Innovation as a Field of Historical Knowledge for Industrial Design
Raimonda Riccini

II. But is history a science? No.
III. Can it become one? Yes.
It is the subject of this book.[1]
Raymond Queneau

1   Raymond Queneau, *Una storia modello* (1966) (Torino: Einaudi, 1988), 6–7.

2   Although it is familiar ground, I would like to recall the important role in the design history debate played, in the past and present, by magazines such as *Industrial Design, Stile Industria, Design Issues, Design Studies, Journal of Design History,* and *Culture Technique* . (some of which still exist, fortunately). Here, I would like to call the reader's attention above all to *Design Issues* of Spring 1995, entirely devoted to the question of the history of industrial design. In my opinion, it represents an indispensable turning point for the theme discussed here.

3   After the first Convegno internazionale di studi storici sul design held at the Politecnico of Milan, 1991, we can mention the first International Conference on Design History and Design Studies, "Design History Seen From Abroad: History and Histories of Design," Barcelona, 5th Spring of Design, 1999 April 26–28. and the Second Scientific Meeting of Design Historians and Scholars, Havana, June 2000.

4   I am thinking of the fundamental area of the history of visual design, connected in an increasingly aware manner to the history of products, companies, and institutions; autonomous co-protagonist of a design situation in which certain sectors are encountering a blurring of the boundaries between product design and graphic design. But I am also thinking about the emergence of the historiography of "peripheral countries" and the questions it raises concerning the dominant, Anglo-Saxon approach to historiography.

There is little doubt that, in the last twenty years' discussion, the historical culture of industrial design has made a significant contribution to put important theoretical issues into focus; first of all, that of the definition of the discipline and its field of action. I am thinking of, for example, the debate conducted in publications and periodicals,[2] the birth of associations, the multiplication of opportunities for international encounters,[3] exhibitions, and events in museums. These phenomena are familiar to all, so there is no reason to discuss them at length here. As often has been the case for other areas of study, historical research has turned out to be a preliminary, basic condition for the very nature of industrial design as a culture, a context, and a discipline.

Without attempting to retrace the fertile discussion that has taken place on an international level, we should at least mention that the results achieved have been very useful in a wide range of directions, especially for the identification of prevailing historiographic models, the identification of new ones, the expansion of the area of investigation,[4] and the refinement of research methods. And while many, perhaps a great many, fields have yet to be explored or have been overlooked, many new perspectives have appeared.

I would like to briefly indicate at least three points I feel emerge more than others, and that, in my opinion, are crucial: the relationship between historical research and design research; innovation as a key of interpretation both for history and for design activity; and the role of historical research for design. As we can see, these are wide-ranging arguments. What prompts me to discuss such themes is not the pretense of providing in-depth insight each of them. The fact of the matter is that they are closely interconnected; only their mutual interrelations can give a complete sense to my line of reasoning. Therefore, all I can do is to develop, for each of them, a few lines of working investigation (which have emerged in my work first in the doctoral program, then in teaching and research activities in the Industrial Design course of the Politecnico of Milan), illustrating their points of contact and cross-fertilization.
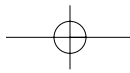
Design Research and Historical Research

Some years ago, Tomás Maldonado—with a certain almost imperceptible irony, I believe—warned that industrial design, like all activities that have the task of integrating different disciplines, would have to defend itself against each of them.[5] At the time, Maldonado was referring, in particular, to the relationship between the design of products and mathematical methods, also with allusions to mechanical engineering and (I presume) to architecture. I have a fleeting memory that, for many years, these disciplines claimed a sort of supremacy in the area of design methods, and a role as mentors of the nascent discipline of industrial design.

In the area of research, too, and in particular that of historical research, things proceeded in a similar manner. It is well known—as is only logical in the case of any new disciplinary adventure—that at the outset industrial design was the focus of research "from outside," approached by already established spheres that demonstrated interest in industrial design, motivated by their own inner disciplinary reasoning, and by more or less superficial analogies and similarities. Design critics and historians often were, first and foremost, critics of art and architecture, and scholars of aesthetics or semiotics.[6]

Subsequently, when industrial design began to take on an autonomous physiognomy, becoming a subject of research and reflection "from within," the stage almost entirely was occupied by the debate on the identity of design itself, a debate that was not truly separated from that regarding the controversy of origins. In a certain sense, this uncertainty stimulated theoretical discussion, but in another sense, it slowed the development of instruments having a certain degree of autonomy.

In the moment in which an established practice of research (history), possessing a strong, well-structured disciplinary and methodological foundation, enters into relation with a field of research that has yet to be fully delineated (design), the confrontation necessarily produces effects of varying importance. On the one hand, the field of design has drawn upon history for certain working practices, and adopted them. The main ones include instruments of analysis, such as the comparison and interpretation of documents; and methods of analysis, such as those based on morphology or style; narrative criteria. The other history, coming into contact with industrial design, has been forced, in some cases, to review certain cornerstones of its doctrine. On the level of research sources, for example, history has had to modify its relationship with documents that, in the case of industrial design, are not only on paper, but also are three-dimensional; not only linguistic, but also visual; and not only quantitative, but more frequently qualitative. We can consider what has happened to the areas of research traditionally considered the closest to design such as art, architecture, and technology, which, faced with the appearance of

5   Tomás Maldonado, "Scienza e progettazione (1964)" in *Avanguardia e razionalità* (Torino: Einaudi, 1974), 186.

6   It probably is that today it is already possible to trace a history of design historiography, which might also provide useful indications for an updating of methodologies and established research areas within the historiographic *ancien régime.* The expression has been used by Peter Burke, regarding the revolutionary role of the school of the *Annales* with respect to the precedent way of studying history. Peter Burke, *The French Historical Revolution. The "Annales" School, 1929-89* (London: Polity Press and Basil Blackwell, 1990). Certain contributions in this direction already are visible including, among others, that of Clive Dilnot (see Bibliographics References).
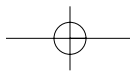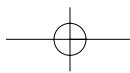
the phenomenon of the design of industrial products, have had to repeatedly revise their content and widen their range. Often, this operation has given rise to improper combinations such as the raising of industrial products to the level of artworks, or the view that they are like minor siblings of architecture. But over the long term, each field has reassumed its own position in the disciplinary hierarchy. We also can observe certain branches of history such as business history which, although with an inexplicable delay, are now starting to approach the themes of industrial design: the role of the project and the product in the context of corporate development and its innovative dynamics.[7]

This reciprocal contamination between industrial design and historical research demonstrates that the latter is particularly well-suited to function as a catalyst for the development of relations between different disciplines, favoring comparisons and interchange.[8] In my hypothesis, historical research also becomes one of the selected areas for discussion of our role as a discipline and the organization of a pedagogical structure for the purposes of teaching.

But which history? The question is neither rhetorical nor neutral. My choice is oriented toward a systemic approach to the reconstruction of the historical episodes of industrial design. The formulation reflects, on the one hand, the systemic tradition that belongs to design culture,[9] while, on the other, it is open to the most up-to-date aspects of the disciplines that are concerned with the dynamic interrelations between society and all things technical. Therefore, this approach is marked by a strong interdisciplinary character that attempts to channel multiple forms of expertise and knowledge into a nucleus of issues to be evaluated in all its aspects. We could call this a "pluralistic" approach to the history of industrial design, combining the historical tradition of modern design with other lines of reasoning and reflection, such as those on technical, socio-cultural and socio-economic progress. The result hoped for is a prismatic interpretation of a segment of our material culture. In this way, this interpretation perhaps might represent—in spite of its partial nature—one of the possible models for a propaedeutic framework for the cultural and professional training of future industrial designers.

Innovation: Circumstance of History and Design

Now I would like to examine certain questions related to the central theme of my contribution.

First of all, I would like to state that great caution should be applied regarding the theme of innovation. In fact, I feel that the concept of innovation today is being subjected to the classic phenomenon of erosion and loss of meaning caused by abuse of terms. It has been observed that certain ideas—and innovation undoubtedly is one of them—appear on the intellectual scene with extraordinary force because they seem to be capable of resolving or

7   On this theme, see Raimonda Riccini, "History From Things: Notes on the History of Industrial Design," *Design Issues* XIV:3 (Autumn 1998): 43–64.

8   For example, in the field of history, we have seen a gradual narrowing of the gap between science and technique, on the one hand, and architecture on the other. And in both directions, as Antoine Picon notes, "To begin with, the history of architecture, books such as Alberto Pérez-Gómez's *Architecture and the Crisis of Modern Science* and Kenneth Frampton's *Studies in Tectonic Culture* are representative of this renewal. Simultaneously, architecture has begun to interest historians of science and technology. A historian of science such Peter Alison has written, for instance, on the status of the architectural metaphor in early 20th century epistemology, whereas the celebrated historian of technological systems, Thomas Hughes, is more and more curious about architecture." Antoine Picon, "Architecture, Sciences, and Technology," in Peter Galison and Emily Thompson, eds., *The Architecture of Science* (Cambridge MA: The MIT Press 1999), 309–335. Quoted on pages 309–310.

9   Starting with Tomás Maldonado, *La speranza progettuale. Ambiente e società* (Torino: Einaudi, 1970).
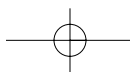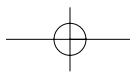
clarifying all questions. "We put it to the test for any connection, any purpose, and we try it out in the possible extensions of its specific meaning, with generalizations and derivatives. Nevertheless, once we are familiar with the new idea, once it has become part of our overall patrimony of theoretical concepts, our expectations shift back into balance with its effective uses."[10]

One of the ways in which the notion of innovation can return to equilibrium with its effective uses is that of positioning it in the process dimension of history. By separating innovation from history, we run the risk of assigning it a role in design that is analogous (and opposed) to that of creativity. "Creation or innovation?" Jean-Claude Beaune asks in his *Philosophie des milieux tech-niques.*[11] "The second notions implies…highly suspect economic connotations; the first can lead to a belief in a certain metaphysics of the artist." Therefore, if we want to avoid condemning innovation to the same fate as metaphysics, a term for all seasons and a demiurgic picklock for any commercial operation, we need to take it back to its concrete historical circumstances.
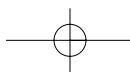
In this sense theories on innovation represent an important point of reference because they assign history a crucial role in the development of interpretation models that are also valid for an understanding of the present. In the wake of reflections on the changes in technological-productive processes and on their role in favoring economic development, a certain consensus exists in the belief that "processes of change depend on the history of the process in time and their explanation must include the reconstruction of the events in time, even small historical events, restored to the tradition of historical research."[12] In other words, innovative change, like all "irreversible" processes, can be explained only by starting with history, and by retracing a sequence of temporal events. Without getting involved here in the question of the irreversibility or reversibility of innovative phenomena, it seems to me that the path taken by studies of innovation, proposing a reassessment of historical time as an interpretation key, is proving to be one of particular interest for design culture.
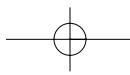
It is a well-known fact that this sector of study on innovation has developed by starting with the analyses of theorists and historians of technology, but also of economists and economic historians, analyses in which the theme of innovation assumes a structural value. In the aftermath of the abandonment of the deterministic and "internalistic" versions of the history of technological innovation, the focus recently has shifted to the role of societies in promoting the dynamic of innovation. Therefore, these studies are open to the areas of sociology, anthropology, ethnomethodology, and material culture. Empirical and theoretical fields of research, traditionally connected to the social disciplines, now are seen as selected ambits for a deeper understanding of the behavior patterns and paths of innovation. In other words, a theory of innovation as a social

10   Clifford Geertz, *The Interpretation of Cultures* (New York: Basic Books, 1973). Quotation from Italian edition, *Interpretazione di culture* (Bologna: Il Mulino, 1998), 9.

11   Jean-Claude Beaune, *Philosophie des milieux technique. La matière, l'instrument, l'automate* (Champ Vallon: Seyssel, 1998), 250.

12   Renato Giannetti and Pier Angelo Toninelli, *Dalla rivoluzione industriale alle traiettorie tecnologiche. La tecnologia tra teoria e storia d'impresa* in Renato Giannetti and Pier Angelo Toninelli, eds., *Innovazione, impresa e sviluppo economico* (Il Mulino, Bologna 1991), 100.

13 For an overview of the various theories of innovation, up to contemporary formulations, cfr. Madeleine Akrik, "Comment sortir de la dichotomie technique/société. Présentation des diverses sociologies de la technique" in Bruno Latour and Pierre Lemonnier, eds.,*De la préhistoire aux missiles balistiques. L'intelligence sociale des techniques* (Paris: Editions La Découverte, 1996) 105–131; Patrice Flichy, *L'innovazione tecnologica. Le teorie dell'innovazione di fronte alla rivoluzione digitale* (Milano: Feltrinelli, 1996).

14 Cfr. the document of the Centre de sociologie de l'innovation, Ecole de Mines, 1967–1992. *Comprendre la création scientifique, technique et culturelle* Paris, 1992.

15 Alain Findeli, in his essay "Design History and Design Studies: Methodological, Epistemological and Pedagogical Inquiry," *Design Issues* XI:1 (Spring 1995): 43–65, produces a long list of examples of how the history of design could be presented. As the history of: significant products; technology; materials; designers; design institutions; exhibitions, fairs and expositions, regular events; design profession; design education; ideas in design; anthropological history of material culture; economic history of material production; design discourse; design journal and literature; design industries; social history of design; design centers and design museums; compared history in various countries; reaction against design in some countries, institutions, or social groups; women in design; specific products or type of products; specific daily practices in connection with design; etc. (63).

16 As has taken place in the more radical version of the sociology of innovation, in which innovation is only one among the many elements of sociological analysis.

process has been developed.[13]

One immediate consequence of this shift of focus is that of entering spaces traditionally reserved to the range of action of industrial design: everyday life, consumption, and the typologies of industrial products. Thus, industrial design has become, although still on a marginal level, a subject of study and investigation on the part, this time, of disciplines that are extraneous to design culture. Design now is one of the themes of attention, for example, of the sociology of technology. Together with commercial distribution and advertising, it is seen as part of those mechanisms of integration of users in the process of conception and design of products and services that feeds the system of innovation in the world of business.[14]

Moreover, in this area of studies, the idea has emerged that innovation is a process in which multiple histories and multiple actors converge. For example, there is an increasing use of words typical of the language of industrial design, such as designer and project, but also consumer and user. In this context, we even find forerunners of the analyses used today in the world of marketing and design, on the active, design-oriented role of the user, and of the consumer-innovator.

As they begin to open their attention to industrial design, studies on innovation offer design culture certain interpretation models based on the dimension of process (history, linearity, and chronology) and systemics (interaction between technique and society, coordination of multiple factors of influence, and intertwinings of fields of knowledge). It is evident that this is a complex articulation that cannot be interpreted with the tools of the typical research traditions of other forms of historiography (art history, technical history, or history of communications) which, until now, have been the main axes of our way of interpreting the historical vicissitudes of design.

At this point, it seems possible to develop our own research modes, starting with the intrinsic characteristics of the subject of the research (namely design) rather than the analogies that can be established with respect to other subjects. This would lead to the demise of all those specifications we usually are forced to apply to the term "history of design."[15] But how can we construct a historical discourse on design that isn't a mere transposition of a history of innovation?[16] How can this discourse be characterized as history of industrial design? And what might be the results in the areas of training and education?

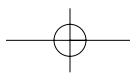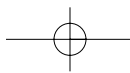**History as a Tool for Design, and Other Purposes**
We need to recognize the fact that the question of history as a tool for design refocuses attention on the relationship between the aspects of theory and practice, especially in the area of pedagogy and training.[17] Therefore, this is a decidedly crucial question for

17   On this theme, see Tomás Maldonado, *Educazione e filosofia dell'educazione* (1959), in *Avanguardia e razionalità* (Torino: Einaudi, 1974).

18   Herbert Simon, *The Sciences of Artificial* (Cambridge, MA: MIT Press, 1969).

19   While the widest possibilities for application of the cognitive value of history are in the education and design areas, we should not overlook other concrete purposes that can be assigned to historical research. One example will suffice: research for the conservation and exploitation of the historical heritage of public and private entities, institutions, companies, and studios. The reasons for work in this direction are many. I will indicate just two of them. The first is primarily cultural in character: the institutions and companies that detain this heritage must be made aware of its cultural value for the society. The second is strictly related to the discipline: more than for any other historical discipline, in our case, the availability of artifacts is indispensable for a valid analysis because industrial design products are the true documents of study.

20   Medardo Chiapponi, *Cultura sociale del prodotto. Nuove frontiere per il disegno industriale* (Milano: Feltrinelli, 1999), 70.

21   The attribution of an epistemological and cognitive function to technical and economic phenomena is not something to be dismissed out of hand. See the concept of the technological system as "a system of alterations of our forms of knowledge" in Joel Mokyr, *The Lever of the Riches* (Oxford: Oxford University Press, 1990) and the critique of this interpretation on the part of the some social constructivists, who see technical (and scientific) activity exclusively as a practical, strategic and contextual one. Cfr. Renato Giannetti, "Le rappresentazioni dell'innovazione tecnologica in prospettiva storica," in Id., ed., *Nel mito di Prometeo. L'innovazione tecnologica dalla Rivoluzione industriale a oggi* (Firenze: Ponte alle Grazie, 1996), 281–295.

studies regarding the discipline of design. In this sense, industrial design, like other project-oriented activities, has a rather singular relationship with history. These disciplines often manifest a need to orient the activity of historical research in the direction of an explicit strategic goal that normally would not be a part of its usual practice. One exemplary case of this phenomenon is the historical reconstruction of products, systems of products, images, and the communication programs of individual companies or institutions, aimed at the design or redesign of certain components, or even of entire systems. Historical investigation in these circumstances is usually not conducted by professional historians, but by the personnel of consultants, the companies themselves, or the designers. These are studies we might define as "applied research," in which the final objective is direct and explicit. In this case, the orientation scheme for research activities developed by Herbert Simon for design research has an unchallenged practical force. Based on his work, we can say that, if design can be seen as a problem-solving process, history can be a procedure "for gathering information about problem structure that will ultimately be valuable in discovering a problem solution."[18]

Nevertheless, these research modes which I have very briefly outlined here are necessarily also related to forms of academic research in which, in my opinion, Simon's scheme remains valid. Here I refer, for example, to all the research that contributes to orient and nourish university teaching, at all its levels.[19]

In this direction, once again, I feel that the studies on innovation are particularly useful as reference models. Their openness to the historical, social and, above all, the systemic dimensions permits industrial design to play an active role in the context of the interrelations of the system itself. As Medardo Chiapponi reminds us in a recent book, "industrial design, like any other design activity, or more than any other, is intrinsically oriented toward the production of change and innovation. Its very existence can only be justified by an innovative context."[20]

If we accept this radical assumption—namely, that one of the main characteristics of industrial design as a project activity has been, and remains, its capacity to encourage innovation—then this particular aspect can and must represent a key of interpretation for historical design research.

This research perspective not only offers a strong, cognitive approach[21] and a capacity to provide a solid methodological basis for historical studies, but it also is characterized by a noteworthy heuristic potential, for orientation of the design sphere, as is clearly evident in the case of the history of product typologies. From the point of view of design culture, the 360° reconstruction of particular artifacts, within a specific socio-technical context, placed in relation to systems of values and scientific knowledge, and with frameworks
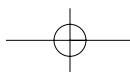
of distribution and use, offers a variety of advantages for the activity of design. These include the possibility of improving the contextualization of the design problem to be resolved; of avoiding paths already taken, or of returning to hypotheses that were abandoned because they were before their time, or because they were not yet technologically feasible; to come into contact with ideas, events, and solutions that can help to revise the very structure of the way the problem is posed. In other words, an assessment of innovative scope. And there's more: in this perspective, it is possible to salvage from oblivion all those artifacts that didn't have a place within the parameters of the previously established historiographies: aesthetic parameters, references to personalities, and movements. In short, the history of industrial design thus could truly become the history of contemporary material culture.

We are evidently not very far from the articulation of the historical reconstructions launched in the socio-technical sphere regarding typologies of artifacts,[22] opening new research strategies for that field of study as well.

By following this approach, moreover, we can get a clear picture of the particular nature of the historiography of industrial design. Just as the industrial designer must be capable, to develop a project, of establishing a dialogue and a sort of choreography among a series of disciplinary areas and specific types of knowledge (technology, production, distribution, psychology, and aesthetics), so the historian of industrial design must be able to move about within a range of different sectors of historiography. If it is true that the innermost nature of historical research is not that of specialization, the same must be true for the history of industrial design. This characteristic of wide-ranging curiosity is reinforced by the variety of points of view and accents that can be found in industrial design itself, in the case by case examination of products or visual communications, designers or manufacturers, problems of production methods, or aesthetics.

There is a methodological affinity between history and design, an affinity that should be food for thought for professionals in the present, who are not always aware of the value of history, unlike the historians, who are aware of the value of the present. "History"—François Furet says—"never loses its awareness of the fact that a part of its curiosity is rooted in the present. In contrast with the beliefs of the positivists, the relationship with the present takes part in the constitution of its relationship with truth...There can be no explanatory concepts of the past that are not based on participation in the present, connecting the historian to his time. But inversely, without thought regarding the present, there can be no possibility of a concept."[23]

22 Apart from the well-known cases of studies of the bicycle, Bakelite, and fluorescent lighting developed by W. E. Bijker, we can mention the studies of Ruth Schwartz Cowan, "The Consumption Junction: A Proposal for Research Strategies in the Sociology of Technology" in Wiebe E. Bijker, Thomas P. Hughes, and Trevor J. Pinch, eds., *The Social Construction of Technological Systems. New Directions in the Sociology and History of Technology* (Cambridge, MA: The MIT Press, 1989), 261–280, and of Quynh Delaunay, *Histoire de la machine à laver* (Rennes: Presses Universitaires de Rennes, 1994), because they focus on typical artifacts of the history of industrial design.

23 François Furet, *Il laboratorio della storia* (Milano: Il Saggiatore, 1985), 45.

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