaltung Industrieller Erzeugnisse als neues Lehrfach" in *Werkkunstschulbuch: Handbuch der Arbeitsgemeinschaft Deutsche Werkkunstschulen E. V.* (Stuttgart: Konradin Verlag, 1956), 73, 232–233.

10 Gert Selle, *Die Geschichte des Design in Deutschland von 1870 bis heute,* 2. Auflage (Köln: Dumond Buchverlag, 1978), 179 and 194.

departments, and worked in tandem with the contemporary facilities of handicraft and industrial design sectors. The course content consisted of the structure of the form (with samples and experimental parts), as well as construction work and form analyses. In the framework of this course, students practiced perceiving the whole of a given product, recognizing its multiple facets individually, and then returning to view it as a whole in order to bring it to fruition.

Direct Influences on the Establishment of the State School of Applied Fine Arts and on Industrial Product Design in Turkey

It was appropriate that the Turkish Undersecretariat of Technical Education undertook the establishment of the State School of Applied Fine Arts, since applied fine arts fell within the scope of education in the *Werkkunstschules*, whose aim was to bring art, science, and technique together. At that time, the objectives of the Undersecretariat were to provide grounds for the reconstruction of the Art Institutes of the time, and to give talented prospective graduates the opportunity to further their education in a higher level school. Because the teaching staff of the *Werkkunstschules* was chosen directly from among people with a strong pedagogical knowledge who had extensive work experience in the sector, the teaching staff of the State School of Applied Fine Arts was formed along similar lines.

In addition to naming the school an "applied" fine arts school, the German influence on the State School of Applied Fine Arts can be seen in the choice of product design in the subject matter of both small and large lots for the market in the fields of furniture/interior design, textiles, ceramics, graphics, and decorative mural painting, and in the application of handicrafts such as weaving, fabric printing, modeling, decorating, bookbinding, calligraphy, sgraffito, mosaics, and stained glass. This also determined the main objective of the State School of Applied Fine Arts, and addressed an important need in Turkey (see figures 2, 3, 4, 5, and 6). The Basic Art Training course, which aimed to teach the connection between material and form by direct application on the material, was a significant part of the German model. It was a creative, object-based, and purpose-oriented education that unleashed the imagination, including even the teaching of the applied arts to the accompaniment of music.

Özisik, who was an eyewitness of this period, says that lecturers came from Germany, and graduates were sent to Germany, during the first five to six years. He further states that graduates of the departments of Art, Sculpture, etc. who received further education abroad at "training institutes" in such diverse areas as interior architecture and graphics joined the teaching staff of the State School of Applied Fine Arts upon their return to Turkey.

Many German lecturers joined the teaching staff in the preparatory class of Elementary Design in the departments of Graphics,

Figure 2
Cover image from the school brochure, dated 1971.

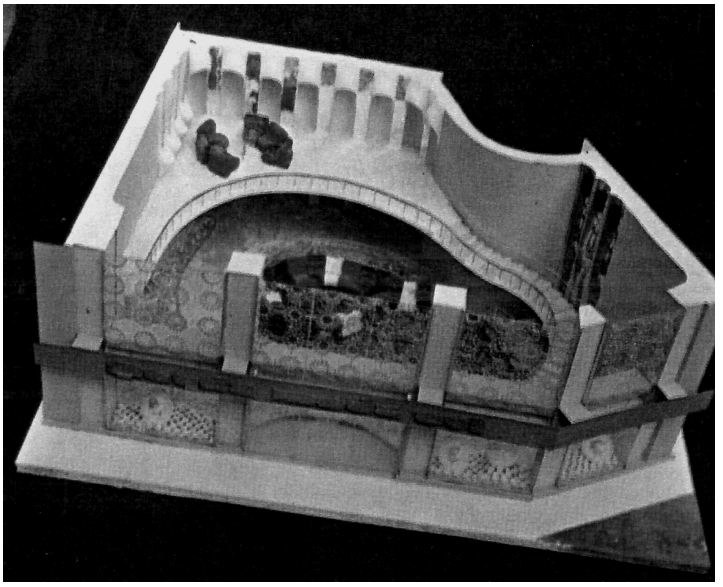

Figure 3
Students' work from the academic years 1966–71, furniture-interior design department.

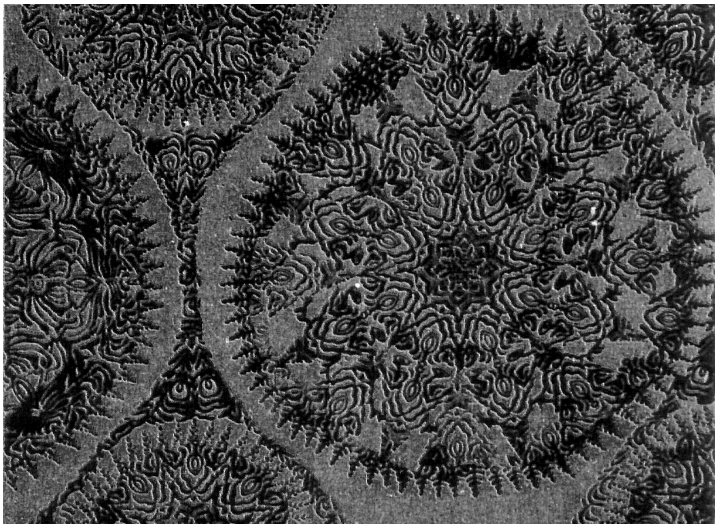

Figure 4
Students' work from the academic years 1966–71, textile department.

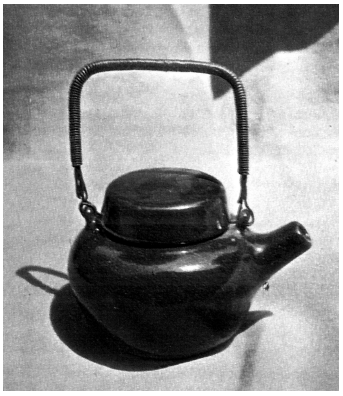

Figure 5
Students' work from the academic years 1966–71, ceramics department.

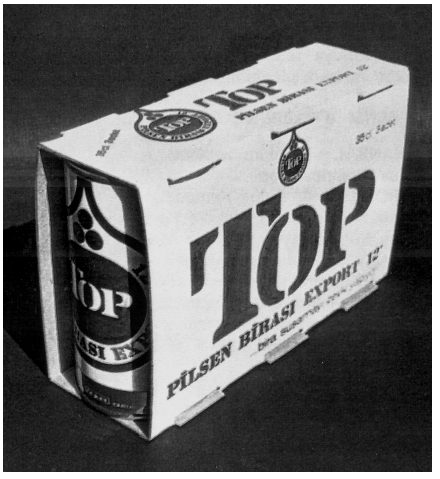

Figure 6
Students' work from the academic years 1966–71, graphic design department.

(Figures 2, 3, 4, 5, and 6 are from the brochure of the *Istanbul Devlet Tatbiki Güzel Sanatlar Yüksek Okulu* printed by school, 1971 Istanbul, cover and pages 7, 10, 13,18.)

Interior Design, Textile, and Decorative Art. Three Turkish lecturers joined the Ceramics Department, and through their specialized tools, materials, and knowledge of the long history of ceramics in Anatolia, an experienced department was formed. Until the end of the 1960s, lecturers from Germany, Austria, and even Japan (for the Ceramics Department) came to the school. Some of these instructors worked for one year, while others worked longer; and a few even continued after their retirement. Harald Schmidt, instructor in the Textiles Department, served until his death, which was four years ago from today, in the design school and made invaluable contributions. The addition of competent instructors added to the quality of the education while, at the same time, underpinning the establishment of the *Werkkunstschule* model as the cornerstone of this new tradition.

Starting with the 1961–62 academic year, the State School of Applied Fine Arts was at first projected to be a "2+2-year" school. This educational system was similar to that which was adopted in Germany: the student had to pass an exam after his sophomore year to continue his education in a junior class, or he could receive a certificate of completion and leave school after his second year. But this system wasn't successful so, within a relatively short time, the school was converted into a four-year one. The restructuring made the training more comprehensive, without changing the essence of the applied teaching model. It was supported by the continuous transfer of knowledge and experience from the foreign instructors, who continued to serve on teaching staff until the end of the 1960s. In addition, the best students were sent abroad for advanced training in their fields, and sometimes joined the facultywhen they graduated.

While the number of *Industrielle Formgebung* (Industrial Design) departments was increasing, it is clear that the heads of the Istanbul State School of Applied Fine Arts believed in its future, as well as the necessity of a well-trained faculty, as early as the 1962–63 academic year. In order to be admitted to the Industrial Design Department, a student had to be talented in all aspects of art and design techniques and invention. Moreover, prospective students had to be able to effectively utilize various elements of prior training in high-pressure situations. They would quickly find themselves dealing with complex problems and production methods, and had to be able to provide solutions. Such a transfer of knowledge necessitated a staff that already had dealt with similar complex situations countless times, and would be able to guide the students through any conceivable, "real-world" scenario. The heads of the Istanbul State School of Applied Fine Arts understood this principle and accordingly refused to open a new department without a well-educated staff in place. Students were first admitted in 1965, and the Istanbul State School of Applied Fine Arts sent Ilhan Erhan to the Hochschule für Gestaltung Ulm in 1966 for specialized training. Unfortunately, this school closed down in 1968. Erhan had to complete his education in the Gesamthochschule Kassel (GHK). In the ensuing years, a

Figure 7
Ismail Özisik (with glasses), some lecturers and students in Professor Schlaminger's conference at the beginning of the academic year 1966–67 from the paper of school activitites, September 1966, printed by school, page 1.

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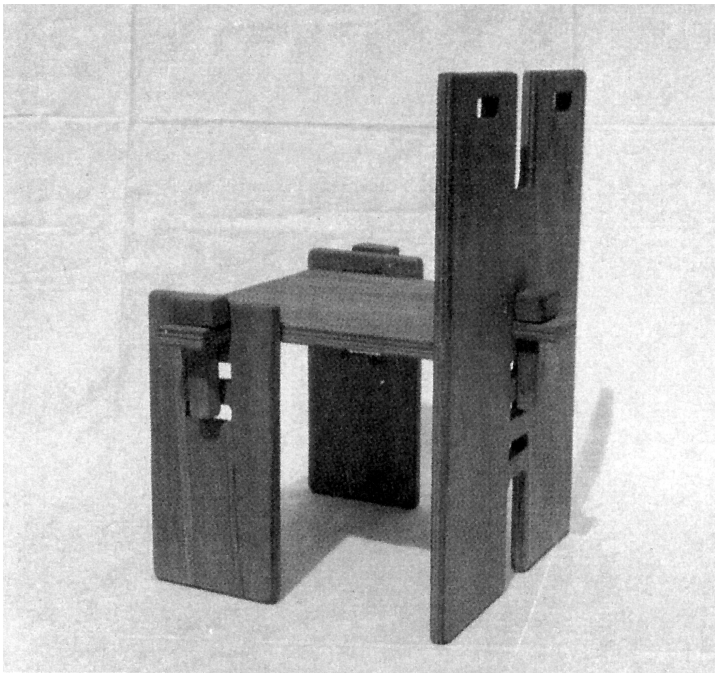
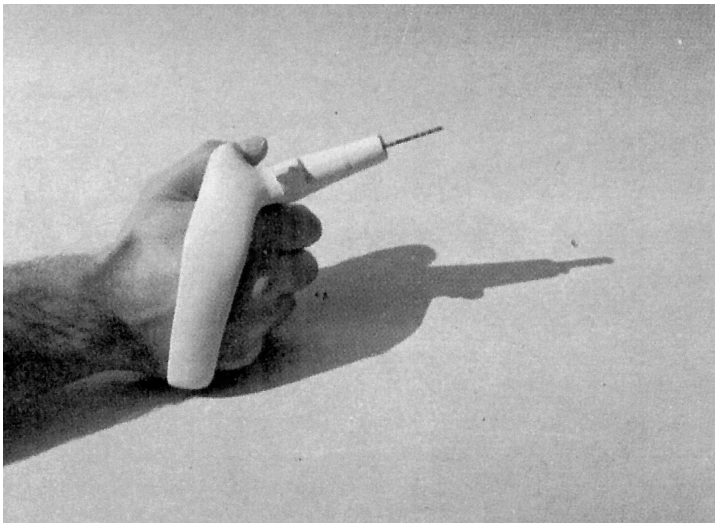
İSTANBUL DEVLET TATBİKİ GÜZEL SANATLAR YÜKSEK OKULU

Figure 8
The school logo from the academic years 1972–76, furniture-interior design department.



Figures 9 and 10
Students' work for the academic years 1972–76, furniture-interior design department.

(Figures 8, 9 and 10 are from the brochure of *Istanbul Devlet Tatbiki Güzel Sanatlar Yüksek Okulu, TGSO, Mobilya Içmimarlik Bölümü,* printed by the school, 1976, Istanbul pages 1 and 5.)



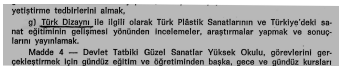

yetiştirme tedbirlerini almak,
g) Türk Dizaynı ile ilgili olarak Türk Plâstik Sanatlarının ve Türkiye'deki sanat eğitiminin gelişmesi yönünden incelemeler, araştırmalar yapmak ve sonuçlarını yayınlamak.
Madde 4 — Devlet Tatbiki Güzel Sanatlar Yüksek Okulu, görevlerini gerçekleştirmek için gündüz eğitim ve öğretiminden başka, gece ve gündüz kursları

Figure 11
Publication of the phrase "Turkish Design" in the offical newspaper, July 11, 1973, Issue number: 1459.

small number of additional students followed in Erhan's footsteps at the GHK for Industrial Design training. (See figure 7.)

In his speech at the opening ceremony of the Istanbul State School of Applied Fine Arts in the academic year of 1967–68, M. Aslier, Headmaster, heralded the plans to open a new "Industrial Design" department in addition to the five existing departments. This news came in the midst of his comments concerning the school's development, objectives, and future plans and programs, and had a profound effect on the author of this article, who had just started the school that very semester. The establishment of a new department entailed a long process, but the curriculum in the ensuing years included (along with interior-space design and furniture) objects of illumination, home and office accessories, hand tool design, and even hand tools for the handicapped in the term projects of the Furniture/Interior Architecture Department. (See figures 8. 9, and 10.)

It should be pointed out here that guest lecturers showed the utmost respect for the culture, lifestyle, and the knowledge of the Turkish people. For example, during a class on furniture and spatial design taught by two German instructors, the guest lecturers, while transferring their knowledge, and experience, invited students to suggest ideas from their own upbringing, environment, and sensitivity.

A brochure printed in the academic year 1970–71 for the fourteenth anniversary of the school included the term "designer," and a school regulation in the same year included the term "design" for the first time.[11] It also mentioned that preparations for the new department, which would be entitled the "Industrial Design Department" had started. Furthermore, the Educational Regulations of the Istanbul State School of Applied Fine Arts (dated 1973) employed the terms "Turkish Design" and "Industrial Design."[12] (See figure 11.)

Conclusion

It was impossible, before the 1960s, to open a fully functioning "Industrial Design" department at an institution of higher learning in Turkey because of the low level of industrialization and the still-embryonic textile arts field (due to the dominance of handmade textiles in the early part of the Twentieth Century). At the same time, the main products in the design field were handicrafts—particularly furniture and ceramics. However, Özisik, as a lecturer in the 1960s, was familiar with the industrial design departments in developed countries, and worked to bring a similar vision to life in Turkey. Since opening a department without the proper infrastructure would have led to unstable results, it was only good common sense to start at the foundation, train specialists, and progress step-by-step. Therefore, the most realistic solution was to provide applied training that would bring together handicrafts and general industrial experience, and without haste, to prepare for the establishment of a department wherein industry-specific products would be designed.

11 Brochure of the Istanbul State School of Applied Fine Arts (History of the School Section), 1970–71 Academic Year.

12 "Educational Regulations of the Istanbul State School of Applied Fine Arts" (Official Newspaper, issue 1459, July 11, 1973): 4.

Influences:

Starting a training program equivalent to design training in Germany involved direct influences related to planning and development of the school right from its beginning. These included naming the first five departments after the most distinctive five departments in the *Werkkunstschules*, starting instruction with the Basic Art Training course, and the initiation of "experimental workshops." Until the end of the 1960s, the dominant practice was to import lecturers and their assistants from Germany, and to train Turkish instructors there. The design training in Germany was under continuous scrutiny, and until the mid-1970s, newly graduated students were sent to Germany for postgraduate studies in order to be able to contribute to the development of the school upon their return. The familiarity with HfG Ulm Design School and the ability to send Turkish students there after graduation for further training were important. During the 1970s, many designers returned home after having completed their Industrial Product Design training in Germany. Some of them still teach in industrial product design departments in the three major universities in Istanbul. The author is one of these people: the training I received centered on design issues with ergonomic, social, economic, and ecological infrastructure. The education system of *Gesamthochschule Kassel*, where I chose to receive Industrial Product Design training, together with its multi-sided workshop infrastructure and "Alternative Technologies Group" brought a different viewpoint to design, making it possible to work on design issues which are still contemporary. We also learned to design with originality in detail, which I teach to my students.

The State School of Applied Fine Arts, later amended to include "Istanbul" before its name when it became a four-year school (the Istanbul State School of Applied Fine Arts), has made important contributions in the field of industrial design from its foundation to 1980, when it underwent yet another transformation. The original school outlived its era, and yielded its place to present developments in the pedagogy of the field. Nevertheless, it was largely influenced by educational institutions that can be traced back to the Bauhaus. Such an influence developed an international exchange of knowledge provided by a succession of talented visiting foreign design instructors. At the same time, industrial design in Turkey has a proud history similar to that which developed in the West, and continues to be closely linked to the progress of industrial design at the international level.

Collective Storytelling and Social Creativity in the Virtual Museum: A Case Study

Elisa Giaccardi

The term "virtual" often is associated with the idea of a duplication of reality. As a result, "virtual museum" has become a useful synonym for multimedia products and Websites capable of providing new and fresh experiences of a specific museum heritage, or creating a large system of interconnections among different museum collections.

It is necessary, however, to explore and envision further opportunities. Today's questions should be: What cultural role and significance can physical artifacts assume in the age of information technologies? In what ways do information and communication technologies enhance the nature and contemporary role of the museum? Can a virtual museum promote the social dimension of creativity, and connect it to the collection and preservation of novel cultural objects?

This paper aims at responding to these questions and promoting a new form of virtuality for the museum, capable of empowering the interaction among the tangibility of a physical artifact, and its current and future interpretations. To sustain this argument, the paper describes and examines in detail the Virtual Museum of the Collective Memory of Lombardia (MUVI).[1] This project provides evidence of how the collective memory of a local community represents a living heritage that—by means of different media and information technologies—can be translated into actual cultural objects and give rise to new forms of creativity and museum construction.

Museums and Virtuality

All museums are virtual, independent of information technologies. Museums extract each piece from an environment that, as the site of origin, is deemed to hold some significance. The piece is then transferred to a new site, the museum, in which the relationships with its original environment and time are recreated. In this sense, museums are virtual because they collect pieces that work as a switch to "something else"; they represent, as André Malraux[2] suggested at the middle of the twentieth century, a *meta-place*.

Cultural objects—that is, the pieces placed and arranged within a museum—also should be conceived as virtual. They present the ambiguity of being physically tangible as a museum piece, but also being subject to change according to the different perspectives

1 See www.muvilo.it.

2 A. Malraux, "Le Musée Imaginaire" in *Les voix du silente* (Paris: Nouvelle Revue Française, Gallimard, 1951) (English version: A. Malraux, *Museum without Walls,* translation by S. Gilbert and F. Price (London: Secker & Warburg, 1967).

in which they can be interpreted and displayed. In fact, as argued by Benedetto Benedetti, cultural objects represent "a complex and multifaceted reality in which physical, cultural, and virtual reality interact and may acquire different functions and different degrees of importance."[3]

By means of information and communication technologies, we can empower the creative interaction among the tangibility of a museum piece (the "physical"), its current interpretation (the "cultural"), and its future meaning (the "virtual," in the sense of not yet being actualized), and we can attribute to these components different functions and degrees of importance according to the characteristics of what needs to be (re)presented. Yet, many people believe that we finally can have museums that no longer need to be "physical."

As a result of this misconception, the first applications of the idea of virtuality to the museum did not take into account the complex reality of cultural objects described by Benedetti. Rather, they enhanced the virtual component that is inherent in the museum by making physical artifacts digitally accessible (on disk or through the Internet). These applications have significantly contributed to the development of new forms of learning and knowledge construction by allowing more personal explorations of the museum contents, but they have failed to address the challenges and opportunities opened up by the encounter between the complex reality of the museum and information technologies.

This encounter is not only an opportunity but also a need. As Manfred Eisenbeis[4] has pointed out, we are increasingly stimulated by information and communication technologies, and we are witnessing an accelerating process of cultural change for which we need to develop principles of design capable of successfully integrating both the tangible and intangible resources of the museum. The need for the museum as a "place of cultural negotiation" arises not just by reason of the emergence of new methods and forms of artistic creation and cultural production,[5] but also as a matter of preservation and renewal of the existing cultural heritage in that: "Objects, collections, buildings, etc. become recognized as heritage when they express the value of *society* and so the tangible can only be understood and interpreted through the intangible."[6]

Established Forms of Virtuality for the Museum

As introduced earlier, the term "virtual" commonly is associated with the idea of an extension of reality. This section identifies the forms of virtuality most frequently applied in the design of a virtual museum, which usually influence the general understanding of what a virtual museum is.

3 B. Benedetti, "Virtuality and Reality in Enterprise's Museum, Art Museum, Archeological Sites," *Quaderni della Fondazione Piaggio, Nuova Serie: Cultura Europea e Musei* 6:1 (April 2002): 56.

4 M. Eisenbeis, "Designing the Museum of the Future: Theses on the Virtual Dimension of Museum Development in the Context of Media Culture." (Paper presented at "Memoria Futura—Cultural Heritage and Information Technology: A New Perspective?" GMD Institute, St. Augustin, Germany, December 10–12, 1999) Available at: http://maus.gmd.de/imk_web-pre2000/docs/ww/mars/cat/memoria/eisenbeis_en.htm.

5 See R. Ascott, "The Museum of the Third Kind," *InterCommunication* 15 (Winter 1996): 74–79.

6 D. Munjeri, "Tangible and Intangible Heritage: From Difference to Convergence," *Museum International* 56: 12 (2004): 13.

Duplication and Extension of Reality

The possibility of reproducing physical artifacts in a digital format is one of the opportunities offered by the information and communication technologies that are most frequently promoted by museums. The associative capabilities of hypertextual structures, combined with the visual power of the multimedia language, ensure that this form of "reality duplication" makes information easily accessible (for example, on a DVD). The visual and interactive features of hypermedia have modified communication and promoted forms of learning and knowledge construction that are immediate and intuitive.[7] These characteristics have massively contributed to the growth of individual knowledge and the development of new forms of learning.

Recombination and Personalization

The opportunities for interactive access to the physical artifacts of a real museum have dramatically increased through the use of the Internet and this, in turn, has opened up further possibilities for knowledge transfer and learning. Maximizing all the images and information available through the Web has transformed traditional museums into "mobile encyclopedias."[8] Compared to the obligatory path that direct visitors are compelled to follow in a real museum, remote visitors of a virtual museum are free to search, combine, and recontextualize the information they need according to their own interests.

Interconnection

This opportunity leads to the horizontal recombination of contents, that is, the museum pieces themselves. The museum becomes not only a place that does not look like any other real museum, but a place where one can find things that cannot be found in any real museum. It becomes possible, therefore, to virtually rebuild collections scattered around the world, organize exhibitions that last forever, produce virtual restorations and reconstructions, and have access to specialized information. The virtual museum becomes a system of interconnections, allowing individuals to identify and locate resources over the Internet.[9]

Summary

These three, well-established forms of virtuality can be summarized as follows:

1 *Duplication and Extension of Reality* is the opportunity to extend reality through the digital duplication of the museum pieces. It entails new forms of accessibility and new ways of communication.

2 *Recombination and Personalization* is the opportunity to maximize and recombine information by constructing and

7 F. Antinucci, "Beni Artistici e Nuove Tecnologie" in *I Formati della Memoria: Beni Culturali e Nuove Tecnologie alle Soglie del Terzo Millennio* (in Italian), P. Galluzzi and P.A. Valentino, eds. (Florence: Giunti, 1997), 120–131.

8 C.S. Bertuglia, F. Bertuglia, and A. Magnaghi, eds. *Il Museo tra Reale e Virtuale* (in Italian) (Rome: Editori Riuniti, 1999).

9 Ibid.

following personal paths in the exploration of the museum pieces. It entails new forms of learning and knowledge construction.

3 *Interconnection* is the opportunity to interconnect museum pieces and expertise over the Internet, beyond the limits of a specific museum. It entails new places for display and collection.

These forms of virtuality contribute to the development of new forms of learning and knowledge construction, but they are not sufficient to cope with the complex and multifaceted reality of the museum. They enhance the virtual component inherent to the museum and thus open the process of cultural interpretation that curators and visitors exercise on a museum piece, but they fail to empower the creative interaction among the different levels of reality that engender such an object.

A New Form of Virtuality for the Museum

The opportunities given to the museum by information and communication technologies require an investigation of the contemporary role of the museum, and then a challenge to this role through the production of innovative visions and experimentations. Paraphrasing Cristoforo Bertuglia,[10] the important questions should be: How can conservation and production, information and creativity, representation and real-life coexist in a virtual museum? To what society, and to which communities, does a virtual museum relate?

As Eilean Hooper-Greenhill[11] has pointed out, museums are creatures of the Enlightenment, an enlightenment aimed at a model of knowledge reliable at any time and any place. The modernist museum had to be encyclopedic, and had to work as a kind of universal archive. The interconnected form of the virtual museum as described in the previous section can be considered the globalized version of this model. The modernist museum conceives knowledge transmission as a linear communication process in which information is transferred from an authoritative source to an uninformed receiver. This communication model is, at the same time, jeopardized and strengthened by information and communication technologies.

A few have tried to innovate the role of the museum, leaving the modernist model behind. One attempt is represented by the development of the idea of the "relational museum." [12] This museum model, pursuing constructivist learning theories and a communication strategy that gives status to the role of the audience's interpretation, has produced new professional museum roles, enabled recognition of the existence of different audiences, and acknowledged the need for multiple and differentiated narratives to replace the earlier modernist narrative.

10 Ibid.

11 E. Hooper-Greenhill, "Nuovi Valori, Nuove Voci, Nuove Narrative: L'Evoluzione dei Modelli Comunicativi nei Musei D'Arte" in S. Bodo, ed. *Il Museo Relazionale* (in Italian) (Turin: Edizioni Fondazione Giovanni Agnelli, 2000), 1–39.

12 See S. Bodo, ed. *Il Museo Relazionale* (in Italian) (Turin: Edizioni Fondazione Giovanni Agnelli, 2000).

The main results produced by the "relational model" are a new approach to museum management and a new communicative competence toward the audience. The complexity of a museum, however, which is made of relationships both inside and outside the "walls" of the museum itself, creates an environment that can be exploited not only for communicative intents, but also to make the reality of the museum more open and dynamic.

As mentioned earlier, museums and cultural objects represent a complex and multifaceted reality in which the physical, cultural, and virtual interact and may acquire different functions and different degrees of importance. According to Benedetti's inspired metaphor, museums and cultural objects are "iridescent." The idea of iridescence, in contemporary museology, refers to the fact that the perception of cultural objects (how we "see" them) is subject to change according to the different perspectives in which they can be interpreted and presented. Normally, this perception is the result of the cultural and historical interplay among the physical tangibility of the artifact (the "physical" component), its actual interpretation (the "cultural" component), and its future interpretations and meanings (the "virtual" component). Today, by means of information and communication technologies, we can make these components interact more dynamically. In MUVI, for instance, as described later in this paper, stories and images (as cultural objects) are a by-product of the continuous process of interaction and interpretation occurring within the local community. Images are retrieved and stories produced as a result of the interplay between memory (as a cultural resource), multimedia presentation (as actual interpretation), and storytelling (as a resource for further potential interpretations).

If the optical phenomenon of iridescence is a quality of the interaction of light and surfaces, then the metaphor of iridescence expresses the interaction among the social interpretation and the actual "construction" of a cultural object. *Iridescence*, therefore, is the form of virtuality that—rather than focusing on duplicating pieces of reality, recombining digital contents, or interconnecting different museums—empowers creative interaction among the physical, cultural, and virtual components of cultural objects. It attributes different functions and degrees of importance to these components and, in this way, keeps the structure of the museum open and dynamic. This form of virtuality entails new forms of social creativity and museum construction, and produces cultural objects that were previously unimaginable.[13]

The MUVI Project

Local museums are particularly interesting in this regard. Some of them have been able to successfully collect, preserve, and activate both the tangible and intangible resources of their territory, to tie these resources together, to trigger new forms of participation and

13 E. Giaccardi, "Memory and Territory: New Forms of Virtuality for the Museum" in *Proceedings of Museums and the Web 2004,* Arlington, Virginia, March 31–April 3, 2004. Available at: www.archimuse.com/mw2004/papers/giaccardi/giaccardi.html.

social creativity in the museum construction, and to find ways to actualize new cultural objects.[14]

The Virtual Museum of the Collective Memory of Lombardia is an exemplary case that provides evidence of how a living heritage can be translated into actual cultural objects. MUVI shows how the collection and preservation of physical artifacts can be connected to expressions of social creativity by means of processes of participation and collective storytelling that are sustained and empowered by the convergence of different media and information technologies. MUVI investigates the complexity of the museum, and shows how the cluster of relationships that a museum generates can be explored in order to make the reality of the museum effectively more open and dynamic. In this sense, MUVI is a "relational museum," that is, a museum that promotes knowledge not as a body of facts reliable at any time and any place, but as a more complex reality in which multiple narratives play an important role. Still, MUVI is a full-fledged museum because its mission is to collect and preserve cultural objects, and make them available to the public.[15]

MUVI is a nonprofit project started in 1999 by the Italian publishing house Sonar/TiConUno in Milan with the aim of preserving the collective memory of the Lombardia region in Italy. MUVI's activity is based in a Website and, in the first phase of the project from 1999 to 2003, a radio program. This first stage of the project combined MUVI with a weekly radio program broadcast by Radio Popolare in Milan, an independent radio station sustained by popular shareholding. During this stage, the initiative was completely self-funded by the publishing house. The project received various international acknowledgments,[16] but it never collected funding from any outside organizations. The second phase, currently under development, will combine MUVI with a broader range of media (from the Internet to television, and from documentary to theatre) and with popular events and initiatives physically taking place in Lombardia.

To preserve the collective memory of Lombardia, MUVI's goal is to collect and make publicly accessible the repertoire of photographic pictures and correlated memories scattered through different family archives on the regional territory. These archives often are unknown and constantly disappearing. The collection and preservation by digitization of images and stories connected to these archives has not only a cultural goal, but also a social purpose. The cultural goal is the difficult preservation of cultural objects that fall between the categories of "tangible" (the collection of family pictures) and "intangible" (the memory of the local community).[17] The correlated educational and social mission of MUVI lies in the work of cultural dissemination originating from the participation of the community in contributing, sharing, and comparing such artifacts and memories.

14 See, for instance, the projects "Moving Here" (www.movinghere.org.uk/), "Puke Ariki" (www.pukeariki.com), and "Land of Silence" (www.thesilence.org). See also: G. Geser and H. Wood, "Moving Here—Migration Records and Experiences" in *DigiCULT: Virtual Communities and Collaboration in the Heritage Sector,* Thematic Issue 5 (January 2004): 25–35.

15 See the International Council of Museums (ICOM) definition of a museum: "A museum is a non-profit, permanent institution in the service of society and its development, and open to the public, which acquires, conserves, researches, communicates, and exhibits, for purposes of study, education, and enjoyment, material evidence of people and their environment." Available at: http://icom.museum/definition.html.

16 MUVI was included in the list "Millennium Guide to Cultural Resources on the Web" of the UNESCO World Culture Report on Cultural Diversity, Conflict, and Pluralism (Paris: UNESCO Publishing, 2000), and was included by the World Wide Web Virtual Library in the list "The Best Web Sites on the History of Italy."

17 For a definition of tangible and intangible cultural heritage, see the UNESCO definition at: http://portal.unesco.org/culture/en/.

The Lever of Personal and Legendary Accounts

Through the lever of personal accounts, MUVI collects images and stories related to historical events and the everyday life of people in Lombardia. However, the actual cultural heritage MUVI aims to preserve comprises not only the pictures and documents collected on the Website, but also the memory that these documents embody, and the storytelling that brings this memory alive. MUVI transforms its audience—the local community—into an active heritage, and makes it the main actor in the construction of the museum. To this end, MUVI provides a forum to encourage and stimulate people to tell their own stories, listen to other people's stories, and connect these tales together. The only intervention in this process is the procedure of editorial selection to which people participate in collaboration with the staff of the publishing house. The narrative freedom granted to participants allows previously unknown facts to come to light.

In a commentary by Federico Pedrocchi,[18] two anecdotes exemplify the role that the "fantastic" can play in relation to the emergence of truth. The first anecdote involves one man talking about an event that happened on the River Seveso during World War II. As Pedrocchi noted, there is much confusion about the names of rivers and canals in Lombardia; many of these canals were covered and hidden, which has led to many different names being used for the same waterways. As a result, even though the man gave a detailed account of the event, corroborating with the memories of another member of the community, no such event took place on the River Seveso, according to historians. Still, his account was extremely valuable. As Pedrocchi commented, if that man had been questioned and asked if he knew what happened on the River Lambro (the official name of the river the man called Seveso), he would have denied all knowledge of such an event. Thus, a piece of history has emerged through an error.

In the second case reported by Pedrocchi, a worker employed for fifty years in one of the major paper mills in Lombardia was able to describe, with almost photographic precision, the industrial objects that were present in the paper mill at the time of his employment. The paper mill is now empty, dismantled, and ready to be destroyed. However, the mill was still alive to that worker, and all the objects were still there for him. Only by telling someone else his story was he able to bring those objects back to life and transform his private memories into a cultural resource for the community.

Word of mouth and a continual presence in the territory are very important in the MUVI project. Many instances, as Pedrocchi stressed, have proven to the editorial team that the act of recalling "minor" stories and events raises the value of these memories in a way that achieves both weight and dignity. When people bring their family pictures to the MUVI headquarters and choose the most significant photographs together with the editorial team, they

18 F. Pedrocchi, "MUVI—Museo Virtuale della Memoria Collettiva di una Regione: la Lombardia. Intervista di Elisa Giaccardi a Federico Pedrocchi" (in Italian), Museiit (June 2004). Available at: www.museiit.net.

frequently express surprise and pleasure: "Well, I did not expect that my dad, playing in that village band…that this thing could be interesting, have a value as a document." [19]

This is why MUVI very rarely has resorted to experts. If experts are consulted to articulate their own opinions, community members often cease to express themselves: "I believed things were in that way, but if he says they are different, then…what I have to say does not count." [20] Experts' interventions would put a stopper on people's imaginations, when it is often just from the most fantastic stories that truth can emerge and contribute to the inscription of history. Therefore, experts may be consulted by the editorial team in the future, but at a later and distinctly different stage. At the moment, discordant versions are not a problem; rather, they are richness and a source of social creativity. What MUVI is looking for is the multiplicity of what has been experienced by the people in the community. The process of "transfer" that often is created by individuals during their storytelling—taking things related in one context and "attaching" them to another—produces legendary accounts and, ultimately, a grand narrative that allows the actual production of cultural objects. It also substantiates the construction of the museum by the local community. The process of collective storytelling and social creativity, as sustained by MUVI, enables the discovery of "pieces" of history and truth that are extremely interesting and that otherwise would be lost.

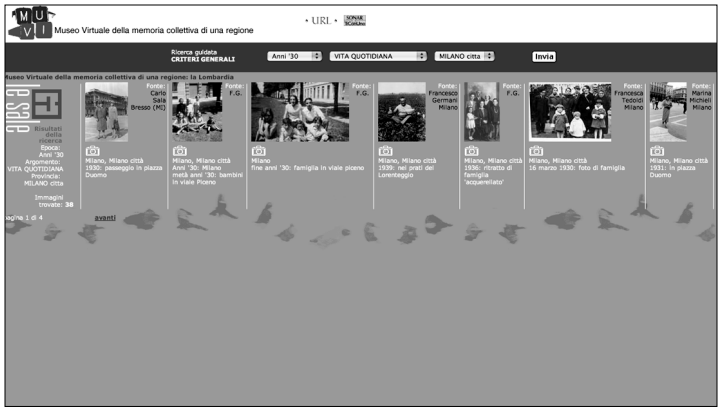
The Web as a Public Journal

Access to the pictures and stories collected on the Web is provided via an online database. This database has been purposely designed for people with varying degrees of familiarity with the Web. MUVI is a museum for a large cross section of the community audience, so it is particularly important that the Website can be explored without the emotional flow of browsing and reminiscing becoming crushed by technical factors. The Website is organized into three main sections: "Halls," "Exhibitions," and "Stories." In the "Halls" section, all the images collected by MUVI are accessible through the database. The database can be queried by place, theme, and time. Once the query has been performed and pictures retrieved and displayed, captions describe their content and some icons mark the ability to zoom in on the object and whether there is a story (written or recorded) associated with the picture. In the "Exhibitions" section, the material is periodically reorganized by themes. Finally, the "Stories" section publishes the whole collection of stories sent by e-mail or told during the radio program by members of the community. Language is plain and the layout is traditional, expressing a regular narrative structure that people can recognize and read as they would read a journal.

19 Ibid.

20 Ibid.

Figure 1
The database interface of the MUVI Website



The Affective Power of Photographs

On the Website, photographic pictures are the main visual tool to preserve and stimulate the collective memory of the community. This choice rises from the understanding that photography has been the most efficient way, for more than a century, to pin down the memory of facts and lives. Personal archives are very rich and belong to the hundred thousand families that currently live in or have historically been living in Lombardia. MUVI aims to preserve this heritage by making it public and accessible: by photographs, old postcards, posters, book covers, and details from a page of a local newspaper, among other means. To this conservative purpose, digitization is essential.

But digitization also is critical because the photographic material collected could not be exhibited successfully in a real museum. Thousands of images, often very small, are not very readable if put in showcases or on vertical panels in a real building. In addition, they could not be easily updated and reorganized. Moreover, the graphic structure of the Website and the way in which the pages can be browsed are perfect for promoting the private and affective dimension of looking at pictures; even though on a public album, those photographic pictures are felt as personal and evocative for any member of the community.

Currently, about five-thousand pictures are displayed on the Website, but more than thirty-thousand have been examined for selection. People normally propose numerous photographs to MUVI, and it is the role of the editorial team to involve these people in a discussion about which ones they believe are the most significant, and to pick them for publication on the Website. It is a process of shared understanding in which people come to learn that, even though all the pictures they are proposing are beautiful, the database is something that needs to be queried and consulted. Therefore, if pictures are not preliminarily screened, people will see images too similar to each other, and the fresco the database is trying to paint

Figure 2
An exhibition on the Second World War on the MUVI Website

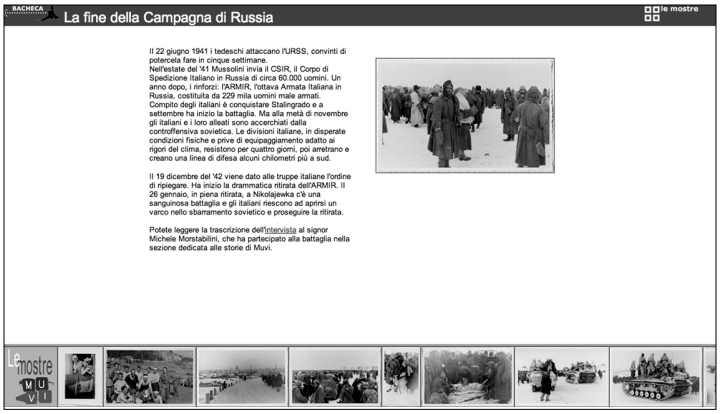


Figure 3
Transcription of a phone call to *Radio Popolare* in Milan

will get spoiled. The database needs emblematic images with a story behind each, and participating in their selection helps people understand this requirement.

The Warm Voice of Radio

The radio was an essential part of the project in its first stage because it stimulated in the people the willingness to take part in the construction of a collective memory. Radio Popolare in Milan, where the programs originated, is a local station that always has maintained a close and warm relationship to a broad audience. It broadcast weekly programs to pick up contributions from those who, in sending their pictures, wanted to tell the story behind them, as well as from those who, seeing the pictures on the Web, wanted to add further details and, in turn, tell their own stories.[21]

Through the medium of the radio, memory became tangible not only with images, but also with "voices." The loop produced by the integration between the Web and the radio created the sense of community necessary for the collecting operation and, at the same time, contributed to spreading the idea that it is possible to live together despite any differences. This integration was key not only to reaching audiences not reachable via the Web and supporting the collecting operation,[22] but it also was critical in promoting a social

21 Until 2003, 150 radio programs were broadcast, with an average of about ten telephone calls received at each program.

22 See G. Gaia, S. Boiano, and F. Pasquali, "Cross Media: When the Web Doesn't Go Alone" in *Proceedings of Museums and the Web 2005*, Arlington, Virginia, April 13–17, 2005. Available at: www.archimuse.com/mw2005/papers/gaia/gaia.html.

Figure 4
Pictures from the MUVI database

process that invited people to look at each other and exchange their own values by sharing the pleasure of telling their own stories and listening to those of others. The safekeeping of the collective memory begins in MUVI with the sharing of a personal memory, and it ends up with interweaving family memories and history.

As a medium, the radio program was very important. Together with the images, and often distinct from them, were the stories and personal accounts of people who, following the most unpredictable paths, decide to tell a story (even though they will never provide one single picture). The exposure to a warm medium such as the radio, capable of making people talk and express themselves, provoked the participation of the entire community in the reconstruction of many memories and stories. As Pedrocchi noted, an individual telling a story provides a large variety of elements in each story, but the same person, asked to write the same things down and order them, often would fail to be so incisive: "Those things are like the odds and ends found when one empties out one's pockets." [23] The important factor is the mechanism that MUVI is able to activate, and the sensitivity in regulating it. This is why tools for direct expression, such as content management systems, are not currently applied. These systems can be valid and beneficial, and they may be applied in the future, but to access people's capability for memory and expression—according to Pedrocchi's experience—they are not enough. They need to be complemented with sensitivity in stimulating and regulating people's memories and emotions.

Social Synergies

Indirectly, MUVI also creates forms of collaboration between the young "digitally expert" generations and elderly members of the community who are attracted to the possibility of publishing their memories on a computer screen. Because images are evocative of memories for any component of the family, this collaboration happens naturally—as the editorial team had the chance to verify. Collaboration among different generations is an interesting conse-

23 Ibid.

quence of the processes that MUVI was able to initiate. Few people simply mail their original pictures; most send images already digitized by e-mail or bring them to the publishing house on a CD. Even though MUVI provides a network of scanners and volunteers to support MUVI contributors, elderly or inexpert people often prefer to rely on the help of their young and more computer-proficient family members and neighbors. This creates an interesting "social synergy," and involves members of a younger generation, such as teenagers, in issues that would not otherwise be of interest to them.

Innovative Elements

The convergence of the properties of different media (such as the Web, radio, and photography) is the design strategy adopted by MUVI in the construction of the museum. The combination of the warm medium of radio combined with the affective power of photography is the key to encouraging people to get actively involved. Collective storytelling generates the museum, and information and communication technologies "materialize" it. By exploiting both the tangible and intangible resources of the community (in that emotions play a fundamental role in the emergence, collection, and preservation of actual images and stories), MUVI inspires spontaneous participation from the local community, and strengthens its cultural identity and sense of belonging to an identifiable territory. Moreover, by activating emotional and social mechanisms, MUVI renovates and supports processes of mutual learning and social creativity within the community itself.

In summary, MUVI innovates the idea of the virtual museum by crosscutting and combining different "interaction spaces." These different interaction spaces integrate into the design process both tangible and intangible resources by using collective storytelling as a "seeding mechanism" for the collection operation and transforming the photos of regional events and local people into objects capable of acting as "pieces of conversation" among different individuals. In doing so, MUVI integrates both "design time" and "use time" in the actualization of the museum and its cultural objects.[24] This integration, which entails the exhibition and reorganization of a continuously growing body of images and stories, allows MUVI to support not only the current interpretation of the cultural objects placed in the museum, but also their future interpretations, thus sustaining the coevolution of the museum and the local community over a sustained period of time.

The Design Way to Cultural Development

Establishing virtuality for the museum is a vast and complex challenge that perhaps is greater than was originally perceived, but it also provides an extraordinary opportunity. To explore this opportunity, the role of technology and the way of design must be imaginative. As designers and museum professionals, we must avoid

24 See E. Giaccardi and G. Fischer, "Creativity and Evolution: A Metadesign Perspective" in *Proceeding of the Sixth International Conference of the European Academy of Design (EAD06) on Design-System-Evolution* University of the Arts, Bremen, Germany, March 29–31, 2005. Available at: http://ead06.hfk-bremen.de/.

approaching technology merely as something to be added onto existing practices.[25] Instead, we need to invent new museum models and interaction spaces that act as catalysts for innovation.

Virtuality does not mean merely to reproduce preexisting objects, but also to actualize new ones. Virtuality can be used to invent new methods of producing meaning, and hence technologies capable of activating and sustaining emotional mechanisms, triggering new relationships, and engendering new knowledge. In particular, when dealing with forms of intangible heritage, "The task is to sustain the whole system as a living entity and not just to collect 'intangible artifacts.'"[26] As Kirshenblatt-Gimblett has advocated, the focus cannot be merely the archive, but the whole "repertoire," embodying the knowledge and social relations responsible for its own creation, transmission, and reproduction.

Ultimately, designers have crucial roles to play in the development of new interaction spaces. Designers and museum professionals need to recognize that information and communication technologies can strengthen the tie between cultural resources and territory by supporting innovative models for social creativity that empower and nurture the active and constructive role of local communities. Designers and museum professionals need to recognize that information and communication technologies are not merely tools for processing data and making it available, but can be a force and stimulus for cultural development.

25 G. Fischer, "Making Learning a Part of Life: Beyond the 'Gift-Wrapping' Approach of Technology" in P. Alheit and E. Kammler, eds., *Lifelong Learning and Its Impact on Social and Regional Development* (Bremen, Germany: Donat Verlag, 1998), 435–462.

26 B. Kirshenblatt-Gimblett, "Intangible Heritage as Metacultural Production," *Museum International* 56:1-2 (2004): 53.

Acknowledgments

I would like to thank Alessandro Milani and Federico Pedrocchi for their courtesy in providing the images duplicated in this paper. In particular, I want to thank Federico Pedrocchi for the extraordinary account he provided in his interview and Dennis Doordan for his thoughtful reviewing. A first version of this paper was presented at "Museums and the Web 2004" in Arlington, Virginia, April 2004.

Dubai—Land of Contrasts

Amir Berbić

A small mosque built for laborers in Dubai at a nearby construction site features minarets outlined with green neon lights, as if aspiring to the glow of Dubai's skyline. The example hints at some of the contrasts in this photo-essay about a culture changing massively amidst the wealth of oil. The discrepancy between Dubai's traditional past and the modern future it desires results in an environment with a perplexing identity. Vast desert land is covered by grass fields and invaded by skyscrapers; traditional souks became modern shopping malls; shopping malls become indoor ski resorts, and luxurious hotels look like traditional sailboats. Like a minaret framed by neon lights, Dubai is "history rising."

Medinat Jumeirah, shopping mall inspired by local traditional architecture

The Camel Caravan, public art project

Billboard advertising the construction of *Burj Dubai,* world's tallest building

Old Souk

Mall of the Emirates

Painted fence near the *Dubai Creek*

Private home under construction

A traditional sailing boat, for display at the *Dubai Museum*

Burj Al Arab Hotel

Ski Dubai, indoor winter resort at the *Mall of the Emirates*

Mapping the Modern City: Otto Neurath, the International Congress of Modern Architecture (CIAM), and the Politics of Information Design

Nader Vossoughian

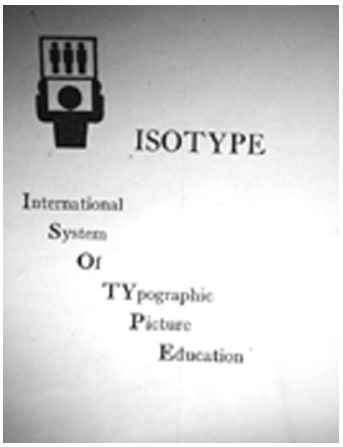


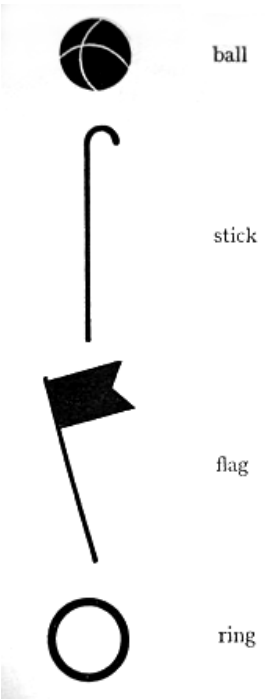
Figure 1
Otto Neurath, "ISOTYPE," 1936. Source: Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1936), 16

Otto Neurath was a social scientist, one of the most formidable, if controversial, intellectuals of the interwar period. A student of turn-of-the-century German sociology—the writings of Georg Simmel, Ferdinand Tönnies, and the Social Policy Association [*Verein für Sozialpolitik*]—he was a key player in the socialist uprisings in Munich in 1919, as well as Vienna's settlement movement during the early 1920s. In 1925, he gained funding from the Vienna municipality to open the Museum of Society and Economy, which still represents one of the most innovative cultural experiments of the twentieth century. The museum's mission was an unconventional one—to bring social and economic facts to the masses, raise the self-awareness of the working class, and break down modern capitalism's fetishization of the "object." It exhibited facts, not artifacts; the reproducible, the transparent, and the everyday rather than the rare, the curious, and the strange.

The Museum of Society and Economy was the very inverse of the Baroque *"Wunderkammer"* or "cabinet of wonder," because it was conceived as a conduit of information, literally a medium for the masses that sought to form as much as it informed the working class public. It offered a means of looking at the world that was rooted in what Neurath termed the "scientific world conception," the philosophy of scientific empiricism that attempted to dislodge metaphysics from everyday communication. The museum developed a new form of graphic representation known as the "Vienna Method of Pictorial Statistics" (later renamed the "International System of Typographic Education," or "ISOTYPE"), which attempted to popularize social and scientific facts through the use of pictorial graphics. It sought to furnish the public with a systematic "picture" or *"Bild"* of society in a fashion that was easily legible and readily reproducible. For Neurath, "reading" an ISOTYPE chart was as easy as counting, grouping, and measuring: "[R]eading a picture is like making observations with the eye in everyday experience: what we may say about a language picture is very like what we may say about other things seen by the eye. For example: the man has two legs; the picture-sign has two legs; but the word-sign 'man' has not two legs." [1] (figures 1, 2)

1 Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1980), 20.

Figure 2
Otto Neurath, examples of ISOTYPEs, 1936. Source: Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1936), 16.



Town planning was one of the main arenas within which Neurath applied his graphic vocabulary. Throughout the 1920s, the City of Vienna aggressively sought to promote public housing and strategic urban planning initiatives as a means of stemming real estate speculation, consolidating physical control of the urban fabric, and ensuring the availability of affordable housing. Public education was central to this project in that it helped generate support for large-scale urban renewal initiatives, while popularizing the goals of centralized social planning. Vienna's Social Democrats believed that social transformation had to stem from the will of the people—that the shaping of everyday life (*"Lebensgestaltung"*) had to precede the shaping of the physical environment (*"Baugestaltung"*)– and Neurath's cultural practices were a product of this outlook. Although, as Helmut Gruber has observed, Neurath objected to the liberal cultural program of Austrian Social Democrats—a program of social indoctrination that heavily favored the written word over visual signs and symbols—he still held the view that social and political change had to occur hand in hand. Neurath believed that, in a socialist state, the intellectual and cultural socialization of the proletariat had to take place alongside—and, in many respects, prior to—the political and architectural transformation of daily life. In sharp contrast to the Stalinist line of reform, which stressed the centrality of heavy industry in the project of modernization, Neurath insisted that the long-term health of socialism could not be ensured without the tacit approval of the masses, and that only by challenging the traditions and values upon which the capitalist system was based could a truly socialist state be achieved. As Neurath put it rather tersely, "The general rationalization of the shaping of built form can only be possible within the context of the rationalization of life itself." [2]

As director of the Museum of Society and Economy, Neurath carried out a number of collaborations that exemplified this pedagogical approach to reform, including one with the International Town Planning Congress, which was the principal organ for the European Garden City movement, and later with the International Congress of Modern Architecture (CIAM). Since its founding in 1928, CIAM had been the leading voice for modernist architecture and urbanism, sponsoring a series of annual meetings that discussed topics ranging from public housing to rational site planning, and from minimum dwelling requirements to social and physical hygiene. Their proceedings were widely publicized, helping internationalize the goals of the *"Neues Bauen"* or "new building" movement in Europe. Their collaboration with Neurath, which spanned 1931 to 1935, was exceptional in that it represented the first systematic attempt at standardizing the language of urban planning on a transnational basis. It symbolized the "world conceived and grasped as picture," to use Martin Heiedegger's language, inaugurating the rise of statistically-based mapping methodologies and, more generally,

2 *Der Aufbau: Österreichische Monatshefte für Siedlung und Städtebau*1 (1926), 53–54. Unless otherwise noted, translations of all citations are by the author. To see the original German citations, contact the author at nv1@hotmail or visit: www.arch.columbia.edu/phd/vossoughian/mapping_the_modern city_pdf

a concept of knowledge in which abstract notions of wholeness and totality preceded—and in many ways *precluded*—any dialogue with the immediate physical world.[3] Although scholars have traditionally interpreted the "Functional City" debates and Neurath's involvement in them as a prelude to the publication of Le Corbusier's "Athen's Charter"—a document that delineated the four primary functions of the modern city—it also brought to the fore critical discussions about the *normification*[*normierung*] of culture, and its significance to artistic production. It highlighted the tension between formal and *informational* conceptions of urbanism, which is a rift that has become more evident today.

My analysis takes, as its point of departure, the German Building Exhibition of June 1931, which showcased recent innovations in the construction industry. It was here that Neurath met Cornelis van Eesteren who, at the time, was planning the 4th International CIAM Congress, a meeting that was loosely called the "Functional City," and was to be held in Moscow.[4] Like Neurath, van Eesteren had a strong interest in visual communication. In 1923, he produced a series of axonometric studies in collaboration with the Dutch artist Theo van Doesburg that appeared in the *Galerie de l'Effort Moderne* in Paris. These "counter-constructions" consisted of colored planar geometries suspended in space. They stressed a non-perspectival, abstract representation of architectonic form.[5] In 1924, van Eesteren participated in the publication of two *De Stijl* manifestos, "Towards a Plastic Architecture" [*Tot een beeldende architectuur*] and "Towards a Collective Construction" [*Vers une Construction Collective*]. In 1927, he became an instructor at the *Staatliche Bauhochschule* in Weimar, the successor to the Weimar Bauhaus, where he taught urban planning and design. A year later, he joined Amsterdam's Public Works Department, overseeing development of a series of expansion plans for the City of Amsterdam. It had been projected that, by the year 2000, Amsterdam would have approximately 1.1 million inhabitants, so Van Eesteren was asked to develop a scheme to accommodate for this vast expansion in a rational fashion.

During the Berlin Building Exhibition, van Eesteren invited Neurath to assist CIAM's exhibition committee in assembling materials for its "Functional City" Congress. For van Eesteren, the Congress was to constitute a collective and systematic look at thirty-four cities around the world, focusing on each area's social, economic, organizational, and functional character. It was to be a preliminary analytical study of the modern metropolis, laying the groundwork for future interventions. It stipulated relative uniformity between individual presentations, seeking to forge consensus between varying national delegations. It was inspired by van Eesteren's concept of "comparative city planning" [*vergleichende Städtebau*], which rested on the idea that the study of urban morphology gave the planner insight into the unchanging essence of the contemporary city. Following Theodoor

3 Martin Heidegger, "The Age of the World Picture" *in The Question Concerning Technology and Other Essays* (New York: Harper Torchbooks, 1977), 129.

4 For a background to Van Eesteren's life and work, see Franziska Bollerey, "Cornelis van Eesteren: A Close-up," *Urbanismo* 8 (1989). For a discussion of Van Eesteren's work at the Amsterdam Public Works Department, see Mariette van Straalen, "Empirical Urban Analysis: The Collaboration between Van Eesteren and Van Lohuizen," *Daidalos* 69/70 (1998/1999); Vincent Van Rossem, "Amsterdam's General Extension Plan," *Planning Amsterdam: Scenarios for Urban Development (1928–2003)* (Rotterdam: NAi Publishers, 2003). For a discussion of Van Eesteren's post-World War II impact, see Bart Lootsma, "Reality Bites: The Meaning of Research in the Second Modern Age," *Daidalos* 69–70 (1998–1999).

5 Regarding Van Eesteren's work with Van Doesburg, see Paul Overy, *De Stijl* (London: Thames and Hudson, 1991), 172–175.

van Loohuizen, with whom he collaborated in the Amsterdam Public Works Department,[6] as well as the Scott Patrick Geddes, who coined the adage "survey before plan," Van Eesteren insisted that scientifically juxtaposing patterns of growth and development, functional organization, geography, climate, history, society, and other such elements could help the student of urbanism identify points of weakness in the modern city, and locate areas needing reform.[7] This method assumed that all cities were built upon a series of *a priori* urbanistic "givens" (i.e., propositions that applied regardless of cultural or geographical context). It also suggested that cities essentially were organic, and that they could be analyzed as holistic units. In accordance with Le Corbusier's views about urbanism, it assumed, finally, that the modern city served four basic needs or "functions," namely housing, recreation, work, and transportation. As van Eesteren summarized his philosophy:

> In order to furnish a comprehensive view and to allow for comparison, there is a need to learn about ... similarly structured cities in other countries. This overview of the total development [*Gesamtentwicklung*] is gradually becoming a need of every architect and every population that seriously deals with problems of city planning. This project is rooted in the universal understanding of the world [*universale Auffassung*], which is very much connected to the development of architecture today. Until now, there were very weak approaches for achieving this kind of overview. If at all, one could ... achieve insight into the functions and conditions of life of various cities. For this area, of which we will give the name *comparative city planning* [author's emphasis], we need first an analysis of existing cities according to a unified method (according to identical methods, use of identical symbols, and identical colors for identical functions).[8]

By inviting Neurath, Van Eesteren hoped to capitalize on the former's close ties with the Soviet government. In 1931, the Museum of Society and Economy was invited to open a satellite museum in Moscow, which came to be known as the Isostat Institute. Moreover, Van Eesteren recognized that Neurath's pictorial and image-based system of communication could help universalize CIAM's goals and aspirations. Even though the majority of CIAM's members spoke either French or German, both of which were CIAM's official languages, they still lacked a standardized means of communicating their formal and programmatic concerns graphically. They recognized that the greatest obstacle to articulating their vision of the modern city was communicational, and not necessarily technical or economic in nature, and they saw in Neurath's Vienna Method of Pictorial Statistics a means by which to address and perhaps overcome this limitation.

6 See van Straalen. See also Volker Welter, *Biopolis: Patrick Geddes and the City of Life* (Cambridge: MIT Press, 2002).

7 Martin Steinmann, ed., *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928–1939* (Basel: Birkhauser, 1979), 114.

8 Cornelius van Eesteren, "Prospekt für die Funktionelle Stadt," Papers of Cornelis Van Eesteren, Netherlands Architecture Institute.

Between January and June of 1932, Neurath met regularly in Moscow with CIAM delegates. His circle of contacts included architects Peer Bücking, Hans Blumenfeld, Hans Schmidt, Fred Forbat, and Margarete Schütte-Lihotzky, all of whom had left central Europe for the Soviet Union around 1930 in the hope of helping to build the new Communist state. They shared Neurath's sociological understanding of the built environment, which was strictly anti-aesthetic and anti-formal in orientation. Being philosophical Marxists, they vigorously refuted the idea that modernism could be reduced to a "style." Following the lead of Schmidt who, through his journal *ABC* advocated a multidisciplinary conception of design—one that regarded empirical and scientific analysis as a precondition for design or planning—as well as Schütte-Lihotzky, who herself relied on the time-motion studies of F.W. Taylor in devising her residential kitchen designs, they were in agreement with Neurath's holistic belief that science and culture belonged to one and the same intellectual continuum. As Forbat remarked in a letter to Gropius:

> i hope that you are in possession of my letter of February 25, in which i reported about the first steps of the congress preparations. in the meantime, we have developed our suggestions exactly and set everything up so that the questionnaire has become superfluous. the working group consisted of schmidt, blumenfeld, Bücking, dr. neurath and me, once kaufmann was also there and twice mrs. schütte-lihotzky. it was not easy to put together the meetings; blumenfeld has been bedridden for 8 days with a lower leg fracture, Bücking is very busy and always cancels, schmidt suddenly went to siberia, the last two nights i have been alone with neurath and yesterday, at a collective meeting with the heads of three russian sub-committees (new cities, city reconstruction, regional planning) i was all of a sudden alone with frau wyss, since otherwise no one would come. i have learned that the russians at any rate will analyze three typical cities according to our methods provided that barcelona [where the next CIAM steering committee is to be held in March] confirms our requests.[9]

Later in 1932, Neurath made a series of visits to Amsterdam to see van Eesteren; he eventually published two articles in the latter's journal *De 8 en Opbouw*. In the light of these exchanges, however, van Eesteren was only partly receptive to what Neurath had to say. In his guidelines for the "Functional City" Congress, Van Eesteren stipulated that all participating countries produce photographs, texts, and maps of each city they analyzed, which suggests that he shared Neurath's emphasis on uniformity and graphic standardization.[10] He called for "aerial views of the characteristic elements of

9 I wish to thank Kees Somer for bringing this letter to my attention. Letter from Fred Forbat to Walter Gropius, March 8, 1932, Fred Forbat Papers, Stockholm, Sweden.

10 José Luis Sert had the following to say about the guidelines that Van Eesteren set for CIAM IV; the emphasis of course was on normalization and standardization: "The significance of [these] analytical stud[ies] [was] that ... for the first time, a universal basis for the comparison of cities was established. All plans were designed on the same scale, and interpreted by the same symbols, so that slum areas, traffic problems, concentrations of population, location of industry, and other phases of urban life in communities of widely differing character, and in different nations and continents, could really be compared." José Luis Sert, *Can Our Cities Survive?* (Cambridge: Harvard University Press, 1942), 6.

the city and its environment,"[11] and also asked for maps (three of them for each city in total) illustrating the four functions and their interactions in the city.

Van Eesteren and his Dutch colleagues produced and distributed three prototype maps of Amsterdam in order to clarify their intentions. Map I was produced at a scale of 1:10,000 (figure 3). It notated housing, recreation, and work zones, and the specific activities to which they were attached. In its right margin was a linear graph illustrating population growth since 1850. Like the first, Map II also was drawn at a scale of 1:10,000, but only showed transportation systems. To the side of the second map was a section that showed average street widths for primary and secondary roadways. It also contained a radial graph notating annual wind patterns. Map III, a regional map, was designed at a scale of 1:50,000, illustrating all four functions together, and stressing their relationship to outlying, nonurban areas.

For notational purposes, van Eesteren and his team created a legend made up of seventy-two symbols (figure 4). These clearly went against Neurath's graphic "instructions." More descriptive than analytical, they were designed with a level of detail and precision

11 "Internal Memorandum of the International Congress for Modern Architecture" (1931), Papers of Cornelis van Eesteren, Netherlands Architecture Institute.

Figure 3
Maps of Amsterdam at 1:10,000 scale by Dutch CIAM delegation; intended as prototype for the Functional City Congress. Source: *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928–1939*, Martin Steinmann, ed. (Basel: Birkhauser, 1979).

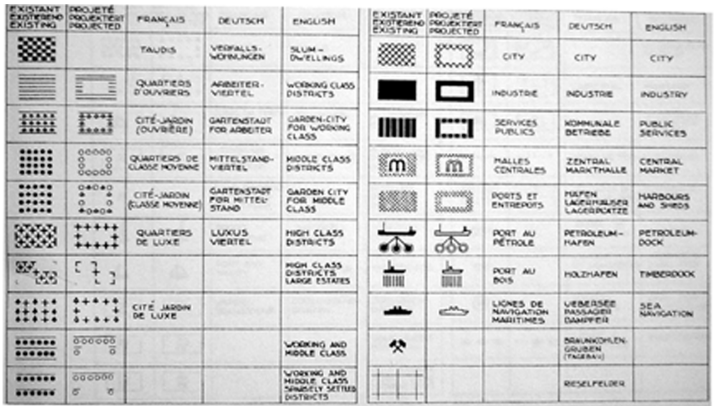


Figure 4
Graphic symbols intended for Functional City Congress. Source: *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928–1939*, Martin Steinmann, ed. (Basel: Birkhauser, 1979).

Figure 5
Cornelis van Eesteren presenting analytical maps of the City of Amsterdam to CIAM delegates. Source: Papers of CIAM, ETH Zurich, Zurich, Switzerland.

Figure 6
Sigfried Giedion speaking to Otto Neurath. Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

Figure 7
Neurath having a conversation with Alvar Aalto (center) and László Moholy-Nagy (right). Source: Papers of CIAM, ETH Zurich, Zurich Switzerland.

that defied Neurath's emphasis on simplicity and pedagogical clarity. They came in a great many shapes, sizes, and colors, and mostly included a combination thereof, which made them difficult to decipher unless one took the time to study the legend. The symbols were divided into two groups: one devoted to the "existing" city, and the other to the "projected" city. They notated a range of locations and functions: industrial areas, public services, central markets, harbors, sheds, and petroleum docks; slum dwellings, working-, middle-, and upper-class districts; woods, park areas, allotment gardens, playgrounds, swimming facilities, and yacht roods; and gardens, zoos, cemeteries, and train tracks. Graphically speaking, some of the signs were iconic in shape (i.e., a cemetery was represented by a cross; and woods were represented by trees), while others were more abstract. The more abstract symbols included a cruciform marking set against a pink background to represent upper-class areas, and brown-and-black checkerboards to indicate slums.

The "Functional City" Congress was held between July 29 and August 14, 1933. Earlier that year, it was moved from Moscow to Athens, because the Soviets had withdrawn their invitation. The first and the last three nights of the meeting took place aboard the SS *Patris II,* which set sail from Marseille. Guests included Sigfried Giedion, Rudolf Steiger, Werner Moser, Le Corbusier, Pierre Chareau, Fernand Léger, Charlotte Perriand, Wells Wintemute Coates, László Moholy-Nagy, van Eesteren, Giuseppe Terragni, José Luis Sert, Alvar Alto, Fred Forbat, Helena and Szymon Syrkus, and, of course, Neurath, who attended with his assistant and later wife, Marie Reidemeister (figure 5, 6, 7). Cities that were analyzed included Brussels, The Hague, Zurich, Barcelona, Dessau, Detroit, Warsaw, Madrid, Stockholm, Paris, Verona, Como, Oslo, Frankfurt, and Cologne.[12] For the most part, all of the presentations adhered to the requirements outlined by van Eesteren. There were two exceptions, both of which reflected internal ideological differences within CIAM itself. One exception was the maps by the Swiss delegation, which was headed by Rudolf Steiger. Steiger had a very strong interest in empirical research, as evidenced by traffic surveys he and his partner, Carl Hubacher, had conducted for a lakeside development competition in 1925. In Map I of Zurich, he included two sectional drawings that showed, both statistically and pictorially, population density figures in relation to both physical elevation and functional zone (figure 8). These were closely modeled after Neurath's graphic methods, not only in terms of the pictorial signs they used, but also in terms of how the information was organized. Each of the two graphics in the sectional drawings noted a different geographical topography, illustrating underneath the programs and population densities attached to each. In contrast to van Eesteren's prototype maps, they treated the city as both a statistical and physical entity, brilliantly juxtaposing quantitative and topographical forms of information.

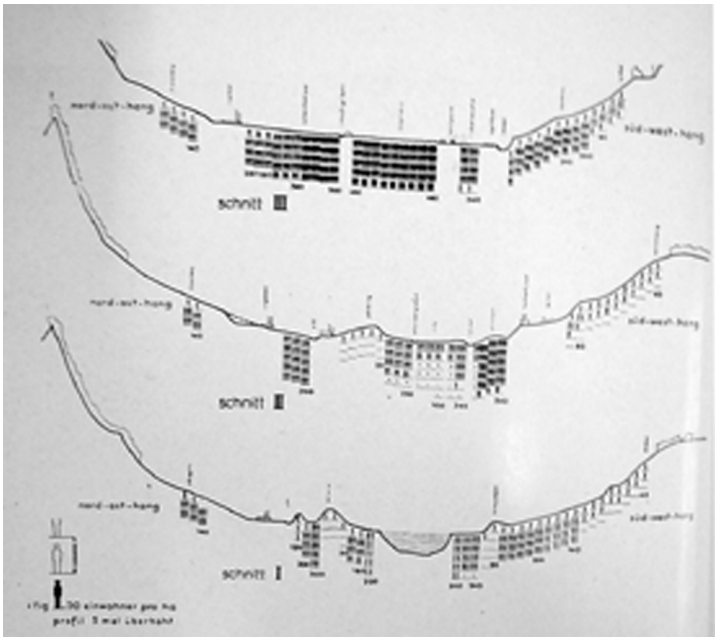


Figure 8
Swiss CIAM Delegation, Sectional view of population density in Zurich, 1933. Source: G.A.T.E.P.A.C. "Conclusiones del IV Congreso Internacional del C.I.R.P.A.C. sobre la Ciudad Funcional," *A.C.: Documentos des Actividad Contemporànea* 3:12 (1933): 12–42.

A second and even more pronounced exception among the presentations were the maps the Germans produced for the City of Dessau. In addition to the three primary maps that van Eesteren had asked for, this work included a meticulously documented "explanatory report" [*erklärender Bericht*] about Dessau's geological, climatological, historical, social, and economic composition in historical context (see figures 9 and 10). Graphically speaking, it included a combination of text, photographic montage, maps, and drawings. It was a radical departure from the other CIAM studies in that it emphasized Dessau's social and economic context over its programmatic or geographical composition. It was intended as a provocation in that it took issue with the very premises upon which the Congress had been organized. As Kees Somer has observed, the leftist radicals such as those belonging to the German CIAM delegation preferred using a "historic-materialistic research methodology that would reveal the factors in a city's actual development, and thus help them in the design of cities where socialist relationships would predominate."[13] This was in sharp contrast to Le Corbusier's and van Eesteren's approach to the urban fabric, which emphasized an ahistorical notion of physical planning and functional zoning.

When they arrived in Athens, the CIAM delegates were greeted by the Technical Chamber of Greece. On the evening of August 3, they convened in Greece's National Polytechnical University for an exhibition and opening reception hosted by Greece's Prime Minister. After initial introductions, van Eesteren, Giedion, Le Corbusier, and Neurath delivered individual presentations. In his talk, Van Eesteren underscored the benefits of using uniform graphic standards. His paper, entitled "Methods of

12 Mumford, *The CIAM Discourse on Urbanism, 1928–1960*, (Cambridge: MIT Press, 2000), 81.

13 Kees Somer, "Functional Amsterdam: The AUP and C.I.A.M.'s Fourth Congress," *Planning Amsterdam: Scenarios for Urban Development (1928–2003)* (Rotterdam: NAi Publishers, 2003).

Figure 9
German CIAM Delegation, Study of the City of Dessau, 1933. Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

Figure 10
German CIAM Delegation, Study of the City of Dessau, 1933.

Functional City Planning and Its Utilization in Amsterdam," made the point that standardized notational systems fostered collaboration and rational thinking: "Success cannot be achieved by a central office alone," he announced. "The central office can only issue the guidelines and decide whether they are being followed. The central office is like a scale that tries to achieve balance between the various interests of the planned area. Decentralization (of the decision-making process) can only lead to a harmonious totality if, in general, a city planning grasp exists among those who carry responsibilities for all that is executed and built."[14]

In his presentation, Neurath similarly stressed the importance of collaboration, but he also emphasized accessibility and visual transparency. His lecture, "Town Planning and Lot Division in Terms of Optical Representation Following the Vienna Method" [*L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise*],[15] was critical of the CIAM proposals and the Dutch delegation's instructions specifically for the fact that they gratuitously fetishized geographical and programmatic information, often at the spectator's expense. Although Neurath agreed with the spirit of cooperation suggested by van Eesteren's remarks, he was equally adamant about the ad hoc way in which his Vienna Method had been applied. "This is the first time that cities have been successfully displayed in a way that is designed in a uniform fash-

14 Cornelis van Eesteren, "Methoden des funktionellen Städtebaues und deren Anwendung in Amsterdam" (1933), Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

15 A version of Neurath's paper was published in *Annales Techniques*. I have decided to use the original manuscript, however, which is located at the ETH in Zurich. See Otto Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise," *Annales Techniques* (1933), CIAM Papers, Eidgenössische Technische Hochschule (ETH), Zurich, Switzerland.

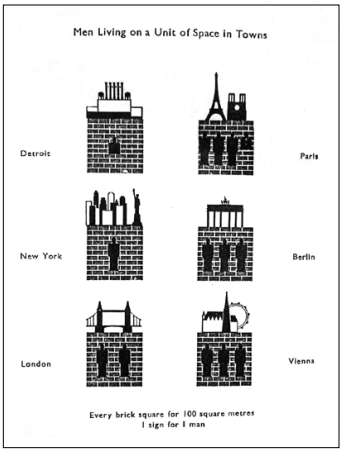


Figure 11
Museum of Society and Economy, "Men Living on a Unit of Space in Towns." Image included in Neurath's August 3, 1933 paper at "Functional City" CIAM congress in Athens. Source: Otto Neurath, *International Picture Language* (Reading: University of Reading Department of Typography & Graphic Communication, 1980), 54.

ion," Neurath began. "However, the signs that are employed do not appear to be complete. The abstractions that have been agreed upon are not eloquent enough for the public at large." Neurath went on show a number of slides that illustrated his criticisms more vividly. The first was entitled "Men Living on a Square Unit of Space in Towns," and highlighted the didactic intent of the Vienna Method (figure 11). According to Neurath, graphic information had to be legible at a cursory glance, that is, it had to be comprehensible to the casual observer. He insisted that CIAM follow suit in this regard:

> I present here the density of inhabitants in the great cities of the world. The cities are represented by the medallions, for example Paris by the Eiffel Tower and Notre Dame, London by the Thames Bridge, etc, etc. One sees in the squares brick and black figures. On first view one notices that in the Anglo-Saxon cities there are fewer inhabitations per 100 square meters than in Central Europe. I do not enter into considerations about knowing whether there is a dwelling with one or two floors determines this situation.[16]

For Neurath, only by deformalizing the language of urban planning could CIAM achieve its ideal of collective understanding. In his mind, *more* information did not necessarily mean *better* information. On the contrary, the most important objective was for the spectator to come away with an overall "picture" of the modern city, one which stressed the unified, interdependent, and indivisible character of the urban fabric. To quote Neurath, "I think that we could have better represented the quantity of studies done at this congress through similar schemas (to the ones I've shown) rather than through the plan and through geographical maps."[17]

In the days after his lecture, Neurath and the Congress delegates traveled through the islands of Greece, after which they reboarded the *Patris II* and made their way back to Marseille. On the return voyage, Jean Badovici, Le Corbusier, Rudolf Steiger, László Moholy-Nagy, and van Eesteren met to discuss plans for publishing the proceedings of the Congress.[18] Moholy-Nagy held a relatively favorable view of quantitative and empirical research methods in general, albeit with reservations. In 1922, he and his wife, Lucia, began experimenting intensely with photograms, a camera-less form of photography that involved projecting light onto a photosensitive surface.[19] In 1923, he took over as head of the preliminary course at the Bauhaus [*Vorkurs*] from Johannes Itten, steering the school in a direction that emphasized industrial mass production and a more practical engagement with social issues. During this period, he began a close friendship with Gropius and van Eesteren, developing a philosophy of design that rejected strictly utilitarian art as strongly as it did purely emotional, subjectivist works. As he wrote in a 1932 article, "We cannot establish a universal intellectual attitude or cultural standard from one vantage point only, such as cognition by

16 Neurath, "L'Urbanisme et Le Lotissement du Sol en Representation optique d'Après la Methode Viennoise."

17 Ibid.

18 Mumford, *The CIAM Discourse on Urbanism, 1928–1960*, 78.

19 Victor Margolin, *The Struggle for Utopia: Rodchenko, Lissitzky, Moholy-Nagy* (Chicago: University of Chicago Press, 1997), 139.

means of logic, or the sciences; nor indeed from the arts exclusively. In order to form a comprehensive attitude to existence, we must start *simultaneously* from emotion and cognition."[20] Moholy-Nagy was strenuously opposed to the sociological biases of Neurath, which he must have associated with the scientific empiricism of former Bauhaus Director Hannes Meyer. In 1928, Gropius appointed Meyer his successor in Dessau, prompting Moholy-Nagy's resignation from the school. In opposition to Meyer, Moholy-Nagy did not believe that aesthetics should be excluded from cultural practice; rather, the very function of design was to explore new forms of perception that defied scientific explanation. This tacit romanticism contrasted sharply with Neurath's radically anti-metaphysical outlook, which was very clearly derived from his conversations with the so-called "Vienna Circle." Throughout the 1920s, Neurath met regularly with Rudolf Carnap, Hans Hahn, Moritz Schlick, and other "scientific" philosophers with the hope of purging science of its metaphysical pretensions, and his views about visual communication echoed this standpoint. Although Neurath was never the foundationalist or positivist that many thought him—in fact, he was staunchly opposed to the idea that science could ever function as a self-enclosed "system"—he still was deeply skeptical of the ability for artistic production to serve socially progressive aims. Neurath's general distrust of the arts stirred controversy between him and the rest of CIAM, which can clearly be gleaned from a later correspondence. As van Eesteren remarked in a letter to Moholy-Nagy:

> I am truly happy that you participated in the congress, not only because you made a pretty film and took the pretty photos that we still plan to see, but above all because you participated so actively in the Congress events. This only proves that at our Congresses non-architects also need to participate. In particular, what has stayed in my mind is how intensely you debated Neurath—in which you, very correctly, always integrated the psychological and the human into the discussion; had you not, we would have definitely fallen victim to Neurath's rather limited system.[21]

Neurath returned to Vienna in the middle of August with a great deal of new responsibilities. Despite his differences with Moholy-Nagy (unfortunately, transcripts of the exchange do not exist), his Museum of Society and Economy was awarded the responsibility of editing the charts presented at the "Functional City" Congress, revising them, and assembling them for publication in two formats: a technical format for internal purposes and a more popular one for the general public. "[P]lans, statistics, photos (will be included)," Neurath commented. "Perhaps a few supplemental materials will be necessary."[22] "Everything should be as clear as possible," Van Eesteren responded. "The raw material must be published in the best possible manner .... Collaboration with Neurath's Institute is a

20 Laszlo Moholy-Nagy, "New Film Potentialities," *Moholy-Nagy,* Krisztina Passuth, ed. (London: Thames and Hudson, 1982), 320.

21 Letter from Cornelis van Eesteren to László Moholy-Nagy, September 4, 1933, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich, Zurich, Switzerland.

22 "Minutes of Meeting of CIAM IV's Publications Committee" (1933), Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

matter of trust. Naturally, the Congress must be kept informed and be allowed still to exert control."[23] On August 19, Neurath wrote to Giedion about the possibility of receiving the Congress's "resolutions" [*Feststellungen*]. This, of course, was in order to get the publication project underway. The resolutions were intended to represent a summation of the findings of the Congress, and be used to shape the course of the next meeting. "I would be grateful to you if I could receive the formulation of the new congress goals by Le Corbusier and the 'resolutions,'" Neurath wrote to Giedion. "We must quickly revise the symbols for the *new* and *old* work. This depends upon the questionnaires with whose help we can hopefully determine what the next congress will expect of us."[24] Neurath enclosed with the letter copies of the Museum of Society and Economy's 1933 publication *Pictorial Statistics According to the Vienna Method in Schools* [*Bildstastistik nach der Wiener Methode in der Schule*], as well as issues from *Distance Learning* [*Fernunterricht*]. He stated that he was interested in meeting with Moholy-Nagy in order to further discuss plans for the *Functional City* book. He writes, "[E]nclosed I send to you and your wife a new publication of ours, as well as a couple of issues of our periodical. Perhaps I will also include something about the congress in it as well. When will we be able to meet with Moholy? The type of layout is important. An agreement to connect 'romantic' and 'classical' elements."[25]

By September, Neurath still was awaiting the arrival of materials for the book. Van Eesteren wrote to Neurath that many of the resolutions' finer points were still being debated: "[A]s you suspected, the congress resolutions have generated still a great amount of debate."[26] Over the course of the fall, Neurath grew more impatient. He sensed (correctly, it seems) that CIAM was seeking to distance itself from him. He wrote to Le Corbusier in November: "I regret very much that as a member of this committee I have still not heard about the deadline and work plans .... This is all the more [disappointing] because relations between Vienna and the congress have become unusually loose."[27]

By the start of 1934, Neurath's work with CIAM was placed on hold. This was due, first, to the rise of Fascism and Nazism in Austria and Germany which, in 1933, caused the decline of the Austrian Social Democratic Party, and in 1934, prompted the closing of the Museum of Society and Economy, as well as Neurath's exile to The Hague. Second, for most of 1934 Van Eesteren was left bedridden and unable to work on account of nervous exhaustion and overwork. Third, from 1934 until his death in 1945, Neurath found himself increasingly involved in the organizational and administrative activities of the Unity of Science movement, which was the successor to the Vienna Circle. As Friedrich Stadler has observed, the Unity of Science's stated goal was to support cooperation and collaboration within the sciences and promote anti-metaphysical empiricism.[28] Throughout its history, it held seven major congresses,

23 Ibid.

24 Letter from Otto Neurath to Siegfried Giedion, August 19, 1933, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich, Zurich, Switzerland.

25 Ibid.

26 Letter from Cornelis van Eesteren to Otto Neurath, September, 1933, Haarlem, Wiener Kreis Stichting.

27 Letter from Otto Neurath to Le Corbusier, November 24, 1933, Papers of CIAM (Congres Internationaux d'Architecture Moderne), Institut für Geschichte und Theorie der Architektur, ETH Zurich, Switzerland.

28 Friedrich Stadler, *The Vienna Circle: Studies in the Origins, Development, and Influence of Logical Empiricism* (Vienna and New York: Springer, 2001), 356.

a preliminary meeting in Prague followed by annual international meetings in Paris (1935 and 1937), Copenhagen (1936), Cambridge, England (1938), Harvard University (1939), and the University of Chicago (1941). Aside from Neurath, its principal organizers were Carnap and Philipp Frank, both of whom were in Prague, but later emigrated to the United States. Its members included many of the original members of the Vienna Circle—Edgar Zilsel, Moritz Schlick, Hans Reichenbach, et al.—as well as many new figures from outside of Austria and Germany, for example Charles W. Morris, Alfred Tarski, Bertrand Russell, Karl Popper, and Alfred J. Ayer.[29]

For Neurath, the project of unified science meant promoting scientific learning in the encyclopedic tradition of Denis Diderot and Jean Le Rond D'Alembert. It was an attempt to bridge the gap between high science and everyday life, much as the Museum of Society and Economy had sought to achieve in Vienna. It also meant decentralizing the production and consumption of social and economic facts. "After the deactivation of traditional metaphysics," Neurath announced, "in constant struggle with metaphysical tendencies, as positive work we could create an *encyclopedic* summary of the sciences upon a unified logical foundation."[30] By Neurath's account, the original *Encyclopédie* (1745–1772) had been inspired by the idea that knowledge should be accessible, collectively conceived, and open-ended; used as a tool for progressive social change. The Unity of Science followed in this tradition in that it was premised on the idea that "ambiguity and uncertainty are essential."[31] "All of science is always fundamentally subject to debate," Neurath wrote.[32] In 1936, Neurath initiated plans to produce an *International Encyclopedia for Unified Science,* which was intended as a multi-volume compendium containing two introductory volumes devoted to the foundations of unified science; a second series of monographs dealing with methodological questions with regard to unified science; a third series that surveyed the "the actual state of systematization within the special sciences, and the connections which obtained between them."[33] A fourth series would consist of a "comprehensive 'Visual Thesaurus,' [...] which would be a *Weltübersicht in Bildern* [World Overview in Pictures]."[34] In total, the project was to consist of some thirty-six volumes published in English, French, and German, and include contributors from all over the world. Only the first two introductory volumes, the monographs devoted to the foundations of unified science, were ever released.

Neurath resumed contact with CIAM in the fall of 1934. By that time, van Eesteren was carrying out three projects: an exhibition featuring a General Extension Plan that he had produced for the City of Amsterdam, a four-day CIAM delegation meeting, and a "Functional City" exhibition. The last two events were to open together at Amsterdam's *Stedelijk Museum.* For the "Functional City" exhibition, which was officially called "Housing, Recreation, Traffic, and Work in the Modern City" [*Wonen, werken, verkeer en ontspanning*

29 For a full list of the list of members of the Unity of Science movement and the contributions they made over the course of the movement's history, see Friedrich Stadler, *The Vienna Circle: Studies in the Origins, Development, and Influence of Logical Empiricism,* 350– 393.

30 Neurath, "Einheit der Wissenschaft als Aufgabe," *Gesammelte philosophische und methodologische Schriften,* vol. 2, Rudolf Haller and Heiner Rutte, eds. (Vienna: Hölder-Pichler-Tempsky, 1981), 625–626. Originally published in Erkenntnis 5 (1935): 16–22.

31 Neurath, "Einheit der Wissenschaft als Aufgabe," 626.

32 Ibid, 16–22.

33 Charles Morris, *Empiricism and Sociology,* Marie Neurath and Robert Cohen, eds. (Dordrecht: Reidel, 1973), 66–67.

34 Ibid, 67.

in de hedendaagse stad], van Eesteren wanted to include: the analytical maps that the delegates had presented aboard the *Patris II*, a second display that addressed universal signs and symbols in urban planning, and a third that visualized the resolutions of the "Functional City" meeting in graphic terms. He charged Mart Stam, the radical Marxist and Constructivist who had only recently returned from Moscow, with curating the exhibition. He asked Wilhelm Hess, Georg Schmidt, and Rudolf Steiger to produce a "visualization" of the resolutions, which also was known as the "historical table" [*historische Tabelle*]. He asked Neurath to oversee work on the historical table, and to devise a set of prototype universal symbols for urban planning that could be included in the exhibition. As Van Eesteren wrote to Neurath:

> The intention is to hold a [CIAM] delegation meeting, as well as to bring together Dutch city planning and housing professionals .... I write you this because I hope that we can then get our work on the representation of city planning symbols far enough that we can include them in the exhibition. It will be essential for us to test, revise, and ultimately apply our entire body of symbols on a map of Amsterdam so that a complete example can be made available .... I would be very pleased if our collaboration really gave rise to a symbolic language of city planning.[35]

The next months were frustrating for Neurath. In an echo of their debates aboard the *Patris II,* he and van Eesteren exchanged sharply contrasting views about what the exhibition was to accomplish, and how its contents were to be documented. Neurath's criticisms of the existing diagrams were many: "[W]e stress that at the exhibition it is better to include fewer large maps with smaller helping maps than to have too many large and overfilled maps. Wherever possible, no numbers should be used on the maps, because this disturbs the optical picture and sometimes even obscures the essential meaning."[36] Neurath also took issue with what appeared to be van Eesteren's disregard for his graphic expertise. As he wrote to van Eesteren on February 20, 1935:

> [E]verything gets resolved, eventually, once you have had the time to think about it, but [visualizing the city] is not a graphic task, nor is it simply a task to be left for architects; it requires the "shifting between" of the TRANSFORMATION, that is, the pictoral-pedagogical analysis and the orientation. To the remark that the architect has not time for such things, I answer with the following advice: he should not use his time for such things, but rather leave it to trained specialists. This, however, is the same old story that I have been hoeing and hawing about on various occasions."[37]

35 Letter from Cornelis van Eesteren to Otto Neurath, November 21, 1934, Wiener Kreis Stichting, Haarlem, The Netherlands.

36 Letter from Otto Neurath to Cornelis van Eesteren, February 2, 1935, Wiener Kreis Stichting, Haarlem, The Netherlands.

37 Letter from Otto Neurath to Cornelis van Eesteren, February 2, 1935, Wiener Kreis Stichting, Haarlem, The Netherlands.

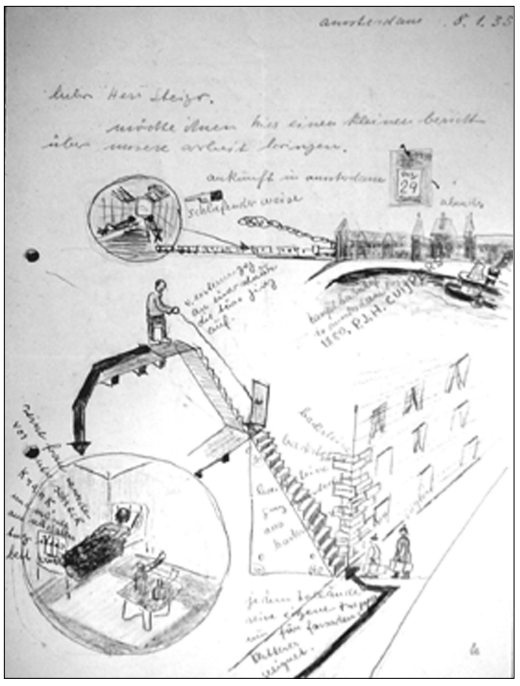
The one responsibility that generated some enthusiasm for Neurath was the work with Hess and Steiger. "Hess was here with me today," Neurath reported on February 6. "It was a great pleasure for me to see through this work. The entire setup is definitely very lively and appropriate for wider audiences."[38] Hess also was pleased with the collaboration. In a letter to Steiger, he produced a hilarious visual narration that suggested his strong affinity for Neurath's Vienna Method. Hess drew a picture of himself arriving at the Amsterdam train station, en route to meeting Van Eesteren on December 29. In typical Neurathian fashion, he illustrated the room in which he stayed, where he ate, and whom he visited (figures 12 and 13).

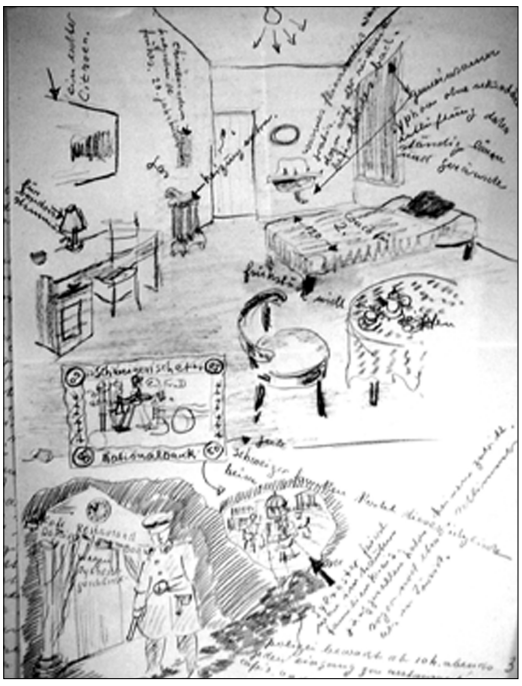
Physically, Steiger's and Hess's historical table was approximately five meters long (figures 14 and 15). It was divided into five separate sections, each of which was devoted to a different historical epoch. Unlike the other "Functional City" studies, it was not at all a geographical map, but a timeline, collage, and photo-documentation wrapped up into one. It showed the evolution of the modern city from the prehistoric age to the present. Conceptually, the table differed from Neurath's ISOTYPE diagrams in that it played to the audience's emotions in an effort to stir conversation and reflection. It created dramatic juxtapositions between New York skyscrapers and modern-day soldiers; it drew together maps, charts, sketches, and statistics in a collage-like fashion that strongly recalled German Dadaist art. "The highest horizontal column," Rudolf Steiger later wrote, "shows a selection of typical settlements from the European region from the cave and the era of primitive peoples to town and city models of the Middle Ages, the Renaissance, and the baroque

38 Letter from Otto Neurath to Cornelis van Eesteren, February 6, 1935, Wiener Kreis Stichting, Haarlem, The Netherlands

Figure 12
Wilhelm Hess, January 8, 1933 letter to Rudolf Steiger. Source: Papers of CIAM, ETH Zurich, Zurich, Switzerland.

Figure 13
Wilhelm Hess, January 8, 1933 letter to Rudolf Steiger. Source: Papers of CIAM, ETH Zurich, Zurich, Switzerland.





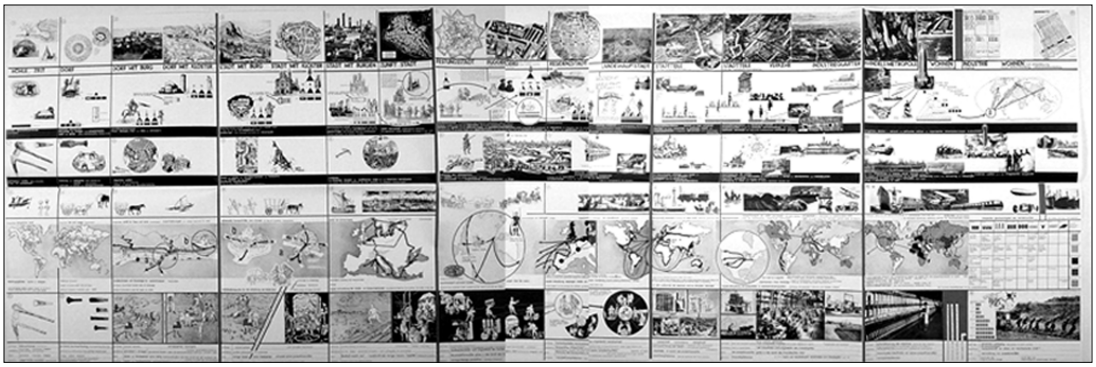


Figure 14
The "Historical Table" by Rudolf Steiger, Wilhelm Hess, and Georg Schmidt. Source: *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928–1939,* Martin Steinmann, ed. (Basel: Birkhauser, 1979).

Figure 15
Wilhelm Hess and Rudolf Steiger, with Georg Schmidt, "Historical Table" ("Historische Tabelle") detail view visualization of the four functions. Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute, Rotterdam, The Netherlands.

times through to the modern world city."[39] The chart included information about transportation systems, geographical conditions, economic and social systems, housing, social structures, and military technology. It showed the evolution of the four functions with respect to zoning conditions, historical development, and class relations. It illustrated how politics, law, industry, and media coalesced in the trade-based metropolis to "achieve political influence over the organized wage-earning workers." Its polemical intent and tacit anticapitalism was underscored by Steiger's later comments: one of the aims of the diagram, he stated, was to show how modern cities "dominate the world economy through organized finance capitalism."[40]

The "Functional City" exhibition was held June 1–23, 1935 (figure 16). The historical table was the center of attention, generating immediate controversy. It was hung against a central partition in the middle of the exhibition hall, only to be taken down after a single day. As Martin Steinman observes, its removal was primarily "due to pressure from Gropius, who regarded its materialistic

39 Rudolf Steiger, "Versuch einer graphischen Darstellung der historischen Entwicklung des Siedlungs- und Städtebaus," *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928–1939,* Martin Steinmann, ed. (Basel: Birkhauser, 1979).

40 Ibid.

Figure 16
Poster for the Functional City exhibition at the Stedelijk Museum in Amsterdam. (Source: Papers of Cornelis van Eesteren, Netherlands Architecture Institute).

foundations as politically dangerous."[41] The concept of the city that Steiger and Hess were offering, and that Neurath partly endorsed, was unacceptable because it questioned the economic foundations of the modern metropolis, attempting to historicize the city dialectically and materially. Its socialistic overtones risked politicizing CIAM in a way that could have put its livelihood in danger, especially among Nazi and extreme right-wing sympathizers.

It is unclear whether Neurath attended the opening of the "Functional City" exhibition. We do know that neither the graphic symbols he produced nor the prototype map he had been working on were included. His influence continued to be felt, however, in 1942 when José Luis Sert published the proceedings of CIAM IV in his *Can Our Cities Survive?* Van Eesteren also continued to follow the progress of Neurath's career, purchasing a Dutch-language copy of his *Modern Man in the Making* in 1940. Nonetheless, personal ties were all but discontinued after 1935. What caused this break? Enrico Chapel claims that Neurath's problems with CIAM are attributable to the fact that "the architects were absolutists .... Architects wanted to use [Neurath's graphic methods] for propagandistic purposes."[42] For all the many merits of his article, Chapel's reading fails to account for some of their deeper philosophical differences. Most significantly, Moholy-Nagy, Giedion, Le Corbusier, and Van Eesteren espoused a conception of culture that was decisively at odds with Neurath's. Over the course of the late 1920s and early 1930s, they grew skeptical of the utilitarian premises that informed modernist architectural discourse during the 1920s. Their optimism about science diminished as the promise of social democracy grew increasingly remote and, in many respects, their "return to form" and emotion in the 1930s and '40s was the product of their deepening skepticism about modernity at large. The rejection of Le Corbusier's Palace of the Soviets proposal in 1931, followed by the Russians' withdrawal of their invitation to host CIAM IV in 1932, caused many to rethink the scientific optimism that was widely felt during the early 1920s.

For Neurath, the promise of "unified science" remained a palpable ideal in spite of the growing pessimism and conservatism that surrounded him. In Moholy-Nagy's cultural humanism he saw signs of a resurgent metaphysic that played against goals of scientific inquiry. As Neurath later wrote, "Bauhaus and many others were strongly fashion-driven—but perhaps we are of another time .... In Berlin, everything was so principled, so dramatic, but often backed up by little, if any, action."[43] In the realm of graphic design, Neurath's emphasis on pedagogical clarity and accessibility was a reflection of his deeper distaste for autonomous art objects—concepts premised on ideas about authorship and originality. For him, the only "picture" or "*Bild*" worth communicating was the one whose content was intellectually transparent. CIAM and Neurath overlapped in their recognition that the internationalization of the "new building" movement was forcing architects to

41 *CIAM (Congres Internationaux d'Architecture Moderne): Dokumente 1928–1939,* Martin Steinmann, ed., (Basel: Birkhauser, 1979).

42 Enrico Chapel, "Otto Neurath and the CIAM—The *International Pictorial Language* as a Notational System for Town Planning," *Encyclopedia and Utopia: The Life and Work of Otto Neurath (1882–1945),* Elisabeth Nemeth and Friedrich Stadler, eds. (Dordrecht: Kluwer, 1996), 175.

43 Letter from Otto Neurath to Josef Frank, April 7, 1940, Papers of Otto and Marie Neurath, Österreichische Nationalbibliothek, Vienna, Austria.

rethink the terms by which design problems were to be addressed. But while notables such as Giedion, Le Corbusier, and van Eesteren insisted upon treating social and economic problems in formal and spatial terms, Neurath raised the possibility that the city also could be investigated by strictly quantitative and logical means. For him, the globalization of economic and social relations meant also the end of "the auratic," that is, the enlightenment-based concept of the autonomous, transcendental, and irreproducible art object that Walter Benjamin discusses in his "Work of Art in the Age of Mechanical Reproduction."[44] While Van Eesteren's planning philosophy combined aspects of regionalism and universalism, stressing both the commonalities between cities and the geo-spatial conditions that differentiate them, Neurath proposed a vision of urban space defined by and through "commodification"—the *commodification* of social and economic resources, the *quantification* of everyday life, and the *standardization* of graphic signs and symbols. He inaugurated a design concept that brought into crisis the very terms by which we traditionally visualized functionalist urbanism, as well as how we conceived of knowledge at large. That is, if Van Eesteren saw the Functional City maps as instruments with which to describe and depict physical phenomena, Neurath saw them as tools with which to convey a larger epistemic world view, vehicles that influence not just what we see, but also *how* we see. They offered him a means of popularizing unified science and the scientific world conception in general. They allowed him to privilege data over objects, and facts over artifacts, blurring the boundary between the abstract and the concrete in a way that would become only more pronounced as the century progressed.

44 See Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," *Illuminations,* Hannah Arendt, ed. (New York: Schocken Books, 1968), 217–252.

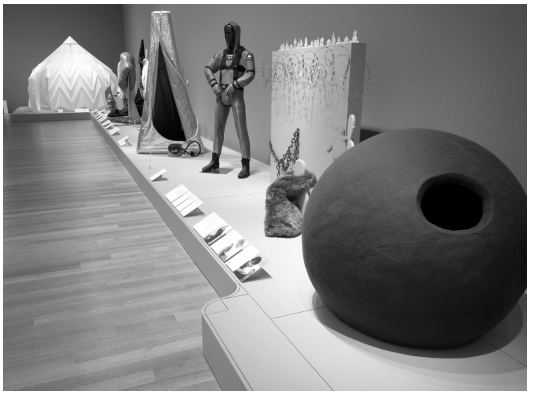
Acknowledgment

I am greatly indebted to the following individuals for their critical feedback: Kenneth Frampton, W. Boyd Rayward, Reinhold Martin, Eve Blau, Joan Ockman, Kimberly Elman, Kees Sommer, Victor Margolin, Diane Stadelmeier and Eric Mumford. I also wish to thank Terrance Goode for allowing me to present portions of this paper in October 2004 at the Northeastern Regional Meeting of the Association of Collegiate Schools of Architecture, which was held in Syracuse, New York.

Exhibition Review

Ezra Shales

Safe, Design Takes on Risk: The Museum of Modern Art
October 16, 2005–January 2, 2006
Paola Antonelli, Curator; and Patricia Juncosa Vecchierini, Curatorial Assistant
Safe, Design Takes on Risk exhibit catalog
(New York: Museum of Modern Art, 2005)
Distributed by D.A.P., 216 pp., 330 color ills., index. U.S. $29.95



Terracotta vessel for filtering unsafe drinking water,
© 2005 Matthew Septimos, photographer.

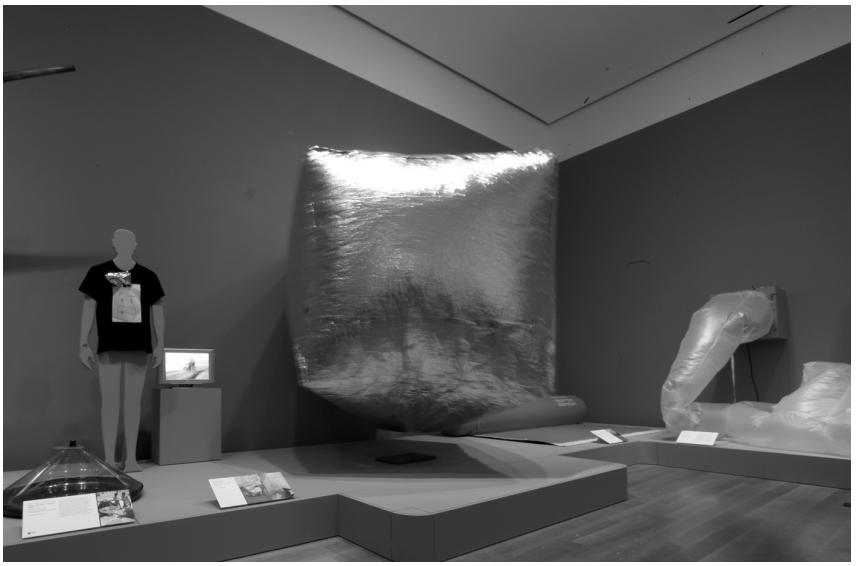
The Museum of Modern Art's exhibition *Safe, Design Takes on Risk* explores stress in the human mind more than in physical materials. The three hundred artifacts that curator Paola Antonelli and her assistant, Patricia Juncosa Vecchierini, have assembled brim with ideas worthy of greater evaluation but are, for the most part, clever intellectual exercises and not tangible solutions for public welfare. The pace of the exhibition is abrupt, jumping from terrifying global issues to ironic conceptual knickknacks. Scheduled in the summer of 2001, the project embodies a post-9/11 intellectual paroxysm of episodic flirtation with multiple quandaries. As in the nightly news, we lurch from the problems of tent cities in New Orleans and armored vehicles and unarmored pedestrians in Iraq to "good news" and cheerful inanity. In this shuffle, the practice of design becomes unclear and ambivalent.

The curators exploit the spaciousness of the new sixth floor designed by Yoshio Taniguchi (planned in 1997 and completed in 2004), including several tents and shelters of large size, nylon dirigibles, a car, and a small, unmanned helicopter. The objects organized thematically around the essentials of "Shelter," "Armor," and "Emergency" arouse provocative questions about contemporary life. "Property," "Awareness," and "Everyday" are themes that make the show buoyant but detached from the urgent concerns of real emergencies. After ascertaining that the "safe" use of a credit card is really an issue of privacy more than self-preservation, the curators choose to blur these differences. The uneven rhythm created by alternating between ironic gags and shrewd engineering fails to produce any resolution in the exhibition. For instance, the display of several variations on the *hijab* are intended to suggest a global outlook, but Dutch and Israeli designs reinvent the headscarf as sportswear and a bulletproof fashion accessory. These glib objects were intended to represent cultural difference, but also can be interpreted as making light of multicultural conflict.

To keep up with the exhibition, one must be willing to alternate seeing between safety as an accessory and a necessity. In the section labeled "Everyday," a terracotta vessel designed for wide distribution in Bangladesh to filter naturally occurring arsenic from drinking water is above a cardboard coffee cup sleeve to protect a recreational coffee drinker on the move (presumably American). The comparison between the danger of imbibing arsenic and the discomfort of handling a hot cup of Starbucks coffee seems to undermine any idea of safety as a universal value. The absence of a dialogue between the two objects makes their collision mildly embarrassing and slightly surreal. Whether the installation presentation numbs or highlights cultural and global differences depends on your subjective viewpoint: either reading is possible. The contrast of value systems is deliberate. The lack of transitions and surfeit of contrasts are consistent tactics in "Safe," whereby curators float multiple balloons to encourage visitors to "think global"—albeit small, incremental moment—and to engage in acerbic but ambivalent exercises in political dialogue.

In my opinion, the intellectual heft of the objects would emerge from a more informative context and a more lengthy comparison of designs. The Bangladeshi water filter is one of the simplest technological gadgets in the show: a hand-modeled terracotta urn with a contrasting resplendent green plastic spigot. The stout form with its sagging, lopsided lid is a humanitarian effort of merit. Similar designs are being made by several organizations, and engineers are still trying to solve the problem of bacterial growth within the terracotta filters. Large-scale communal water purifiers probably are the appropriate long-term solution, especially considering the cultural resistance to the tabletop filters (which villagers know are prone to bacteria), but this information is nowhere to be found in "Safe." The absence of a didactic context makes it very difficult to agree or disagree with the selection of designs. In the case of the landmine removal equipment on exhibit, gear that is site-specific, appropriate for arid roads in Afghanistan or muddy ones in Vietnam, is acknowledged to be "good design."

"Good design," a phrase MoMA popularized fifty years ago, is used by Antonelli to praise the artifacts in the accompanying catalog.[1] Her lack of irony or quotation marks is enigmatic. Thirty years of critics pondering the phrase's culturally constructed meaning does not perturb Antonelli's criteria of innovation, progress, and originality. Three other essays by Phil Patton on cars, Marie O'Mahony on materials, and Susan Yelavich on "nesting" maintain an upbeat but superficial analysis. Patton points out that Matisse made a painting from looking out of his car window, but the fact seems quite irrelevant to the big world of design outside of the art museum's confines. The catalog also contains a transcribed interview with Cameron Sinclair, founder of Architecture for Humanity, the one instance where objects get knocked about by a critical terminology. Although a minimum of concern with context weakens the claim of "good design" in the three other essays, Sinclair convincingly outlines the troubles in imposing design on the developing world, and criticizes solving problems from a distance. His advocacy of social responsibility stands out in the catalog. In general, the essays analyze safety in terms of physical comfort, aesthetics, and the habits of a leisured consumer class. The theme of "Property" asserts the importance of ergonomic pillows, high-tech business cards, and thousand-



Michael Rakowitz's *paraSITE homeles shelter* (1997) far right, Martime Roiz de Azca's *Basic House* (1999) with video dramatization, and Stephen Augustin's *Watercone* water collection device (1999)

dollar baby carriages. Other, more urgent, local issues that somehow were overlooked include the asthma epidemic among New York City children, and environmental racism in designating toxic industrial sites, but the safety of the working poor and the high mortality rates of the outer boroughs are neglected. Here, too, a shortcoming is that the exhibition alternates between addressing the Third World and Fifth Avenue, and skips over everyone in-between.

The comparison in "Safe" of temporary homes devised for the homeless, now a standard design school exercise, is representative of the show's lack of clear criteria. One example, the inflatable "Urban Nomad Shelter" (2004) by Cameron McNall and Damon Seeley, is a bright, jubilant, apple-green structure, more suited for suburban backyard child's play than asphalt and cement. The romantic name and color of the "Urban Nomad Shelter" articulate an "iPod aesthetic"; not the predicament of the penniless. Another inflatable intended for the same function, the "paraSITE homeless shelter" (1997) by Michael Rakowitz, is a clear plastic tent that harnesses hot air discharged by many large office building exhaust vents. The use of hot air in "paraSITE" is a poetic metaphor for the discrepancy between the poor and the rich. Navigating the distinction between polemic and pretty design is left to the discretion of the viewer. Similar urgent political discourses are acknowledged with a gesture, but explored superficially. Temporary housing gets no more complicated than the evidence of sleeping bags. These are props more than designs, addressing public policy more than physical, material, and mechanical conditions.

While the artifacts with use-value are clearly examples of design, the others are difficult to classify. The curators have gathered a grand assortment of fanciful projects about stress management by young product design students. For example, a "Huggable Atomic Mushroom," a sickly-sweet ironic recapitulation of Claes Oldenburg's 1960s soft sculpture, embraces the sophomoric and trivializes the serious, but has a raw dynamism (to the point that Antonelli uses it as an opening salvo in her catalog essay). MoMA has not welcomed so many neophytes for a long time, and the open-door policy is liberating after the staid atmosphere of the fine art galleries. Numerous youthful absurdist gestures, such as the "Huggable Mushroom," are more cute than cunning, derivative of fine art, and represent nostalgia for the translucent plastic clothing and inflatable architecture of the 1970s. Warhol's silver cloud pillows are transformed into a six-foot, shimmering, reflective chamber, absurdly titled "Basic House." Several artifacts relate to "classics" in MoMA's design collection, such as the subtly altered Arne Jacobsen Series 7 and the Thonet chairs, customized with "antitheft" devices to fasten purses. The plastic "Blow Chair" (1967) on MoMA's second floor, designed by Jonathan De Pas, Donato D'Urbino, Paola Lomazzi, and Carlo Scolari, is one of the inspirations for the inflatable "Urban Nomad Shelter" (2004) by McNall and Seeley. These parallels reinforce the Museum's authority. The unmanned Schiebel Camcopter in "Safe" invariably recalls the 1957 Bell and Howell helicopter downstairs, a dramatic signature display in both the old and new museums. The choice of a Pininfarina as the representative of the "safe" car hits a note that is clearly self-congratulatory, because it is the only car brand in the permanent collection. These self-referential artifacts promote the importance of MoMA as a historic institution.

The exhibition's passionate praise of both bric-a-brac and humanitarian inventions reminds one that the definition of design in the contemporary art museum remains broad and porous. Currently, public interest in design is at a high point, and exhibitions emphasizing fashion, style, and aesthetics have been crowd-pleasers. Design shows at MoMA have tended to address aesthetics in lieu of the contexts of consumption and ideological crises. However, "Safe" calls to mind how MoMA used photography in the 1940s and 1950s. Instead of being reminded of Edgar Kaufmann, Jr.'s exhibitions of "good design," visitors learn about humanity as a motley but universal struggle as Edward Steichen portrayed it in "The Family of Man" (1955). Steichen sought to generate humanitarian goodwill and show "how alike people were in all parts of the world."[2] Posing photography as objective truth-telling, he effaced its physi-

Raul Cadenas Secoitree (2004), a medusa head of surveillance, foreground right, and Koiatan/MacDonald Studio's INVERSAbrane, invertible building membrane (2005), at left.
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cal attributes by juxtaposing mural photos and eight-by-ten-inch gelatin silver prints. "Safe" also dilutes the idea of design, even as it expands it, by emphasizing sentiment as a method to arbitrate "good design."

An improved installation would have been one simple way to make this exhibition more clearly focused on design in terms of materials and their responsive qualities to the variegated human context. The Museum has created a disappointingly untouchable display. There are no tactile experiences—not even one fabric sample. On both of my visits, the guards were busy trying to stop visitors from fingering the goods. The lone interactive oddity that occupies center stage is the "Securitree" by Raúl Cárdenas Osuna, a steel tree diagram whose limbs terminate in many surveillance cameras. It allows visitors to see themselves being watched. Although the curator describes Osuna's tree as a "cognitive map," it seems an absurdly upscale version of an electronics store window, and alienates and isolates the senses as much as it engages them. Minor tactile interactions would have been more simple and satisfying. Perhaps a playpen for visitors to role-play with Andrew Oliver's "GIANTmicrobes," stuffed animals that are enlargements of viral bacilli and bacteria, would have proved popular. The blue common cold, taupe cough and dark brown HIV-AIDS, and vermicular ebola virus are anthropomorphically transmuted into cuddly darlings, and sold in the gift shop, but not available to be touched in the exhibition. "Safe" is a holiday show for our moment: in it one can easily falter from pondering disaster to buying ebola as a stocking stuffer.

Caroline M. Hannah

Designing the Taxi: A Project of the Design Trust for Public Spaces in Cooperation with Parsons

Not since MoMA commissioned a handful of prototypes in 1976 for *The Taxi Project* has NYC's most iconic car received so much attention.[1] While the earlier endeavor was exciting for its time and more rigorous in its way, it was largely locked inside the car and unable to engage the U.S. automotive industry. The recent experiment at Parsons, which has produced the *Designing the Taxi* exhibition and its publication, has so far sidestepped Detroit as well, drawing instead from a broad range of non-automotive creatives and the input of owners and industry insiders to "jump-start the process of change" with the ultimate goal of showcasing a new vehicle by the 2007 centennial of the city's first gas-powered taxicab.[2]

Figure 1
View of the *Designing the Taxi* exhibition.
All photos by Michael DeVito

Initiated by the Design Trust for Public Space, the concept for *Designing the Taxi* took shape during two workshops held last spring. The prolific not-for-profit and the design school brought together a select group of largely New York-based designers—product, urban, and landscape—and those who have the greatest stake: the owners, operators, and regulating agencies of taxicabs in NYC. Kurt Andersen, host of WNYC's *Studio 360°*, moderated the preliminary workshop on May 16, 2005, which assessed the current state of taxicabs and generated ideas on where to focus improvements. The second workshop held only twenty-three days later, presented proposals from about twenty designers and other participants, including at least one driver, Erhan Tuncel. With no specifications to follow, unlike MoMA's 1976 mandate, designers were free to look outside the vehicle. This incubator approach produced several intriguing ideas with a few verging on full-fledged concepts that were put on view inside of six months.

Pentagram, one of the participants, designed an engaging space for the exhibition. The installation recreated a portion of a city street in plywood, complete with sidewalk and curb. An actual mailbox (for visitor response cards) and free newspaper stand (for public programs though, true-to-life, empty the day visited), on the corner completed the illusion. The main element, though, was the L-shaped vertical plywood partition that created a vestibule for introductory text before it rounded the corner and ran the length of the rectangular gallery. This clever construct effectively mimicked the temporary walls used to mask urban building sites and conveniently hosted the main components of exhibition: hoardings of printed text in bold black and taxicab-yellow with several full-color illustrations of the proposals. Embedded in the wood panels were three "view boxes," windows holding television monitors, and towards the end, a doll-sized model taxicab. Choice clips from cinema and television where NYC taxis have enjoyed a supporting role played continuously, driving home the taxi's "vital symbolic status."[3] Three more concepts were parked bumper to bumper on the opposing length of gallery wall—no glitzy

Figure 2
Visitors in the exhibition at Parson's gallery on 13th Street in Manhattan.

car-show prototypes here but two-dimensional, full-color realistic digital renderings that gave an adequate sense of scale and style if nothing of what might lie under the hood.

Ingeniously, Pentagram's design for the sixty-page, large format publication followed the same basic layout as the didactics pasted on the exhibition wall. More of a hefty brochure than a book, *Designing the Taxi's* catalog also contains, in addition to the proposals, a half-dozen "Forewards" [*sic*] and "Background Essays" excerpted in the exhibition. These texts formalized some of the workshops' commentary. Notably, Parsons' Dean (and *New Yorker* architecture critic) Paul Goldberger railed against the inadequacies of Ford's Crown Victoria, a family sedan which makes up about ninety-three percent of the New York taxi fleet, in "A Taxi is Not a Car," while design writer Phil Patton poeticized this "modern equivalent of a city gate," from the legacy of much-loved Checker cabs to the "grudging respect" won by Crown Vics, in "The Taxi as Icon."[4] Andrew Salkin, First Deputy Commissioner of the New York City Taxi and Limousine Commission, said little in "Taxi Regulators Embrace Change," but, fortunately, consultant Bruce Schaller and fleet owner Michael Levine, respective authors of "The Taxi Vehicle in the Ideal Taxi System" and "Designing for the Industry," candidly discussed the industry's complexities, opening up possibilities for real change in an industry where a car's life is only three to five years. The rest of the catalog is devoted to the proposals, organized by themes divided under two concepts, The Taxi System and The Taxi Vehicle, with the former defined as a "social and economic system that includes the passengers, drivers, fleet owners, garages that service and own taxis, and regulatory agencies like the New York City Taxi and Limousine Commission and the Department of Transportation."[5]

The Taxi System necessarily includes the physical area that taxis use, and several proposals focused on where and how taxis interact with customers. A proposal by Birsel + Seck cordoned off a car-sized portion of the street with a rectangular *Avenue-Q*-orange painted pad with a tongue that lapped over the sidewalk for orderly loading. A similar idea for a taxi stop was erected in the exhibition. A nice idea for outer boroughs where yellow cabs are sparse but one that hardly seems practical on Manhattan's crowded thoroughfares. CityStreets' pod-like sidewalk vestibule services passengers' and drivers' needs with shelter, restroom, and wistful amenities like a machine to refill MetroCards, which would also work for taxis, and a means of recharging the batteries of electric cabs. Truck Product Architecture, on the other hand, focused solely on the drivers. Better known for its retro-ply furniture, the six-year old firm created a pleasingly original concept in "STRETCHfence," a slinky-like yellow relief stand that wraps around existing green space encouraging drivers to stretch or have lunch, a small way of combatting the sedentary nature of the job that contributes to poor health and eating habits.

Hailing a cab could be as easy as dialing one on a cell phone, currently only permissible with livery car services. Such wireless communication proposed by Weisz + Yoes and Ideo would also reduce the amount of time cabs spend trolling for passengers. Ideo's upgrade includes black boxes and GPS-based navigation as well as using free cabs for delivery service. Recognizing a cab's availability through the insider logic of the current rooflights, long a problem for visitors, could be remedied through the friendly, "Maybe...", "I'm Free!", or "Nope," indicators by Weisz + Yoes or another that simply lights up in easily seen LED

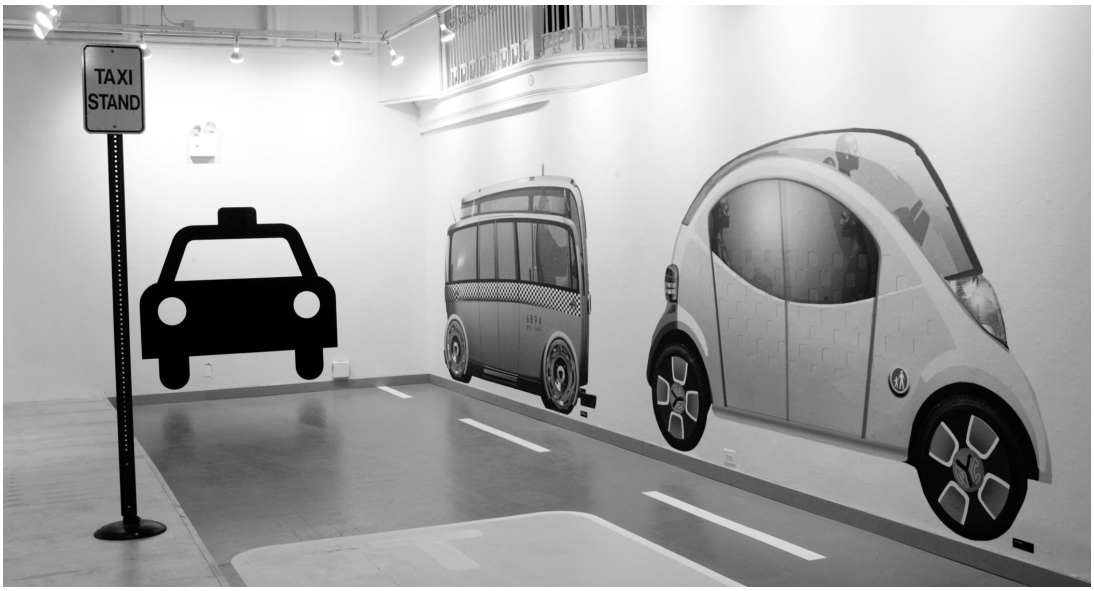

Figure 3
CityStreet's *CABsule* (with hubcaps that recall erstwhile subway tokens) and Hybrid Product Design & Developments *MiniModal* concepts doubleparked in the exhibition designed by Pentagram.

with the word, "VACANT," by Antenna Design. Better use of the Plexiglas partition, loathed by drivers, as more of a passenger console also features in Antenna Design's proposal. A retrofitted partition could facilitate a GPS map and a cashless pay system by ATM, credit card or a system like "Hailstone" suggested by Imagination (USA) Inc. A clear convenience for passengers, the latter would also make drivers less of a roving target for criminals.

Predictably, most every designer addressed in some way the still woefully unresolved issues of fuel efficiency, emissions reduction, access and safety. It may come as some surprise that electric cabs briefly dominated the industry before gas-powered cabs appeared on Manhattan streets in 1907. Many of the other improvements—hybrid motors, wheelchair ramps, and reconfigured seating to accommodate wheelchairs—were aired in 1976. None are yet norms although a few hybrids do exist and both passenger-exiting signals and sliding doors are used on minivans. A refreshingly low-tech enhancement is the childseat by Birsel + Seck that folds down like an armrest revealing buckled straps for the littlest passengers. Fox & Fowle Architects proposed a filtration device mounted on the existing grills as a short-term solution for this major polluter. Ken Smith, the landscape architect, called for a total "greening of the taxi fleet," one of the themes, by putting smaller yet roomier, bright green fuel-efficient vehicles onto dedicated traffic lanes. Such standards would provide safer passage to customers, pedestrians, and the average 120,000 daily cyclists in the city.[6]

Among the more developed vehicular proposals, a few stand out. Hybrid Product Design & Development's Minimodal concept, a half-width noseless vehicle that recalls something of the short-lived German Rumpler, drives around half the passengers on hybrid-power optimally at half of highway speeds—factors that fit urban traffic patterns. The firm offers two larger vehicles, the Maxi and the Mogul, to accommodate more riders for longer trips to the airport. All are wheelchair accessible as is CityStreets' CABsule, which can also, somewhat inexplicably, carry a Segway scooter so passengers can drive themselves, presumably when traffic is at a standstill. Pentagram's "New Checker" is the most developed and to this reviewer the most stylish of the bunch with detailing that recalls a checker but a body that is more muscle than flab. Its long snout, low chassis, partially covered rear wheel hubs, double sliding doors and a passen-

ger area based on London's cabs, instills a feeling of security while restoring an air of glamour. Acknowledging the draw taxis have for tourists, a glass roof encourages sightseeing—a feature shared by Hybrid's Modal series and the splashy dome of Blue Marlin Brand Design's beetle like taxi.

Designing the Taxi also attempts to elevate the public profile of the much-maligned taxi drivers, largely made up of immigrants from the Middle East, India, Pakistan, Africa, and the Caribbean. Designers' responses celebrate rather than confront drivers' diverse backgrounds in entertaining ways. Citystreets' sketches of checkerboard-trimmed yellow headgear—fezzes, turbans, aviator-style hats, and Afghans—add a light-hearted touch to a call for professionalization. Also fun is the boxed set of world music culled from drivers' favorite tunes, part of the branding scheme offered by Pentagram.

While some may find fault with the lack of historical context or prototypes, one cannot but laud *Designing the Taxi's* efficient presentation and many of the engaging proposals. The whole is such a neat package that one questions the need for gallery space and costly publications at all. This topical show could be staged as happily at one of the well-trafficked taxi pick-up points at area airports or train stations greatly expanding its reach. Already, the *Designing the Taxi* book may be purchased for a reasonable fee or downloaded for free, assuring reach if not impact.[7] By putting the design process in the hands of so many in such a short time period, one wonders where this cooperative venture will lead. Realizing a new design for a taxi would be a good start.

1 Emilio Ambasz curated the exhibition held June 17–September 6, 1976 and edited the accompanying 160-page publication. See *The Taxi Project: Realistic Solutions for Today* (New York: Museum of Modern Art, 1976).

2 Deborah Marton, "About Designing the Taxi," Deborah Marton et al. *Designing the Taxi* (New York, Design Trust for Public Space, 2005), 5.

3 Marton et al, *Designing the Taxi* (New York, 2005), 17.

4 Phil Patton, "The Taxi as Icon," Marton et al. *Designing the Taxi* (New York, 2005), 17.

5 Marton, et al, *Designing the Taxi* (New York, 2005), 19.

6. Source of statistic is Transportation Alternatives' December 12, 2005 press release, "Advocates' Advice to Weather a Transit Strike." http://www.transalt.org/press/releases/051212transitstrike.html [January 2006]

7 www.designtrust.org/pubs/publications.html [January 2006]

Book Reviews

Richard Becherer

Talking in the City: Three Books on Beirut

Alphabet de Beirut by Michel Fani, (Beirut: Editions de l'Escalier, 2000) 224 pages, $20.00.

Greetings from Beirut Shift! 14 by Anja Lutz and Zeina Maasri (2003) ISBN: 3-00-011319-3, 160 pages, 20 Euros.

Beirut's Memory by Ayman Trawi (Beirut: Banque de la Méditerranée, 2002) ASIN B000C0L2Y6, 302 pages, $35.00 hardcover.

In 1984, the first part of Michel de Certeau's groundbreaking work, *L'Art du Quotidien* (1980), appeared in English translation; prominent here is "Walking in the City," an essay that has radically transformed the ways that designers think about their practices of architecture and the urban settings that inform them. The author begins his piece with the aerial view captured from the World Trade Center's restaurant *Windows on the World.* His panoptical seeing transforms the New York skyline into something as well mannered as the table setting before him, the city nothing less than a vast still life. This initial vantage is also a point of view that Certeau cannot particularly recommend. Instead, he takes us down to the street, where he prefers to study its activities and movements, interpreting life there as so many vernacular acts of self-expression. Certeau then begins to unpack the discursive modalities encoded into manners of walking, just walking. Decoding this order of discourse, he teases out a variety of rhetorical devices that are actually spatialized there as people walk in the city. Of particular interest to me are the rhetorical tropes of synecdoche and asyndeton, figures of speech that Certeau sees as giving shape and meaning to absences, or silences, occurring within the expressive act. Synecdoche uses a piece of an image to imply a larger one. Asyndeton is an elliptical modality that succeeds in breaking down an image to such a degree that imagination, and memory, must be mobilized by the mind's eye to conjure a meaningful gestalt. The imaginary play of memory, then, has an central role to play in Certeau's reading of the practice of occupying the spaces of the city.

Perhaps no city has been more absorbed by a "loss" of memory, and no place more concerned with its retrieval, than has the city of Beirut. This city, devastated and traumatized by a fifteen-year long Civil War, is only now beginning to deal with the conflict's aftermath. Part of the "restoration" process has been physical, the city being rebuilt to recoup the country's economy at the very least. The matter of psychic restoration, however, has been another matter. Persistent questions here have been: How is this place to recover memories that have lost their spatial attachments? Should this place try to record and therefore to remember the sum of its memories? If no, then which, and whose, memories are to be recorded here? Moreover, is it even possible for a city to transparently recall and record the whole of its collective memory? Is it even desirable?

Questions like these emerge from hidden strata of memory that have been discovered beneath the surface of post-War Beirut. And today this geology serves as a foundation for a considerable production of writing, literary and architectural. This review essay will examine a number of recent books grounded in Beirut's memory substrate in light of thematics suggested by Certeau.

Contrary to the popular dictum, Ayman Trawi's *Beirut's Memory* is a book that truly can be read by its cover. This glamorous, lavishly illustrated publication, underwritten by Beirut's Banque de la Méditerranée, announces itself with a flickering plastic frontispiece that iridesces with before-and-after shots of the Beirut's Place de l'Etoile, that is to say, pictures of its ruin and resurrection. This locale is one of the city's twentieth century landmarks, the focus of Beirut's Beaux Arts downtown, a formal space that interrupts the city's prevailing "informal" urban texture. The cover also sets the photo essay into motion. Apart from Trawi's brief introduction defending the government's (and the Bank's) plans for the city's reconstruction, there are only glossy, color photographs to be seen here, also arranged in before-and-after pairings. The contrastive construction further suggests other binaries: old-new, ugly-beautiful, bad-good. Not so subtly, the text moves from architecture to ethics, from memory to history.

Trawi's book proliferates with the very type of sweeping panoramic views of the city that Certeau decries. This airborne vantage captures Beirut's new central district as arising phoenix-like from wartime rubble. Aerial views like these also display the project's broad strokes in the best possible light; much like the French Mandate quarter, the new downtown is regular, coordinated, geometrical, orderly. Moreover, Trawi's text suggests that the French connection is deliberate here. As he likens the city to Paris, so does he compare the Prime Minister Rafiq Hariri (who, incidentally, owns the Bank publishing the book) to none other than Baron Georges Haussmann, the Second Empire Prefect of Paris and designer of Paris's "modern" shape, a singular feat of rational city planning accomplished at enormous cost, both financial and human. Although the gridding of the city, so says Trawi, may seem comparably progressive, it is also ineffably ancient recalling Greek and Roman gridded city planning. These are some of many "memories," the author claims, being returned to

the city in its post-War redesign. Be this as it may, and there are evidences to dispute the accuracy of this claim, Trawi sees the grand plans as reconstituting a Classical history thereby giving Beirut a kind of desirable master-narrative. The Classical story that he tells is also a tale of colonization as displaced Western cultures take root and flourish here. However, in the dust left behind by the massive buildup of Trawi's story, recent memory, that is, actual, lived experience in the present-day city, is either obscured or wholly eliminated. Its unspoken vestiges are to be found only in the book's deprivileged, left hand "before" photographs.

Alternatively, Trawi wishes his right-hand, "after" photographs to point to Beirut's civic improvement. Improvement is tacitly assumed to be the eradication of the disorder from all left-hand images, including garbage, wrecked automobiles, broken furniture, and of course, unwanted populations "littering" the street. Solidère, the corporation guiding the city's reconstruction, made certain that anyone living there would be removed, as it set to aggregating unencumbered properties for redevelopment. The populations displaced by Solidère from the center city included Shiite refugees from the South who flooded into Beirut in 1982 with the Israeli invasion and who "squatted" there. They also included the occupied buildings' legitimate, original owners. The State, therefore, was able to literally seize these properties then transfer them for reconstruction to Solidère, whose principal investor was none other than the Prime Minister himself. Thus, longstanding patterns of property ownership, a central story in any place's economic history, was eradicated from Beirut's downtown, along with troublesome itinerants. In the place of squatters, Trawi's photographs now show us stylish singles and comfortably middle class families perusing the quarter's new shops and *cafés troittoirs*, safe and sound under the watchful eye of the local security force. The space's new occupants are comfortably middle-class.

Major economic costs attributable to Solidere become particularly evident in Trawi's nighttime shots of new streetscapes. Although the street's ground level brims with profitable nocturnal activity, windows above are dark. This blackness suggests that no one to speak of really lives here; likely no one works here either. In fact, vacancy rates in downtown's office buildings are stratospheric especially given the short supply of new, foreign corporate occupants. How the quarter now addresses this problem in the absence of the infusions of foreign capital it had hoped to attract is to set its current rental rates below those of comparable Beirut real estate. It thereby draws local clients from adjacent quarters to its cut-rate downtown space. For the Beirut commercial rental market, the downtown has had an unquestionably deflationary effect. Has this fact had its say in Trawi's book? Hardly. Attention to matters so venal as "real" capital is redirected to representations of the space's bounty of symbolic capital, "memory" used here to distract a population from the place's real costs. While certain economic aspects of the city's historical functioning are deliberately obscured, the book moves from presenting Beirut as a repository of memory to a Historical narration, which directs its readership to those features most worthy of our attention, and diverts us from discomforting aspects which are not.

Narration of quite a different kind voices itself in a remarkable short book co-edited by Zeina Maasri and Anja Lutz. *Greetings from Beirut,* the fourteenth in a series of topically organized numbers of the Berlin design magazine *Shift!,* thankfully provides us with something other than a panoramic view. In fact, the book is chock full of small-scale, street-level itineraries in and around Beirut, spatial registrations of experience that reflect the distinctive here-and-now of each of their narrators in a rich array of representations: tourist maps, photo essays, illustrated letters, diary entries, police reports, checklists, and more. This book has little to do with the panoptical "gaze" of the Prime Minister (to whom Trawi fully credits the reconstruction of Beirut). Instead, *Greetings from Beirut* grows out of myriad "glances" toward the city and region, remarkable in setting their respective stories into real time and space, and in identifying them uniquely. Incidentally, the text also takes issue with the normal practice of design in Beirut, driven largely by the commercial needs of the marketplace. *Greetings from Beirut* directs its researches away from the coupled rhetorics of information and persuasion that design professionals customarily engage here "shifting" instead to more reflective projects. To accomplish this, these naughty designers turn standard graphic conventions and modes of production on their heads. They assume a position of "Notness" ("This is *not* Beirut," announces Maasri in her preface), thereby producing a resistant practice whose varied modes of representation translate today's Beirut into a surreal world equal parts dream and joke. The fact that the book should also be considered a "practice" is underscored by the fact that it is constructed as a joint effort, contributors deliberately understating their authorship here.

On the one hand, the book does attempt to map the urban experiences of some quite specific life styles and inhabitations. The various mappings coming from workers in the design firm "Mind the Gap" (which produced a large part of the work we see here) seek to expose the social spaces their creators occupy at various times of the day and night. Other moments in the book are simply hilarious, particularly their attempts at decoding the visual culture of contemporary Beirut. A marketing checklist, or C.I.S. (Confessional Identity System) describing the cultural characteristics of Lebanon's various confessional (religious) groups, will strike too close to home for most Beirutis' literary tastes. There

is a trilingual dictionary of popular curse words. The deconstruction of an ingénue on the make in Tripoli is variously vicious, coy, and delicious. On the other hand, there are moments when the War's aftermath becomes the book's subject matter, as for instance, the photo essay that takes us from scenes of wartime ruination to the rebuilding downtown. Printing these photos in high contrast and then juxtaposing them sardonically eliminates any visible difference within this before-and-after pairing, and thereby subverts any ethical or truth claim. For all the good humor and bite, this little book possesses something that Trawi's can never have: a heart. Trawi admires Beirut as it is remade into something, or someplace else—Paris, New York, London—thereby escaping grim social realities. *Greetings from Beirut*, however, looks hard and fast at the (Ma)gritty and often absurd social practices of this place. Using humor as a means, the editors and their cohorts scrutinize the intricacies of this Beirut, replete with its fables and foibles, its vagaries and vanities. Sometimes they admire, even love their subject matter; sometimes they simply record it; more often they travesty it. But never do they dismiss it.

The majority of the book's contributing designers are twenty-somethings, meaning youngsters fortunate enough to have escaped the worst of the Civil War. One contributor here, Akram Zaatari, swims against this current. In his piece, Zaatari records, in pages from his Wartime diary, various student experiences from 1980s at the American University of Beirut. This youthful account, wherein the author mentions such Beirut diversions as French movies, new friends, visits from his family, food, and pop music, is simultaneously punctuated by checkpoints, army guards, shattering glass, rumbling explosions, casualty counts, and antiaircraft fire. The War repeatedly erupts through the text's seeming innocence. Are these contrapuntal rhetorical registers merely fortuitous, textual coincidence? Or, given the essay's context within this book, should they be seen as deliberately coupled and mutually disturbing? Should Zaatari's diary entries be seen as nothing short of a written version of a movie's dialectical, parallel montage, a two-part invention wherein the War's dark register contrives to subvert the journal's putative lightness? Or does the journal's exuberance seek to disguise or compensate for traumas wrought by the Other?

Questions like these come center stage in a third book, Michel Fani's *Alphabet de Beirut*, and they are explored here along outspokenly psychoanalytic lines. Fani's *belle lettriste* "meditation" on Beirut connects to such French literary landmarks as Charles Nodier's romantic, nineteenth century city guidebook *Abécédaire de Paris*, Louis Sue's realist *Les Mystères de Paris*, Charles Baudelaire's symbolist *Les Fleurs du Mal*, and Louis Aragon's surreal *Le Paysan de Paris*.

Greetings from Beirut the book expresses its contempt for the notion of geography in the limited, scientific sense, a research, which Fani claims remains at the surface of suffering. (*"...qu'ell reste á la surface de douleur Liminaire,"* [*"Liminality"*] p. 7). In fact, the topography being systemized in the book's one hundred sixty-five entries is as much mental as it is physical space. A spot on the map of Beirut stimulates in Fani uncanny capillarty processes that he then records in his writing, a free association, "a tissue of memory, nerves, spoken languages" (*"un tissu de mémoire, de nerfs, de langues parlée,"* p. 7), connecting place with shared and personal pasts. Despite its name, his book's organization is hardly alphabetical; instead its short essays are arranged in implied clusters of topics, the relationship between them more desirable, elective affinity than anything else.

Like key word in the book is "*douleur*:" pain or suffering. And for Fani, *douleur* is directly attributable to the loss of the "object." Writing in France during much of the War, the author saw Lebanon as that distant object. His memory of Lebanon was as a mythological place, a distant land free of pain and liberated from time at once archaic, maternal, and originary. Faced with his loss of this place, Fani says that he sought refuge in literature. He explains why in his essay "*Ecrivain*" ("Writer"), where he speaks of the literature's capacity to palliate absence (*"littérature est la seule possibilité de pallier l'absence,"* p. 155), the only solace in the face of loss.

As with the surrealists with whom Fani commonly identifies (including Michel Leiris, Raymond Roussel, René Magritte, Francis Bacon), the world of Freudian psychoanalysis figures heavily in his method and subject matter. It is fair to say, I think, that for Fani writing constitutes a kind of talking cure. The question is: the cure for what? The essay teases out an answer to this question, as it describes the author's inability to establish a coherent identity in Lebanon given that there is no easy dialectic to negotiate between self and other here. He explains that Lebanon is not simply a site of what Edward Said would regard an Oriental Otherness, but is itself pervaded with a plethora of insuperable othernesses, not the least of these being the seventeen religious confessions whose political differences are guaranteed by the nation's National Pact (p. 154). As a counterpoise to "*l'autre*" (*"Identité,"* p. 175), the mechanism seminal to what Jacques Derrida calls "*différance*" in writing, Fani positions "*l'autrui*" (p. 155), a radical alterity that constitutes the focus of his longing driven to resolve and replenish otherwise irremediable gaps in his authorial and social identity.[1]

Fani describes such consequential "holes" in these identities as "*le reel* ("the real"), a term that smacks of the arcana of psychoanalysis developed by post-Freudian Jacques Lacan. For Lacan, the Real is the psychic location of what he calls the "wound" left after the Symbolic (the site of the law) wreaks havoc on the Imaginary (the

site of desire). For Lacan, this wound also constitutes an individual's first experience of trauma, identity only arriving as the result of a negotiated resolution of this conflict and its aftermath. Failing to achieve a reconciliation is recipe for psychosis: either schizophrenia or paranoia. In point of fact, Fani interpolates both the Imaginary and the Symbolic in his palliative literary admixture: the evanescence of the gemlike word positioned into the "sovereign" setting of grammar (p. 9). There are holes in his argument, however. Despite his writerly attachment to word and syntax, he describes the wound as the "*réel inexprimable* " ("the inexpressibly real") ("*Ecrivain*" ["Writer"], p. 155), an absence that no amount of language can fill. Language may hope to palliate in this situation, but it can never compensate, despite one's attempts otherwise. The spectre of Lacan in Fani's terminology raises some rhetorical questions: To what degree can the act of writing be seen as a reaction to and psychotic symptom of loss, as recurrence or "repetition," one instance in the rebus set into motion as desire continues to seek the lost object, and fails. To what degree is Fani's writing to be regarded less as resolution than evidence of a fragmented identity, and of "the inexpressibly real"? Finally, to what degree is writing the location of promise and failure simultaneously? These are questions that Fani leaves open to us, and which for me indicate a paradoxical situation that applies to architecture as well, leaving it in a quandary.

What is left to consider here is just how much Certeau's open discourse (whose elliptical narration demands that memory arise like Lazarus) mistakes the desired memory for the return of the repressed. To what degree do Certeau's synecdoche and asyndeton open a breach to *Nachträglichkeit*, signaling the unheralded and unwelcome irruption of trauma relived? Certeau never speaks of the hidden and predatory kind of memory whose phenomenalization may itself signal the open wound. And what role does architecture play in this scenario? Can "memory-laden" architecture like Trawi's ever presume to lay claim to the Imaginary, the archaic, blissful, originary site? Can architecture, no matter how "elliptical" its forms, ever escape the powerful interests which voice it and which inevitably turn memory into History, thereby rendering it imperious, fearsome, Symbolic? If it cannot, then might architecture be seen less as a response to, than a cause of Fani's "inexpressibly real," the wound? Much like these authors, I too wonder about the capacity of places here in Beirut, architectural and non-, and in troubled sites far beyond its horizons, to restore memory. I also wonder about the desirability of the process as it is difficult to presume to know just what kinds of memory "recovery" might summon up. For recovered memory might just as easily be accompanied by returning pain as joy, recurrent trauma as bliss, repeating horror as hope. As dreadful as such an eventuality might be, were architecture to deliberately restrict our experience, to shutter our recollection, and to forestall such consequence, an even greater injury to the human spirit, I believe, would be done, thus replacing a narrative of remembering with one of forgetting.

In closing, I wonder if a way out of this quandary might be provided by returning to a topic introduced by Fani: the "other." The *autre* (other) that Jacques Lacan terms *objet petit a* is simultaneously a visible sign of what we are not, and an object toward which we direct our sexual drive. It thus constitutes a location of threat and desire simultaneously. All three books, it seems to me, deal with the issue differently. Trawi clearly sees the threat of the "other" as something to be deleted from Beirut as he commends its new city planning for culling unwholesome unpredictability (and chance) while cultivating Westernized order, efficiency, and form. Alternatively, Fani finds the innumerable othernesses of Beirut too mentally destabilizing to contemplate, and consequently he seeks a place of retreat and protection within a condition of meditative self-absorption, the space from which his writing issues. Finally, Lutz, Maasri, and company exult not only in the notion of the "other," but also in each other's otherness, their collective project nothing less than a rave of alterity encircling Beirut's bonfire of the vanities. In the light of the fires that they have set, these youngsters will never dance alone. For, in the absence of all else, they will always have the pleasure of their shadows' company in this world of their own devising, where form and silhouette, self and other, here and there, touch then entwine in the endless rapture of their *pas de deux*.

1 Jacques Derrida, *Margins of Philosophy*, trans. and notes Alan Bass (Chicago: Univ. of Chicago Press, 1982), 23–4.