

**ORGANIC AND EXPRESSIONISTIC TRENDS
IN ARCHITECTURE AND INDUSTRIAL DESIGN**

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ORGANİK VE EKSPRESYONİSTİK EĞİLİMLER**

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YÜKSEK LİSANS MERKEZİ**

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FOREWORD

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SUMMARY

ORGANIC AND EXPRESSIONISTIC TRENDS IN ARCHITECTURE AND INDUSTRIAL DESIGN

In this study while evaluating architecture and industrial design, the meanings of both organic and expressionistic have been discussed. The main theme of this research is to understand the differences or similarities between organic architecture and organic industrial design and their relation to expressionistic architecture and expressionistic industrial design.

The whole study is going to emphasize this distinction and the development of two terms—organic and expressionistic—separately within a historical perspective of industrial design and architecture. The major argument supported throughout the study is shaped by such a difference between these two disciplines relating to these distinctive trends. Besides the other differences relating to both theoretical and practical processes of them, some attitudes or some trends or in other words some "isms" within the historical perspective seems to be understood differently. This difference has been also seen in their chronology. It is very easy to understand that the period of the organic trend in architecture is not synchronous with the organic trend in industrial design. The same is also true for the term, expressionism. Naturally, the meaning of organic in architecture differs from the meaning in industrial design.

Beside their chronological difference, expressionistic architecture is definitely different from organic architecture according to Wright's understanding. On the other hand, expressionistic trends falls nearly in the same period in both areas and in the end we see that the meaning of organic industrial design has the same meaning with expressionistic in industrial design.

In order to achieve its objectives the study begins with the analysis of the concepts of organic and expressionistic. The purpose is to clarify the meanings of the terms within the context of industrial and architectural design. In the light of this objective literature is reviewed and various questions are juxtaposed. From the beginning to the end of the text, discussion revolves around the five key words forming the basis of the object of the thesis: Architecture, Industrial Design, Organic, Expressionistic, Plastic Forms. Relevant sources regarding these issues are also introduced and discussed within the scope of the study. The area of research on the historical evolution of terms is limited to the certain two disciplines that are architecture and industrial design. The understanding of organic and expressionistic in other kinds of art are to be neglected except necessary comparisons.

This study can be called as 'Design history' of the terms of organic and expressionistic because this thesis is studying the past of organic and

expressionistic attitudes in architectural and industrial design. It is therefore studying these two attitudes by interpreting and explaining the links with other disciplines within a historical vision and relate them to the time we live in, to reveal and understand the present and to project the near future.

The thesis begins with the introduction which points out very briefly the problem and demonstrates how it is manipulated. In Chapter II the field of research was examined within the period of the late 19th century and the beginning of the 20th century. It illustrates the birth and the rise of the fluid forms both in architecture and industrial design. The third part, Chapter III, is concerned with the same issue under the frame of architecture. This section is about the historical development of the terms both organic and expressionistic in architecture. Attracts an attention to the background of the two concepts in this area. In this chapter organic architecture has been examined as what Frank Lloyd Wright introduced. Separately, expressionistic architecture has been evaluated with the works and the ideas of the individual architects from the beginning and to the end of the 20th century. Chapter IV, is going to emphasize the synonymity of the two terms—organic and expressionistic—under the context of industrial design. The fifth part which corresponds to the Conclusion, discusses the thesis in terms of the similarities and the differences between the two concepts in two different disciplines.

There are actually some difficulties to obtain all the examples of the organic and the expressionistic design. The only possible way in order to get their pictures is copying or scanning them from the published books. This second hand observation may cause such a prejudice, accepting them in their given definitions. Definitely, this study is not a cataloguing of all the examples of architecture and industrial design with the two determinants of organic and expressionistic.

ÖZET

MİMARLIKTAKİ VE ENDÜSTRİYEL TASARIMDA EKSPRESYONİSTİK YAKLAŞIMLAR

Bu çalışmada, mimarlık ve endüstriyel tasarım disiplinleri değerlendirilirken organik ve ekspresyonistlik terimlerinin anlamları irdelenmektedir. Bu araştırmanın ana teması; ekspresyonistlik mimarlık ve ekspresyonistlik endüstriyel tasarım ile ilişkileri göz önünde tutularak, organik mimarlık ve organik endüstriyel tasarım arasındaki benzerlik ve farklılıkları anlamaya çalışmaktır.

Tüm çalışma boyunca; organik ve ekspresyonistlik terimlerinin gelişimi, var ise anlamlarındaki ayrılık veya benzerlik ayrı ayrı hem mimarlık hem de endüstriyel tasarım tarihsel perspektifi içerisinde vurgulanmaya çalışılmıştır. Tez çalışması boyunca savunulan ana düşünce her iki disiplinin söz konusu iki yaklaşıma ilişkin farklılığı üzerine şekillenmiştir. Her iki disiplinin teori ve uygulama süreçlerindeki farklılıkları bir yana; tarihsel perspektifte, söz konusu disiplinlerde görülen herhangi bir yaklaşım, eğilim ya da "izimler" bile zaman zaman farklı anlaşılmıştır. Bu farklılık zamandizininde bile görülebilir. Mimarlıkta görülen organik yaklaşımın endüstriyel tasarımda görülen organik yaklaşım ile eşzamanlı olmadığını anlamak oldukça kolay görülmektedir. Benzer bakış açısıyla ekspresyonist yaklaşım için de durum aynıdır. Doğal olarak mimarlıkta anlaşılan organik ile endüstriyel tasarımda anlaşılan organik aynı şey değildir diyebiliriz.

Organik mimarlık ve organik endüstriyel tasarımdaki kronolojik ve anlamsal farklılıklar bir yana, mimarlık disiplininin kendi içinde organik ve ekspresyonistlik terimleri farklı anlamlar taşır. Kısaca, organik mimarlık ile ekspresyonist mimarlık aynı şey değildir. Öte yandan, hem mimarlık ve hem de endüstriyel tasarım alanındaki ekspresyonistlik eğilimlerin eşzamanlı olduğu görülmektedir. Endüstriyel tasarım çerçevesinden bakıldığında organik ve ekspresyonistlik terimlerinin aynı anlama geldiği anlaşılmaktadır.

Bu çalışma, öngörülenlere erişebilmek amacıyla organik ve ekspresyonistlik kavramlarının irdelenmesiyle başlar. Asıl amaç bu iki terimi mimarlık ve endüstriyel tasarım kapsamında açıklığa kavuşturmadır. Tez çalışmasının başından sonuna metin içinde irdelenenmiş olan konu, bu tezin temelini oluşturan beş anahtar kelime etrafında gelişmektedir: Mimarlık, Endüstriyel Tasarım, Organik, Ekspresyonistlik, Plastik Formlar. Bu konulara ilişkin kaynaklar değerlendirilmiş ve çalışma kapsamı içine alınmıştır. Araştırma boyunca, her iki terimin tarihsel gelişimi ancak ve ancak mimarlık ve endüstriyel tasarım disiplinleri ile sınırlandırılmıştır. Organik ve ekspresyonistlik terimlerinin diğer sanatlarda nasıl anlaşıldığı zorunlu karşılaştırmalar dışında göz ardı edilmiştir.

Bu tez çalışması—herhangi bir binanın veya endüstriyel ürünün tarih boyunca tasarım evrimi değil—organik ve ekspresyonistlik terimlerinin 'Tasarım Tarihi' olarak adlandırılabilir çünkü tüm tez boyunca araştırılan, mimari tasarımda ve endüstriyel tasarımda organik ve ekspresyonistlik kavramlarının geçmiştir. Ayrıca şimdiki zamanı daha iyi anlamak ve yakın geleceğe ışık tutabilmek için tez çalışması boyunca her iki yaklaşım tarihsel bir görüş açısıyla yorumlanmaya, diğer disiplinlerle bağlantıları açığa çıkarılmaya ve yaşadığımız bugünle ilişkilendirilmeye çalışılmıştır.

Bu tez çalışması kısaca problemi ve bu problemin tez içinde nasıl ele alındığını gösteren Giriş bölümü ile başlamaktadır. İkinci bölümde araştırma konusu 19. yy sonu ile 20. yy başı arasındaki dönemde ele alınmaktadır. Bu bölüm mimarlık ve endüstriyel tasarımda akıcı formların doğuşunu ve gelişimini içerir. Üçüncü bölümde tez konusu olan organik ve ekspresyonistlik terimleri mimarlık kapsamında incelenir. Bu bölümde organik mimarlık Frank Lloyd Wright'ın anladığı şekilde değerlendirilmiştir. Ayrıca bu bölümde ekspresyonistlik mimarlık, 20. yüzyılın başından günümüze kadar farklı mimarların teorik ve pratik çalışmaları üzerinden gidilerek ele alınmıştır. Dördüncü bölümde endüstriyel tasarım kapsamında organik ve ekspresyonistlik terimlerinin eşanlamı olduğunu vurgulanmaya çalışılmıştır. Beşinci bölüm Sonuç bölümüne karşılık gelmektedir ve her iki terimin farklı disiplinlerdeki benzerliklerini ve farklılıklarını değerlendirip genel bir yoruma ulaşma gayreti taşır.

Her iki disiplinde organik ve ekspresyonist kabul edilebilecek tüm örneklerle ulaşmak elbette mümkün değildir. Olabildiğince çok örneğe ulaşabilmemin en uygun yolu bu örneklerin yer aldığı basılı kaynaklara ulaşarak fotokopilerini çekmek ya da bilgisayar ekranına tarayarak taşımaktır. Ancak bu ikinci elden örneklerle ulaşma yöntemi, basıldığı kaynaklardaki tanımlamalardan dolayı bir önyargı oluşmasına neden olabilir. Ancak şunu da belirtmek gerekir ki bu tez çalışması, mimarlık ve endüstriyel tasarım alanlarında gerçekleştirilmiş olan organik ve/veya ekspresyonistlik olarak tanımlanabilen tüm örneklerin kataloglaması değildir. Bu nedenle belli başlı, diğer bir deyişle çok radikal sayılabilecek, hatta bazen tesadüfen seçilmiş örnekler üzerinden gidilerek konu açığa çıkarılmaya çalışılmıştır.

1. INTRODUCTION

1.1. Aim of the Study

This work tries to present initially the meaning of organic and expressionistic attitudes toward both architectural and industrial design. With regard to the fact that industrial design history should have its own theoretical tools and concepts as it is the same for architectural history. The major argument supported throughout the study is shaped by such a difference between these two disciplines relating to these distinctive trends. Besides the other differences relating to both theoretical and practical processes of them, some attitudes or some trends or in other words some "isms" within the historical perspective seems to be understood differently. This difference has been also seen in their chronology.

Throughout the thesis there is one major problem addressed: what makes the difference between organic industrial design and organic architecture and their relation to expressionistic design. The whole study is going to emphasize this distinction and the development of two terms—organic and expressionistic—separately within a historical perspective of architecture and industrial design. In this respect, it responds to several issues and formulates new perspectives regarding the various aspects of object. For instance, in the context of industrial design some new developments in the technology of airplane industry make possible mass production of so called organic forms. This mass production causes to mass consumption in the society. In fact, this is another issue—whether it has affected the aesthetic quality of the productions and the culture opinion positively or negatively—to be appreciated as another study, probably in the field of sociology. This is the first time in the history of both industrial design and architecture, any "ism" or "trend" has its origin not from the old Europe but from the United States for both architecture and industrial design—if we ignore the fluent forms of Art Nouveau.

The major concern of the thesis was to analyze the terms of organic and expressionistic throughout the design history. Although this is not a thesis of the

history, it was closely related to the historical aspects of the design, since the subject matter of the thesis has been dedicated to a definite period of time. Therefore, the research can be called as 'Design history' of the terms of organic and expressionistic. 'Design history' has the purpose of explaining design as a social and historical phenomenon, whereas 'the history of design' refers to the object of study of the discipline 'design history'. 'The history of design' implies that there is a single homogeneous 'object' of study. However 'design history' never supplies us with a single, complete object. Actually, it is the history of studying the past of this creative and formative attitude. Design history is a window opened to realm of design and searching for new horizons rather than the history of everything designed. For this reason, this work is a kind of design history, which is studying the past of organic and expressionistic attitudes in architectural and industrial design. It is therefore studying these two attitudes by interpreting and explaining the links with other disciplines within a historical vision and relate them to the time we live in, to reveal and understand the present and to project the near future.

1.2. Method of the Study

In order to achieve its objectives the study begins with the analysis of the concepts of organic and expressionistic. The purpose is to clarify the meanings of the terms within the context of industrial and architectural design. In the light of this objective literature is reviewed and various questions are juxtaposed. This is the analytical stage of the research to figure out theoretical and practical obstacles, also some prejudices, some turning points and some external influences for inquiry. A comparative reading and corresponding pictures of the performances that have been considered to be organic and expressionistic with respect to their form included in the study. Analysis and the comparison are the main tools of the method. From the beginning to the end of the text, discussion revolves around the five key words forming the basis of the object of the thesis: organic, expressionistic, architecture, industrial design, and plastic forms. Relevant sources regarding these issues are also introduced and discussed within the scope of the study. The understanding of organic and expressionistic in other kinds of art are to be neglected except necessary comparisons.

In order to carry out the research, a method approaching the subject from four disparate points was employed. First contemporary literature was studied. In the light of them the studied subject—which has nearly began in the beginning of the last century and still has been continued in the last decade—is to be evaluated and perceived. At the second stage, the research is attempting to grasp, the early content of the concepts, and goes through the original sources in order to discover the meanings intended and interpreted by the pioneers of organic and expressionistic design. The third field of the research is the encyclopaedia and dictionaries where the primary definitions of the subject are found. Finally at the fourth stage, the pictures of the performances designed and/or realized by the architects and the industrial designers are to be evaluated in order to determine the attitudes towards the organic and the expressionistic design.

In sum the historical survey of the concepts of organic and expressionistic design in architecture and industrial design in this study is based on five different sources. These are a) the literature of the first half of the twentieth century—to investigate how the concept was conceived and used, b) the encyclopedia of the 20th century—to investigate how the concept was narrated, c) the contemporary literature—to investigate how the concept was perceived and evaluated, d) the pictures of the performances of the designers—to investigate how the concept was embodied and expressed. e) web pages relating to subject matter.

1.3. Structure of the Study

The thesis begins with the introduction. It points out very briefly the problem and demonstrates how it is manipulated. Readers are briefly informed in advance of the subject matter to be studied.

Theoretically, the structure of the thesis is composed of three parts. First, in Chapter II the field of research was examined within the period of the the late 19th century and the beginning of the 20th century. This is a descriptive and historical section. It illustrates the birth and the rise of the fluid forms both in architecture and industrial design.

The second part, Chapter III, is concerned with the same issue under the frame of architecture. This section is about the historical development of the terms both organic and expressionistic in architecture. Attracts an attention to the background of the two concepts in this area. In this chapter organic architecture has been examined as what Frank Lloyd Wright introduced. Separately, expressionistic architecture has been evaluated with the works and the ideas of the individual architects from the beginning and to the end of the 20th century.

The third part, Chapter IV, is emphasizing the synonymity of the two terms—organic and expressionistic—under the context of industrial design. In order to support this idea some of the works and projects and the ideas of the designers has been critisized.

The fourth part which corresponds to the Conclusion, discusses the thesis in terms of the similarities and the differences between the two concepts. Therefore with regards to the description of these two concepts under the context of two different disciplines it attempts to distinguish the application of them in two different areas.

1.4. Limits of the Study

There are actually some difficulties to obtain all the examples of the organic and the expressionistic design. The only possible way in order to get their pictures is copying or scanning them from the published books. This second hand observation may cause such a prejudice, accepting them in their given definitions.

The research was conducted mostly in English, benefiting from American and occasionally English sources. Although literature in other languages and about other countries were taken into consideration, they do not form the axis of the thesis. Another reason justifying this selection is the crucial role played by Frank Lloyd Wright in the context of architecture and Charles Eames and other architects and industrial designers from the Cranbrook School, in the context of industrial design in the United States.

The historical review in the subsequent chapters is to demonstrate how these concepts have been understood in different contexts with special emphasis on particular examples designed or realized by different architects and designers. The area of research on the historical evolution of terms is limited to the certain two disciplines that are architecture and industrial design. Expressionistic attitudes in other kinds of art was kept away the scope of this study. Definitely, this study is not a cataloguing of all the examples of architecture and industrial design with the two determinants of organic and expressionistic.



2. PLASTIC FORMS IN THE 19TH AND THE EARLY 20TH CENTURY

2.1 Arts and Crafts Movement

The Arts and Crafts Movement evolved and developed during the second half of the nineteenth century. It incorporated a wide variety of artists, writers, craftsmen, and women, so wide that it is difficult to define 'Arts & Crafts' with any accuracy. In the 19th century, the campaign of John Ruskin and William Morris and their followers promoted the crafts as agents of social, moral and aesthetic reform. It can be shortly described as a new aesthetic and radical critique of industrialization.

Cumming and Kaplan believe that the Arts and Crafts Movement had its roots in the 19th century and its aim was to re-establish a harmony between architect, designer and craftsman and to bring handcraftsmanship to the production of well-designed everyday objects. [58, p. 6] Similarly Bröhan and Berg think that the origins of modern design history are to be found in 19th century England. With the rise of industrialization and the social changes it wrought, the call for a new unity of art and life was voiced in England earlier than elsewhere. [61, p. 9]

The leading figures of this movement were the writer, reformer and painter John Ruskin and the painter and the social critic William Morris. The Arts and Crafts movement founded by Morris attracted many young artists and craftsmen who in turn, made major contributions to this reformative style. Amongst this group, which included Charles Robert Ashbee and Archibald Knox, the most important figure was undoubtedly Christopher Dresser. [61, p. 9]

Some members of the movement, such as designers William Morris and C.R. Ashbee, cherished handicraft and tended to reject the opportunity to produce for a mass market. [53, p. 9] William Morris, painter, poet, craftsman, lecturer, and militant pamphleteer, had been clamorous enough in his demand for a unification of all the arts and crafts to bring about important reforms in architecture, interior design, furniture, carpets, wallpapers, and typography, to accomplish indeed such a

unification in his workshop. [4, p. 7] Their desire was to improve both aesthetic standards and working conditions of their time.

Craftsmanship in Competitive Industry, published in 1908, C.R. Ashbee wrote: "The Arts and Crafts Movement means standards, whether of work or life; the protection of standards, whether in the product or producer, and it means that these things must be taken together." [55, p. 113] In his silver bowl (Figure 2.1-1), the lines of Art Nouveau can be also seen.

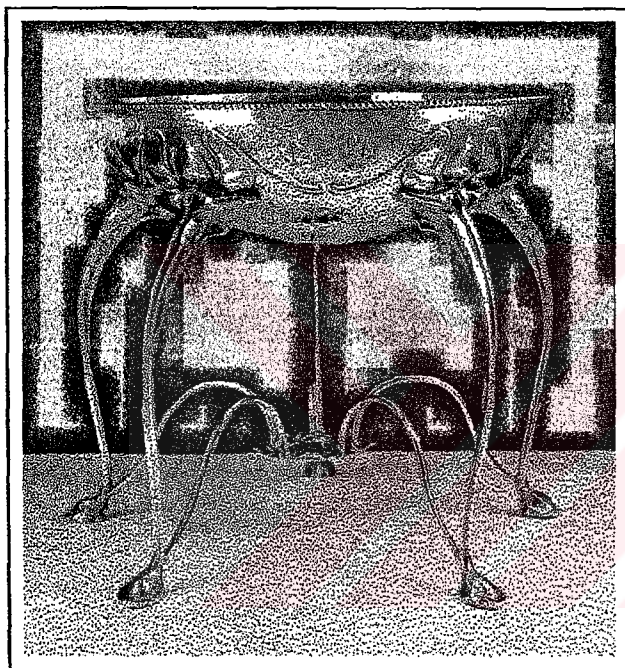


Figure 2.1- 1 Charles Robert Ashbee: Silver bowl, 1893.

Christopher Dresser, who may be regarded as Europe's very first industrial designer, consciously catered the industrial needs, thereby contributing to the aesthetic and technical improvement of industrially produced goods. His vine decanter (Figure 2.1-2) is far ahead of its time with his mutual quest for a maximum reduction of form in concert with maximum aesthetic effect. [61, p. 10] Christopher Dresser's designs for English silverware manufacturers in the 1880s are the earliest documents of successful collaboration between an independent designer and industry. The absolute reduction of his forms to their structural necessities strongly suggest that Dresser had studied Japanese arts and crafts in some depth. [61, p. 28]

Influenced by the English Arts and Crafts movement the leading Scottish architect Charles Rennie Mackintosh created a distinctive variation of his own which became known as Glasgow Style. Like Dresser, Mackintosh adopted certain oriental influences. [61, p. 28] His cutlery design (Figure 2.1-3) shows a sophisticated purism of a new aesthetic taste.

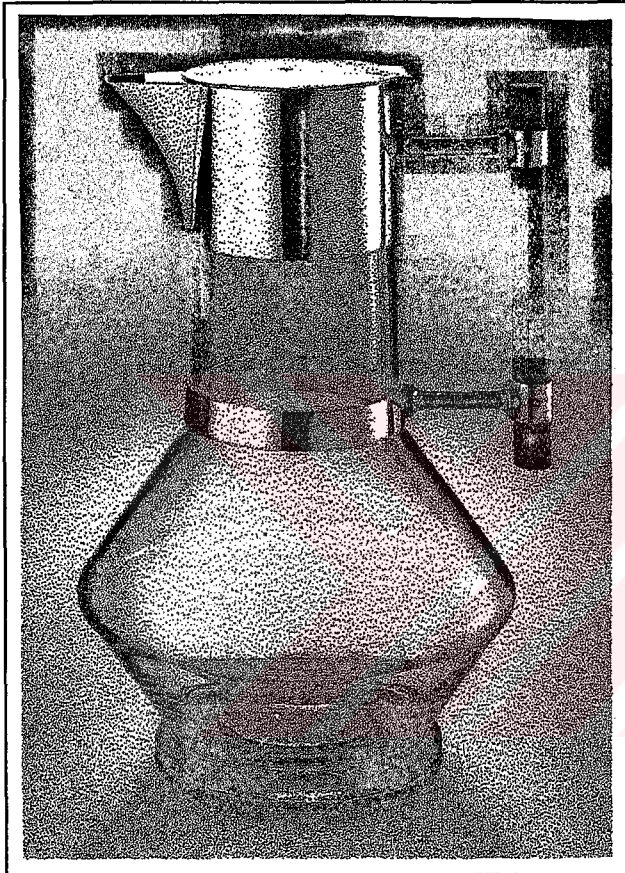


Figure 2.1- 2 Christopher Dresser: 'Decanter' 1881. Glass, silver, ebony; Silverware manufacturers Hukin and Heath.

An integral concept of the unity of art and life was the belief, first expressed by John Ruskin and constantly reiterated by Morris, that true art was the expression of man's pleasure in his work and that therefore the arts when honest, were simultaneously beautiful and useful. The man of the Arts and Crafts movement would have fully agreed with Tolstoy, who postulated in *What is Art?* (translated in 1899) that is "a means of union among men, joining them together in the same feelings, and indispensable for the life and progress towards well-being of individuals and of humanity" [4, 5, p. 43]

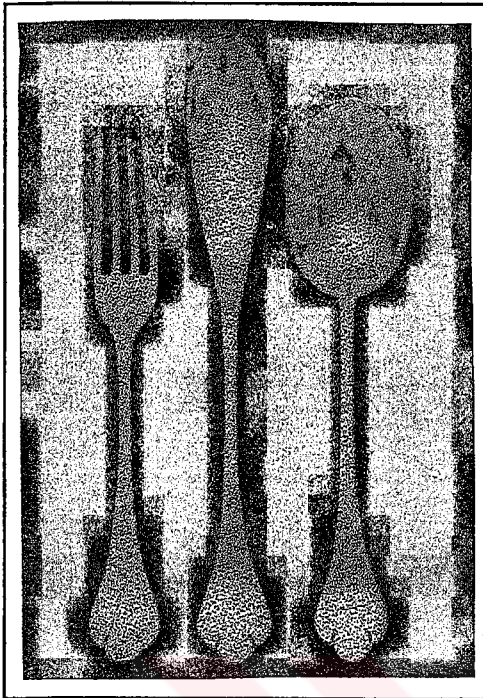


Figure 2.1- 3 C. R. Mackintosh: Cutlery, 1905.

Industrialization in the nineteenth century provided goods which previously few people had been to own. Easily produced in quantity by machines, such things as textiles and household furnishings, heretofore reflecting the craftsman's close contact and personal understanding of his customer's needs and tastes, were now generally available. [4, p. 88] However, a building or a piece of furniture true to the aims of Arts and Crafts tradition had not only be the result of the contented labor, in which the craftsman or woman could reject the drudgery and alienation of factory work and simple handicraft. [53, p. 9]

Ruskin and Morris recoiled from what they regarded as the destructive effects of the industrial revolution, but they failed to see the advantages to the arts made possible by the new technology. To them, salvation from what they considered a debased civilization lay in return to the principles of hand craftsmanship. In their preference for the historic styles—the arts of the Middle Ages and the early Renaissance—they remained true to esthetic conceptions of the early nineteenth century. [4, p. 88]

Morris insists in his essay 'The Lesser Arts' that "the more mechanical the process, the less direct should be the imitation of natural forms." [46, p. 41, 47, p. 103] William Morris, a great revolutionary figure, realized that art no longer existed as a normal function of life. Declaring that the machine was incapable of producing art, he called for a return to arts and crafts. [11, p. 5] Actually Arts and Crafts Movement begins with the romantic refuge from industrialism sought by the Pre-Raphaelites and their circle in the mid-19th century and goes on the chart the development of the craft fraternities on both sides of the Atlantic and ends with the establishment of the European and American design factories in this century that compromised earlier romantic ideals and came to terms with mechanized industry. [53, p. 11]

Ruskin placed an emphasis on the value of work, in particular on the value of creative work. Ruskin objected to the refinement of contemporary Victorian design because it was dependent upon machinery necessarily destroyed the creativity of human labor. Production, he insisted, would be for use rather than profit and the machine-like precision exchanged for an imperfect human finish. [53, p. 19]

Christopher Dresser was first employed as a botanical draughtsman. *Plans and Elevations of Flowers*, one of several works published by him in 1860 that were well received by English specialists, proved invaluable to decorative artists working with natural forms in the decades prior to Art Nouveau. Like the members of the Arts and Crafts Movement, Christopher Dresser always rejected the label 'artist', preferring to consider his activity in terms of industrially-oriented experiment. [55, p. 119]

In France Art Nouveau was one of the last great craft movements in which the skill of execution matched and enhanced artistic invention. Gallé had studied the technique of Chinese and Japanese glass snuff bottles during his visit to the Victoria and Albert Museum in London. He further developed and refined this technique, known as overlay glass. [4, p. 99]

Before the Arts and Crafts movement, simply described as a puritan reaction against the vulgarity of mass-produced objects and the ornamental excesses of the Victorian era, the architect's comprehensive role in the decorative and domestic arts was fully achieved. Appropriate ornament became a popular form of early-Victorian

decoration but obviously it had little effect on the basic shape of the objects, as opposed to the ornament applied to them. [57, p. 16]

After self-confidence in English design and manufacture in the industrial arts, Aslin assumes that there were two major influences on later 19th century taste which appeared in the 1862 Exhibition. The first was that William Morris and the colleagues with whom he was associated in the newly-formed of Morris, Marshall, Faulkner and Company exhibited publicly for the first time. Their painted furniture had previously only been seen in by close friends in the privacy of their homes. Now they were available to a wider audience and as Morris's associates included such men as Burne-Jones, Rosetti and Mord Madox Brown who painted furniture at this date. The second new influence was that of Japanese art which was to have widespread effect on the domestic arts in the latter part of the Victorian period. It was the first time that the Japanese had shown at one of the great European exhibitions. Although the Japanese display appeared to have been quite small and rather cluttered by modern standards, the simplicity of the individual exhibits had a profound and inspiring effect on a small group of architects and painters whose own work eventually led to mania for almost anything Japanese. [57, p. 33]

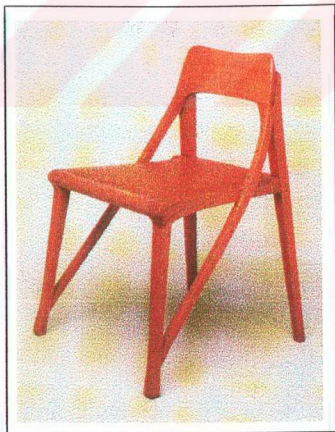


Figure 2.1- 4 Richard Riemerschmid: Chair, 1899. Oak and leather. Designed for a music room.

By the height of the Arts and Crafts movement at the turn of the century new links were forged between craft and industry. As a result of radical changes in design education recently introduced by Arts and crafts leaders, as Cumming and Kaplan declares, manufacturers often turned to these newly trained artists and craftsmen to design textiles, ceramics, metalwork and furniture. The machine became accepted by many craft-designers as both a manufacturing necessity and, in effect, a craft tool. These new links forged between craft and industry set down the four principles forged by Arts and Crafts: design unity, joy in labor, individualism and regionalism. [58, p. 7] Individualism, in the context of Arts and Crafts movement, had been understood as the creation of hand-made goods in place of machine uniformity, and a reappraisal of design materials. [58, p. 9] Individualism can be accepted as the major feature of expressionist architecture but with a different approach. Design unity and regionalism have been clearly seen in most of the Art Nouveau designs, especially regionalism in Gaudí's designs.

It is certainly possible too see in Art Nouveau parallels with the Arts and Crafts ideals of Morris, particularly in the way it drew on natural forms for inspiration and in the emphasis placed on workmanship. [58, p. 28] The Arts and Crafts architects were soon to be followed by a whole generation of young architects: among them Guimard in Paris, Gaudí in Barcelona, Wright in Chicago, Hoffman in Vienna, Riemerschmid in Munich, and so the others.

By the end of the nineteenth century the Arts and Crafts movement, and in particular William Morris, had revived simple, country-made chair forms, and brought about a taste for sophisticated but traditional forms. One of the chairs (Figure 2.1-4), designed within the Art Nouveau idiom, follows Morris in its straightforward design and its return to classic chair forms, like those of the late 18th century. This chair was one of the less flamboyant designs although it clearly reflects the characteristic Art Nouveau feeling for natural growing forms. Richard Riemerschmid belonged to the Munich group which was part of the Jugendstil movement. [48, p. 24]

2.2 Art Nouveau

Art Nouveau as both style and movement is one of the most imaginative innovations in the design history. Often the term has referred to a decorative object made about the turn of the century, of free-flowing or organic form based on some floral abstraction, linear swirling, flatly patterned with a skipping or undulating rhythmic design that often obscures the entire surface or structure of the thing it decorates. [1, p. 6]

As it is mentioned in chapter 2.1., the impact of Japan on the decorative arts in England in the second half of the 19th century has never been fully explained. Although the influence itself, Aslin declares, passed through three clear phases each of which conveniently falls into decade. In the 1860s it was a matter for individual collectors and enthusiasts, both in England and in France in the form of Japanese-inspired paintings. In the 1870s, the fashion was in full swing amongst informed people about Japanism. Interior decoration and furniture design were based on what were believed to be Japanese principles, rather than on the superficial forms and ornament which were the hallmark of the 1880s when what had been a movement became a mania. [57, p. 79] Thus, asymmetrical semi-Japanese style and asymmetry of form and ornament spread to pottery, porcelain, silver and furniture. By the 1890s, the fashion for anglicized Japanism had gone and Japanese art, together with other characteristics of the Aesthetic Movement, had become one of the contributory elements in Art Nouveau.

Art Nouveau was called *Jugendstil* in Germany, *Le Style Moderne* in France, *Sezession* in Austria, *Stile Liberty* in Italy, *Modernista or Modernismo* in Spain or Art Nouveau in England and America. It can be appreciated as a revolution in interior design, architecture and household objects although it has influenced other kinds of art such as music, painting, sculpture, poetry, and literature. Its famous and most influential shop owners are Liberty in London, Tiffany in New York, and S. Bing in Paris.

In the *Dictionary of Design and Designers* the term "Art Nouveau" is described as a derivation from the gallery of that name opened by Bing in Paris in 1895. In the same dictionary Art Nouveau is used:

In general sense to describe the great revival in the decorative arts which spread across Europe from about 1890, with roots in England and offshoots in Belgium, France, Germany, Italy and elsewhere. Art Nouveau is also used in narrow sense to denote a specific style of ornament, linear, sinuous and vegetal, with resemblance to the rococo and auricular styles. The great protagonists of Art Nouveau style, which lasted from about 1895 to 1905, were Horta and Guimard. The origins of Art Nouveau in designs by Mackmurdo, Sumner and Beardsley were first traced by Pevsner. The style was often overlaid with explicit symbolic overtones, usually evocative of Nature, through the use of flowers, leaves and insects, or of the Eternal Feminine or the Femme Fatale, through the use of female nudes. By 1905 the curvilinear Art Nouveau style was in full retreat. It was later forgotten, or even disowned, for instance by van de Velde. [7, p. 33]

Art Nouveau movement may be evaluated as something avant-garde in its time just because its aim was not to describe observed reality, but rather to suggest felt reality. It seems true when Amaya, defines the main theme of Art Nouveau as being "different, unique, and unpredictable." [1, p. 11] This expressive feature of the movement, makes it symbolist art. "To ascribe entirely, or in part, the work of Henry de Toulouse-Lautrec, Jan Toorop, Edward Munch, Gustav Klimt and others to Art Nouveau involves narrowing a concept which is too complex to be reduced to simple handling of line. There were often symbolist features in the subject matter of a painting which happened to be expressed in a form similar to Art Nouveau. The movement of a line is a less reliable criterion than the motivation behind it. This motivation is bound to be different when applied to an ornament, a chair or a house when relating to pictorial composition. Art Nouveau did indeed manifest itself only in the applied arts, and that the term can therefore only be applied to objects, furniture and buildings. [6, p. 12] Actually, as a revolutionary movement, Art Nouveau did look very different from anything that had done before and was attractive to both designers and architects.

When we search for the avant-gardists of Art Nouveau, we find Herman Obrist and August Endell in Munich, Victor Horta and Henry van de Velde in Brussels, Hector Guimard in Paris and Richard Riemerschmid in Munich. "They were the torch-bearers, setting standards and justifying the identification, in the new experiments being made, of a new style. One feature common to all these artists is that their works seem mobile rather than static—shapes glide and leap backwards and

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[43, p. 3]

claimed as a new movement, can be evaluated as a strong reaction against the Beaux-Arts classicism. Bruno Zevi claims that the origin of modern architecture falls generally in the period which began in the end of eighteenth century and ended in 1914. [9, p. 23] As Zevi determines, modern architecture has many determinants: functional, rational, and international especially in the USA. [9, p. 33] Zevi also defines two major categories in the history of architecture: the first one is rational and geometric, and the second is irrational and organic. [9, p. 67]

One of the essential aspects of Art Nouveau was the acceptance of the technology and the machine as a means of toward creating a new style, without, however, elevating functionalism to an aesthetic principle. As part of this break with historicism and in contrast to the attitude of the Arts and Crafts movement, van de Velde defended the machine as an acceptable tool for the designer. He considered the engineer "the creator of the new architecture," whose boldness has surpassed even the daring of the builders of cathedrals, and who now works in metal and glass instead of stone and wood. [4, p. 12, 5, p. 111] From this point of view, because of the attempt at visualizing the forms of new architecture, Art Nouveau can be determined as 'Modern architecture' with its property of advanced industrial production and construction methods. In the era of Art Nouveau; Horta, Gaudí and Mackintosh, also Wagner, Hofmann and Loos in Europe, even Sullivan and Wright in the USA with their new sense of space attempts at employing new methods and materials in the service of sober ideas abstracting basic classical values. All of them had created new forms which were invented to express a revulsion against revivalism, and confidence in the energies and significance of modern life.

The means of abstracting from nature were an essential part of the initial aesthetic of Art Nouveau ornament, for it was basically nature, reformed and restyled, that provided the curvilinear motifs, the twisted, twining plant forms and tangled seaweed rhythms which became such a hallmark of the movement. [1, p. 11] The vegetal curves of Art Nouveau should be obvious, but the notion of penetrating nature for its underlying lessons had no longer-range implications and would recur within several frames of reference. Analogy had always played a part in the genesis of architectural forms, and in the late nineteenth century 'natural' analogies joined with 'mechanical' ones to supply a model of perfectly embodied function. In the twentieth century,

ideas of nature took on different guises in the work and ideas of individual architects, sometimes with reference to the structure, sometimes with reference to poetic perceptions of underlying order, sometimes in the context of 'organic' models of culture. [8, p. 30]

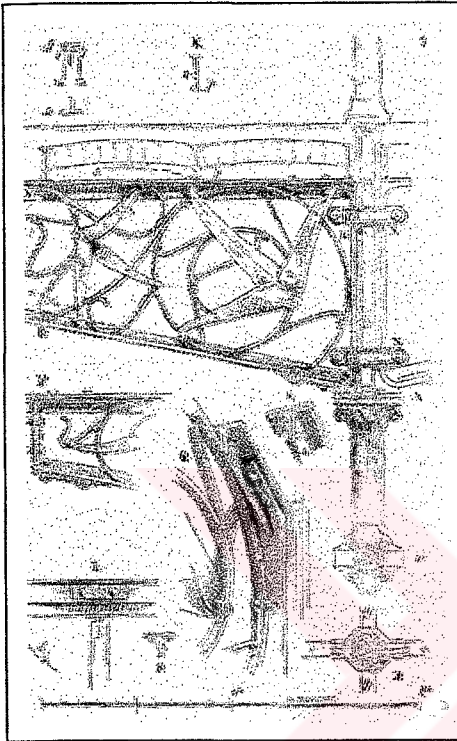


Figure 2.2- 1 Eugène Viollet-leDuc: Proposal for a wrought iron bracket, from *Entertiens sur l'architecture*, 1863-72.

In architecture the most creative phase of Art Nouveau was from 1893 to about 1905-a little more than a decade. Pevsner claimed a start in the early 1880s in England. [8, p. 54] If the emphasis is on the direct use of a modern material, and even the inspiration of natural forms for the metal ornament, one can recall Viollet-le-Duc's exploration in iron (Figure 2.2-1). [8, p. 55] If Viollet-le-Duc was important to one branch of Art Nouveau for having encouraged the notion of a new style based on the expression and accentuation of the constructional possibilities of new materials like iron, Morris was crucial as another forefather for having expressed the ideal of aesthetic and moral quality in all objects of daily use. In due course one of the aims of Art Nouveau designers would be 'the total work of art' in which every detail, down to the last light fixture, would bear the same aesthetic character as the overall building. [8, p. 57] Although it has a different name, expressionist

architecture, like Art Nouveau appeals to the eye, to the touch to the synaesthetic sense. It awakens heterogeneous associations both in time and space. [10, p. 19]

Above all art, Art Nouveau gives an ornamental value to the line which overrides all other considerations. [1, p. 8] It was mainly a decorative movement which at best had serious connections, with the social and political reforms of the day, and at worst provided through machine-made mass production debased decorative objects for a swelling middle class, hungry for the new. [1, p. 11] Art Nouveau had already defined itself as utilitarian by declaring its intention to serve useful ends in appropriate forms. It also had a commercial contribution to make, since its inventiveness excited curiosity which encouraged people to buy during a period of economic fluctuations. [6, p. 36]

However no matter how circumscribed the Art Nouveau episode in architecture is considered to be, there exist a certain number of buildings of real distinction which belong exclusively to that stylistic category. [4, p. 123] Art Nouveau was not a single style derived from a well-defined, clearly delineated area of culture. It was rather a whole series of aesthetic intentions and moralistic preoccupations, manifested in formal attitudes which varied from one studio to studio, from hour to hour, from country to country. [43, p. 3]

A precise definition of Art Nouveau is difficult to set down nevertheless, especially as it was known in its own day by a great variety of names in different countries and each of those names suggests a somewhat different aspect. Except in Belgium which was certainly the locus of birth if not of conception of Art Nouveau architecture, the contemporary critics in each country seem, in naming what they early recognized as a novel and original artistic manifestation, to have emphasized the feeling that it was alien to their own national traditions by using terms such as "Art Nouveau" in England, "Modern Style" in France, and "Stile Inglese" (or more usually, "Stile Liberty") in Italy. The Spanish and Catalan term "Modernismo," however, has no such connotation. [4, p. 123]

In contrast to the static qualities of most traditional nineteenth-century architecture, Art Nouveau was, both in intent and form, an art of growth. In writing about Art

Nouveau one is torn between two approaches: to present this floral-eel-and-noodle style in its purest state as an architectural episode that was very brief and very confined; or to look forward to what happened a bit later. Around 1900 many European architects who had been more or less deeply involved in Art Nouveau in their youth turned sharply away—both in their handling of large architectural forms and in their attitude toward decoration—from the linear to the planar, and from the sinuous to the geometric. [4, p. 124]

Compared to the only large building of this period which incorporates similar curves in the external periphery, Gaudí's Casa Milá (Figure 2.2-27), Horta's façade (Figure 2.2-2 and Figure 2.2-3) is far less arbitrary and also far more open. Even granted the unusual site, Viollet-le-Duc would hardly have known how to exploit the irregular sequence of curves provided by a section of the circular place van de Velde and two entrant streets in the positive way of Horta. [4, p. 130]



Figure 2.2- 2 Victor Horta: The "Maison du Peuple", Brussels, 1897.

One of the Horta's experimentation with iron and steel in a large scale was Maison du Peuple. Here Art Nouveau, generally considered to be linear and two-dimensional, becomes wholly plastic in the decorative sense but at full architectural scale. If the whole façade of Maison du Peuple (Figure 2.2-2) is a continuous undulant curve in plan, few curves interrupt the matter-of-fact structural pattern of metal stanchions and girders or the narrow but solid stone-and-brick piers that mark

the major subdivisions of the façade. The main entrance has a clumsy arch of metal awkwardly rising out of plant-like carved stone imposts, and the longer horizontal metal members have a slightly rising bottom line; but elaborate Art Nouveau decoration is restricted to the railings and the entrance grill. [4, p. 130] The façade combined convex and concave curves, and the main entrance was placed on one of the shorter convex protrusions. The visible expression of the iron skeleton was every bit as 'radical' as Sullivan's contemporary skyscraper designs in Chicago. The integration of material, structure, and expressive intentions was even more successful in the interior, especially in the main auditorium (Figure 2.2-3) at the top of the building where the roof was formed from a sort of hammer-beam system in steel. The side walls and fenestration were reduced to thin infill screens, and the effect of the whole was an organic unity in which ornamentation and the visual accentuation of actual structure worked tightly together. [8, p. 56] Thus this major work of Horta lends some support to two negative contentions concerning Art Nouveau: one, that it is not an architectural "style," but only an interior mode; and two, that it is only a form of applied decoration. [4, p. 130]

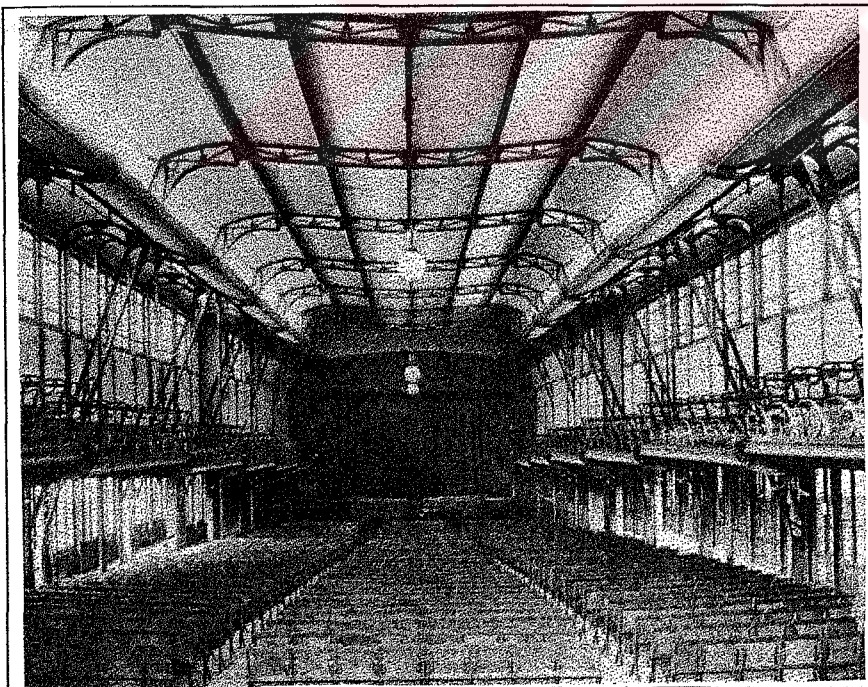


Figure 2.2- 3 Victor Horta: Conference room in the top storey of the "Maison du Peuple", 1897.



Figure 2.2- 4 Victor Horta: A l'Innovation, Brussels, 1901.

Horta's other large building is in Brussels, the department store A l'Innovation of 1901 (Figure 2.2-4). Here the structural elements of the metalwork, externally as well as internally, are even more considerably affected by a curvilinear esthetic. [4, p. 130] In this building, iron and steel were chosen for their capacity for large internal spans and for wide openings. Practical considerations were again transcended in a façade composition in which delicate screens and large plates of glass provided a forward looking image to a relatively new building type. [8, p. 57]

It is nevertheless true that except for these two examples, the Art Nouveau of Horta is seen at its best not in whole buildings but in particular features, such as the early stair hall of the Tassel house (Figure 2.2-6), the salon of the Eetvelde house (Figure 2.2-7), Moreover when he ceased to use metal externally and drastically restrained his use of curvilinear detail, as in the Gross Waucquez Building of 1903-05 (Figure

2.2-5) or the Hallet house of 1906, the inventor of Art Nouveau architecture himself seemed already to be living Art Nouveau behind. [4, p. 130]



Figure 2.2-5 Victor Horta: Gross Waucquez Building, Brussels, 1903-05. Façade detail.

In the stair hall of the Hotel Tassel (Figure 2.2-6), glass roofing, with light falling through open stair-wells to give a sense of vertical expansiveness, or mirrors facing one another to extend the image of the rooms to infinity, served this same purpose. Horta did far more than meet this simple need: he developed from it an artistic principle. In the Hotel Tassel, the first signs of this distinctive treatment of space can be observed. In the entrance hall of the Hotel Tassel (Figure 2.2-6), the use of plant motifs in the ironwork followed classical models, but the use of the material was original. The curve leading to the next upright grows out of its branches, illustrating in visual terms the point of load transferal. [6, p. 47] This maximizing of the use of decoration is idiosyncratic but by no means arbitrary. Every detail was rationally thought out and stylistically cohesive. The unity of the whole was not only

maintained but intensified, there was no lessening of the architectural achievement, and yet a daring re-evaluation of established tradition had taken place. [6, p. 48]

Some architects of distinction outside Belgium were more loath than Horta to desert Art Nouveau. Gaudí may not be, strictly speaking, an Art Nouveau architect. Guimard the leading exponent of Art Nouveau architecture in France, continued faithful to it as late as 1911 in the apartment houses (Figure 2.2-17) he built in Paris. These are, however, considerably chastened compared to his finest Art Nouveau work, the Métro entrances of 1898-1900 (Figure 2.2-16) [4, p. 130]

In the entrance hall of the Hotel van Eetvelde (Figure 2.2-7), the use of glass like ironwork, played very important part in Art Nouveau and the combination of these two materials as a sign of the new technological age. Lightness and airiness pervade the whole of this entrance hall two different levels, divided by a wrought iron balustrade and iron columns. [43, p. 21]



Figure 2.2-6 Victor Horta: The Hotel Tassel, 1893.
staircase in the entrance hall.

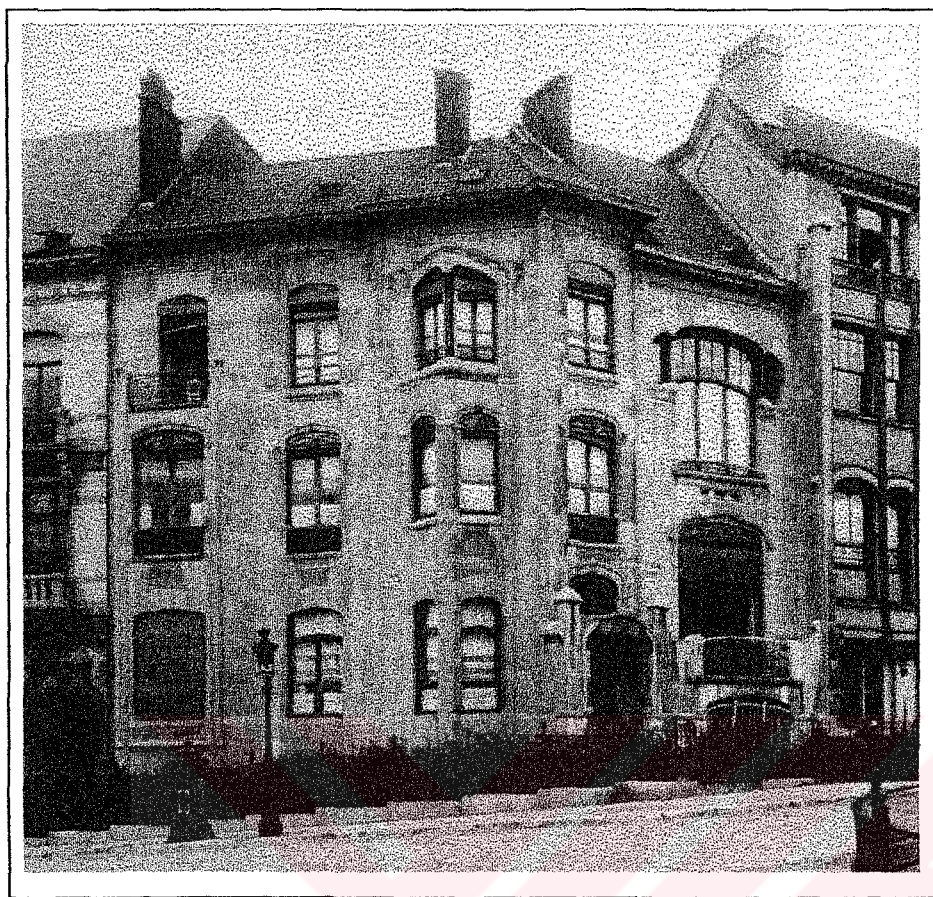


Figure 2.2-7 Victor Horta: The Hôtel van Eetvelde duplex, Brussels, 1897 and earlier.

Granted that Art Nouveau was capable on occasion of creating monuments almost wholly *sui generis*, neither to be passed off as late examples of nineteenth-century ferro-vitreous construction nor as premonitions of later modern architecture, why are there so few that stand the test of time? Art Nouveau could be, and most often was, used even by the most conscientious designers merely as a superficial stylization of traditional structure when they were obliged to build largely in masonry. [4, p. 144]

Horta and van de Velde, the two may be regarded as the inventors of rib-and-spar style typical of early Art Nouveau, which van de Velde also followed for a time. [6, p. 45] More conventional features began to appear in Horta's work and the details took on a somewhat routine look. He had never pursued unity of style like van de Velde's zeal. [6, p. 61] In the best works of Horta, Guimard, and van de Velde, the very anatomy and spatial character of architecture were fundamentally transformed. Their forms were usually tightly constrained by functional discipline and by a Rationalist tendency to express structure and material. [8, p. 59]



Figure 2.2-8 Victor Horta: Own house, Brussels, 1898. Balcony

In 1894-5, van de Velde designed a house (Figure 2.2-8 and Figure 2.2-9) for himself at Uccle, near Brussels, for which the furniture was specially created. His chair designs (Figure 2.2-17) manifested an interest in expressive, organic structure; dynamic forces were intended to heighten the functions of the various members, giving the chairs a consciously lifelike or anthropomorphic character. Van de Velde made a distinction between 'ornamentation' and 'ornament', the former being attached, the latter being means for frankly revealing the inner structural forces or functional identity of a form. [8, p. 57]

Van de Velde's time in Berlin was justified by his success there as an artist. Every detail that was distinctive in his work came to maturity during this time, above all the strongly suggestive quality of his style. His designs were attracting a broad public such as the Havana Tobacco Co. store (Figure 2.2-11) or the elegant salon of

imperial barber François Haby (Figure 2.2-13). In each there is symbiosis of construction and ornament, of usefulness and edification. Both merge seamlessly, their functions never restricted to the one-dimensional. In the tobacco store (Figure 2.2-11) the ribs of the shelves prepare for the wall above; nor is this linear cycle a purely formal element, but echoes the upward spiraling of cigar smoke, in responses to the purpose of the rooms. Even more spectacular is the matching of form and function in the barber shop (Figure 2.2-13): all the pipes were openly displayed instead of being concealed, as was customary, behind the fixtures. The all-important gas and water pipes flowed smoothly over wood and marble, making their technical indispensability into a unique aesthetic experience. [6, p. 56] Curtis finds some interest in the frank expression of structure and function in van de Velde's design for Haby's barber Shop in Berlin. [8, p. 57]



Figure 2.2-9 Henry van de Velde: Furniture designed for his own house at Uccle, near Brussels, 1895.

Horta's ironwork architecture had been inspired largely by French models, and he remained close to France in style, while van de Velde championed forms and ideas from further north. [6, p. 54] In 1902 Henry van de Velde was appointed artistic advisor to Grand Duke Ernst Ludwig of Saxe-Weimer. During his Weimer period he also designed furniture and some table wares such as cutlery set and tray. This cutlery design (Figure 2.2-15) was produced in series by the silverware manufacturers Koch & Bergfeld. It is clearly seen here his design became

increasingly functional, with a strongly curved line and emphasis on structural features. [61, p. 34] Sembach is to right while defining van de Velde's designs especially cutlery design:

There is a unity in the softness of outline and ornament, each supplementing the other. With great care the ornamentation is suited to each individual piece. Differently applied, the signature is nevertheless the same, discretely linking each piece. The ornamentation is subsumed in the form of handle or haft, yet knife, fork and spoon are quite distinct from one another. Each has its own individual shape. On the other hand the linear approach is the same in each. [6, p. 135]

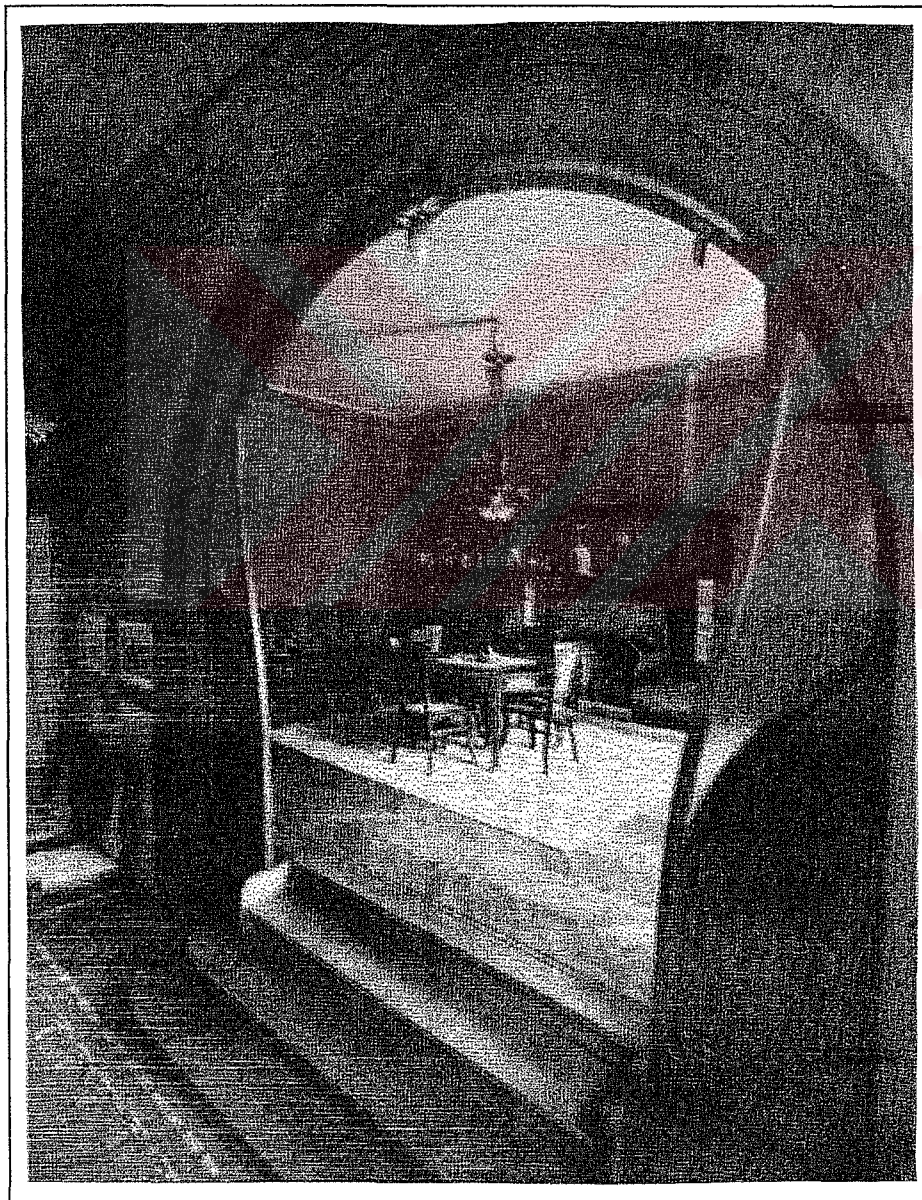


Figure 2.2-10 Henry van de Velde: Interior in Brussels, 1899.

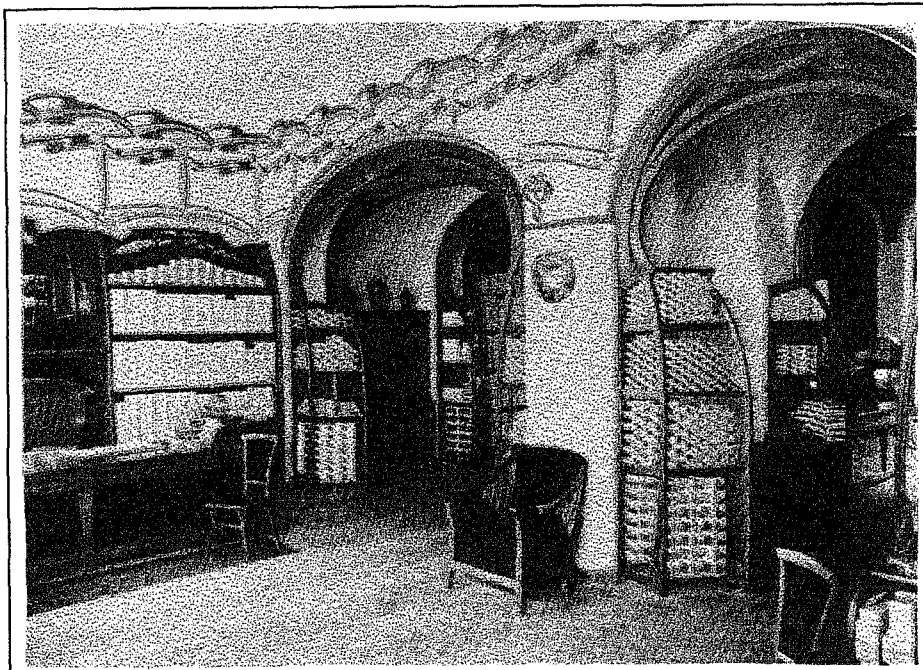


Figure 2.2-11 Henry van de Velde: Premises of the Havana Tobacco Company, Berlin, 1899.



Figure 2.2-12 Henry van de Velde: Study shown at Munich Secession exhibition, 1899.



Figure 2.2-13 Henry van de Velde: The salon of imperial barber, François Haby, 1901.

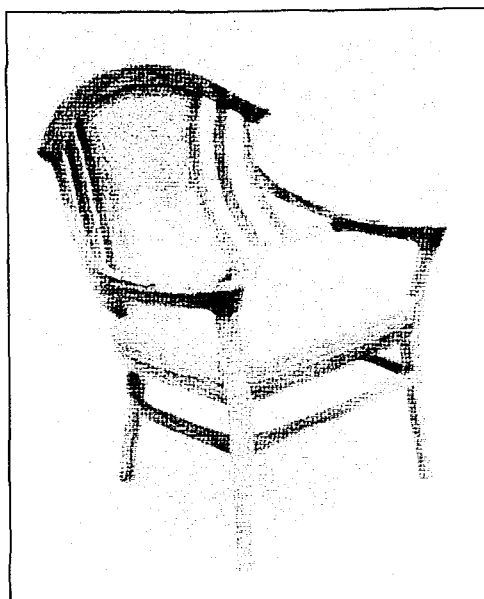


Figure 2.2-14 Henry van de Velde: Chair, 1898, Brussels.

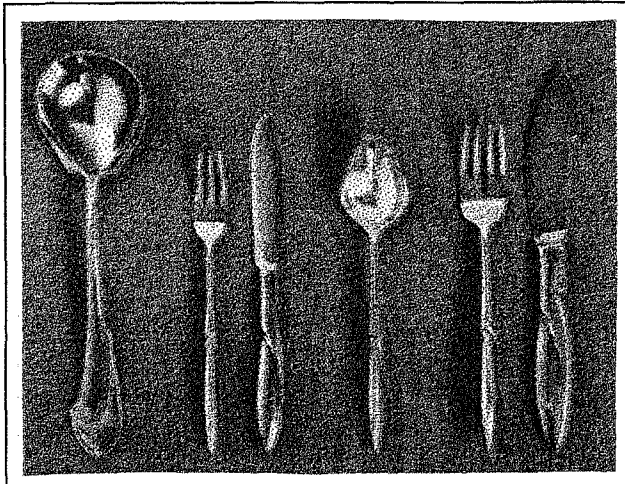


Figure 2.2-15 Henry van de Velde: Parts of silver cutlery set, 1903. Weimar.

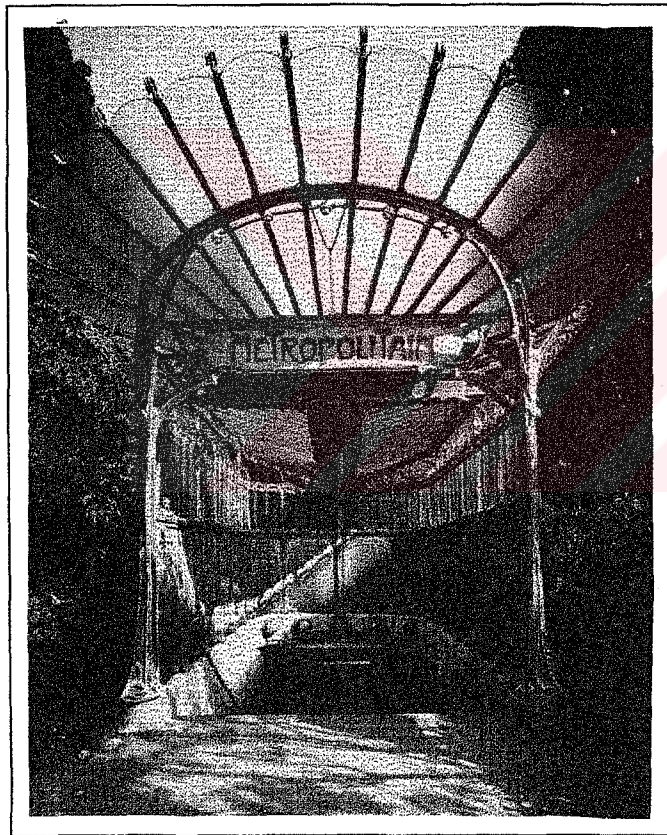


Figure 2.2-16 Hector Guimard: Entrance to the Porte Dauphine, metro station, Paris, 1900.

Guimard began experimenting with the new style in his design of 1894-8 for an exclusive block of flats known as the Castel Béanger. Here the entrance details and the ornamental flourishes were somewhat isolated Art Nouveau incidents in an otherwise inconsistent design. Working a decade later at a much smaller scale in his

own house (Figure 2.2-17) and studio nearby, Guimard was able to infuse the whole design with the bulbous and swelling character of a natural growth, and a model brick surfaces and iron details so that they seemed subservient to a single aesthetic impulse. The playfulness and curvilinear tracery of the Rococo may be counted among the possible sources Art Nouveau ornament. [8, p. 59]

Bayley and Garner insist that Horta's Maison du Peuple (Figure 2.2-2) in Brussels of 1896 or Hector Guimard's prefabricated Parisian Métro stations (Figure 2.2-16) suggests the possibility of modernism working in hand with industrial production methods that contradicts the widely held view that Art Nouveau is merely a flat, two dimensional style for interior decorators. [59, p. 31] According to same authors, the most individualistic Art Nouveau designer in Paris was Hector Guimard, whose architectural schemes, furniture, interiors, graphics and other designs transformed the idea of organic form into a truly sculptural exercise. [59, p. 45]

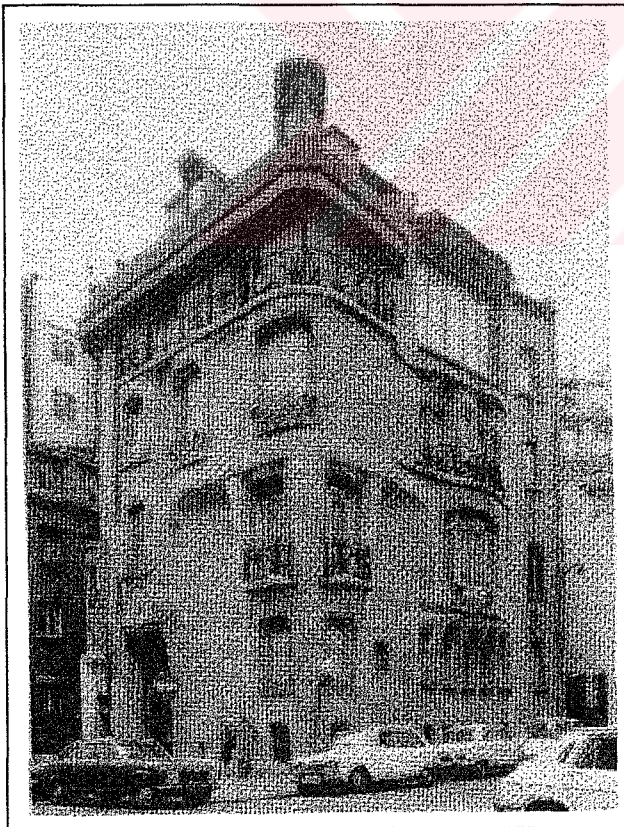


Figure 2.2-17 Hector Guimard: His own house and studio, Paris, 1909-10.

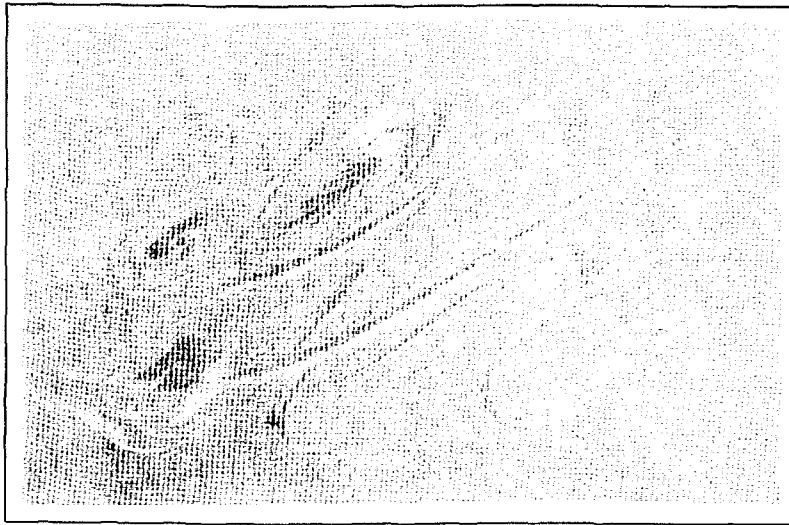


Figure 2.2-18 Hermann Obrist: Embroidered "Whiplash" wall hanging, 1895. Munich.

There is one German work of architecture of the nineties that deserves more extended discussion, if as much for its ambiguities as for its virtuosity, the Atelier Elvira (Figure 2.2-19) of 1897 in Munich by Endell. Remove the enormous decorative relief, abstract and yet strangely suggestive of several sorts of natural forms and forces, and the smooth flat stucco surface with its crips cornice and sharp-cut openings asymmetrically disposed is far more characteristic of a certain stage of what is broadly called the "Modern Movement" than of the Art Nouveau of Horta and Guimard. [4, p. 140] The Façade of the Atelier Elvira, which has long have been recognized as the most striking example of Art Nouveau in Germany. [4, p. 140]

Most of the Munich Art Nouveau artists were influenced by Herman Obrist. This is most evident in the case of Endell. Obrist's 'whiplash' cyclamen-embroidered wall-hanging of 1895 (Figure 2.2-18) and Endell's decorative façades for the Elvira Photographic Studio (Figure 2.2-19) of 1897 are often cited as masterpieces of the early organic Art Nouveau phase of Jugendstil. [59, p. 56] Endell was a student of philosophy declared his unqualified enthusiasm for this source of inspiration when he decorated the façade of Elvira Studio in the spirit of Obrist but he went even further. His gargantuan monster plunged this way and that, pouring scorn on everything that the city had seen up to that time. [6, p. 94]

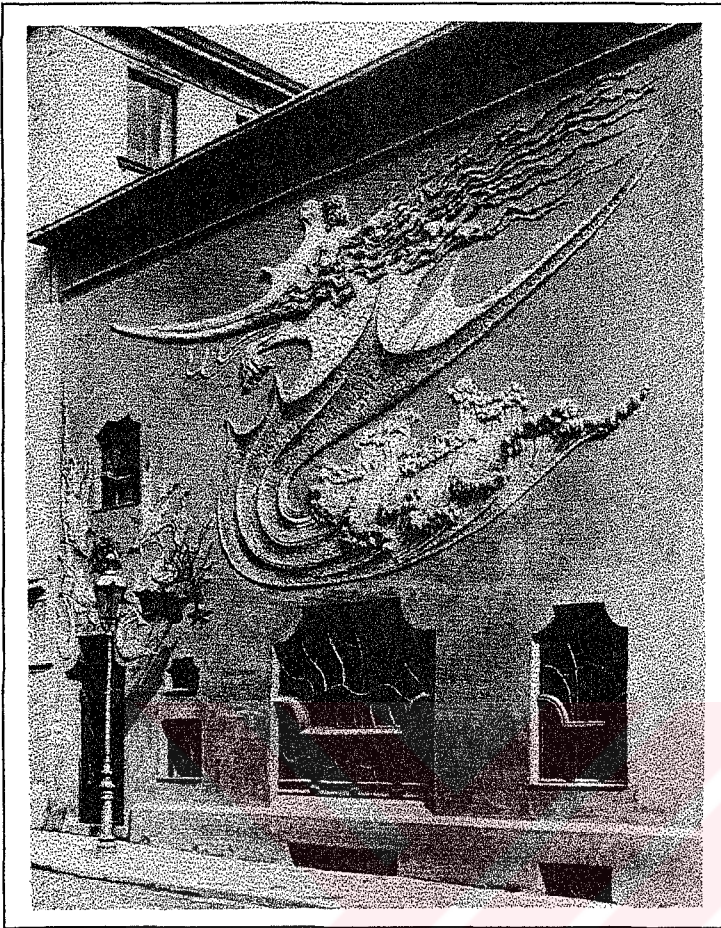


Figure 2.2-19 August Endell: The Elvira photographic Studio, Munich, 1897.

Sembach considers that like some herald of anarchy it was at once macabre and provocative in its vivid combination of colours defying anyone to fathom its origins. Sembach also sees a resemblance in this figure (Figure 2.2-19) to a Chinese dragon. In consequence, it was ornament for its own sake, free from every sense of purpose, except to fill an empty wall. On the other hand, the windowless surface may have been designed expressly to receive it; just because the studio on the upper floor could do without windows to the south was hardly a sufficient reason for so much effort. [6, p. 96]

Endell's original manner of ornamentation could be applied well to furniture, and harmonized fully with ossiferous piece of a chair (Figure 2.2-20) or with the plain boards of shelves and cases. [6, p. 97]

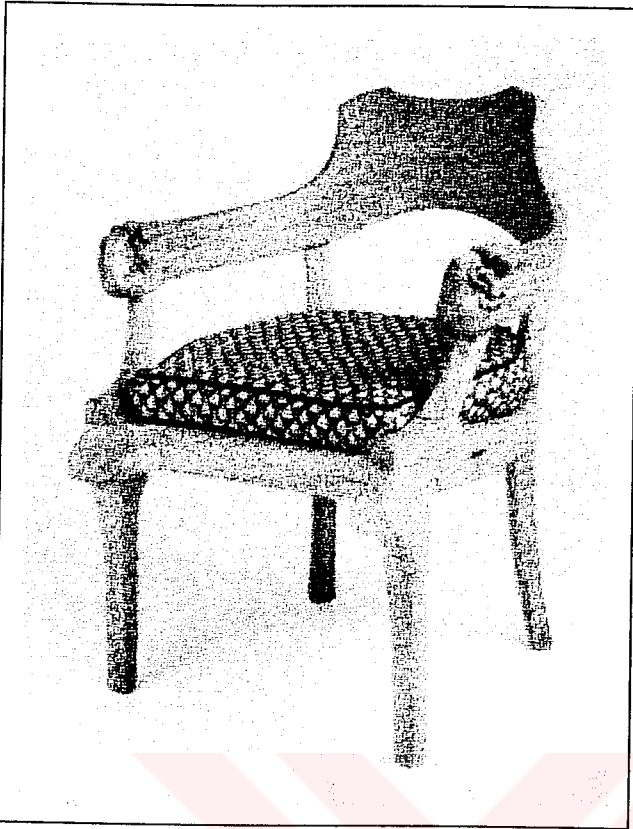


Figure 2.2-20 August Endell: Chair, Munich 1899, elm, upholstery by Richard Riemerschmid

Pehnt claims that Modernismo, the distinctive Catalan form of Art Nouveau, came so close to Expressionism. Unlike Germany, where Jugendstil ran into strong opposition after 1900, in Barcelona there was no break between the architecture of the late 19th century and that of 1910. The most faithful naturalism and the boldest liberties are present in Gaudí's early and later works alike. Unity is achieved not by the use of similar elements, but by the intensity with which the architect forces seemingly incompatible elements into the service of his idea. After 1900 Gaudí was searching for a synthesis, and in his late works historicist allusions to Gothic or Moorish architecture disappear. [10, p. 58]

Modernismo, the Catalan renaissance was a regionalism with its eye on the world: it drew nourishment from folk and local historical traditions, and at the same time it was aware of the latest import from London, Glasgow, Paris or Vienna. [10, p. 59] The term 'National Romanticism' has sometimes been used to refer to a disparate set

played a major part. Moreover sensitivity to locale was implicit in the work of several architects whom it would be pointless to group together under an 'ism': Wright, Gill, Lutyens, Gaudí among others. In Spain, the idea of a distinctly Catalan expression in architecture was already formulated in theory in the 1870s, and corresponded to a renewed assertion of independence of Catalonia as a political and cultural entity. Gaudí responded in his own way to these conditions in an architecture which combined a metaphorical transformation of medieval types, an inventive exploitation of indigenous construction techniques, and a poetic interpretation of the myths and memories of the local landscape. [8, p. 132]

Finsterlin and other Expressionists overlooked the fact that Gaudí, in the luxuriant vegetation-forms of his ground plans of the Casa Battlo (Figure 2.2-22 and 2.2-23) and Casa Mila (Figure 2.2-27), moved further away from traditional architecture than any Expressionist ever did in anything that was actually built. Expressionist architects also failed to see that Gaudí's 'Gothic without crutches'—without flying buttresses—succeeded in overcoming the problem of load and support by means of a construction that followed the paths of force. This meant that he could subject the entire architectural organism to an expressive will that need take no account of the usual principles of construction. Gaudí's static relied on intuition backed up by experience. [10, p. 60] Gaudí in him tended to more and more towards sculpture, to such an extent that he started building houses without firm plans, modeling them as he went along. This unorthodox procedure gave him legendary stature; he was credited with having achieved the impossible by freeing architecture from any tyranny of the right-angle. [6, p. 77]

Modernismo charged form with religious symbolism to an extent which was only possible in a culture dominated by an active Catholicism. There were many architects in Germany who wanted to build crystal shrines for an unknown faith. But not one of them would have crowned an upper middle class apartment building on a busy avenue with a more than life-size statue of the Virgin, as planned to do at the Casa Milá (Figure 2.2-27). [10, p. 58]



Figure 2.2-21 Antoni Gaudí: Güell Park, Barcelona, 1900-1914. Curved stone bench with mosaics of broken tiles and glass.

Gaudí's completely personal late style first emerged in the design for the Park Güell, (Figure 2.2-21) carried out between 1900 and 1914. Beast-like benches embedded with fragments of colored tile mark the edges of the stepped terraces offering views over the city. The main terrace is supported by a hypostyle hall of hollow concrete columns with drains running through their cores, while curved buttresses textured with scales suggest the gnarled forms of trees or some natural origin of the Gothic flying buttresses. [8, p. 62]

Some points such as spatial character of architecture and Rationalist tendency to express structure and material can be considered about Catalan architect Antoni Gaudí. Gaudí's style, like Guimard's, was in part an abstraction of medieval forms. The imaginative transformation of these prototypes was motivated by Gaudí's private imagery and by his obsession with finding a truly Catalan 'regional' style. [8, p. 59] Thus Gaudí's vocabulary was infused with an elaborate symbolism for which the Gothic revival of his youth had provided a useful, conventional starting point. His pantheism, like Ruskin's, extended to the smallest mineralogical wonders and to the

grandest of natural forces. These features of nature were abstracted and expressed in a vocabulary loaded with metaphor and association. [8, p. 62]



Figure 2.2-22 Antoni Gaudí: Casa Batlló, Barcelona, 1904-7.

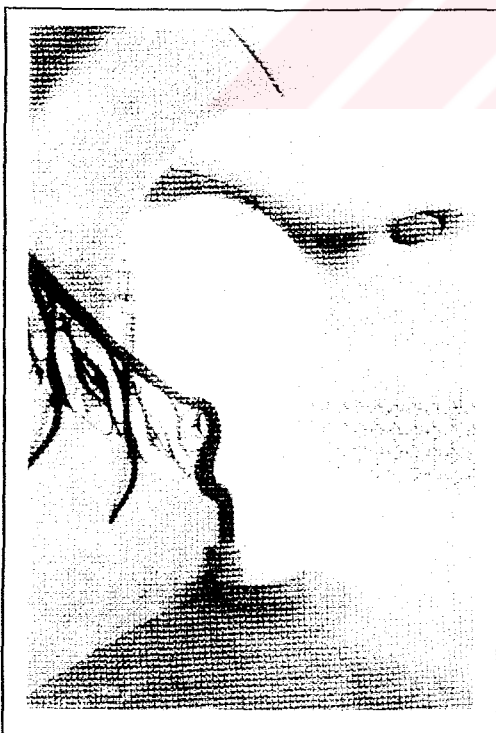


Figure 2.2-23 Antoni Gaudí: Casa Batlló, 1904-06, Barcelona. The Entrance hall.

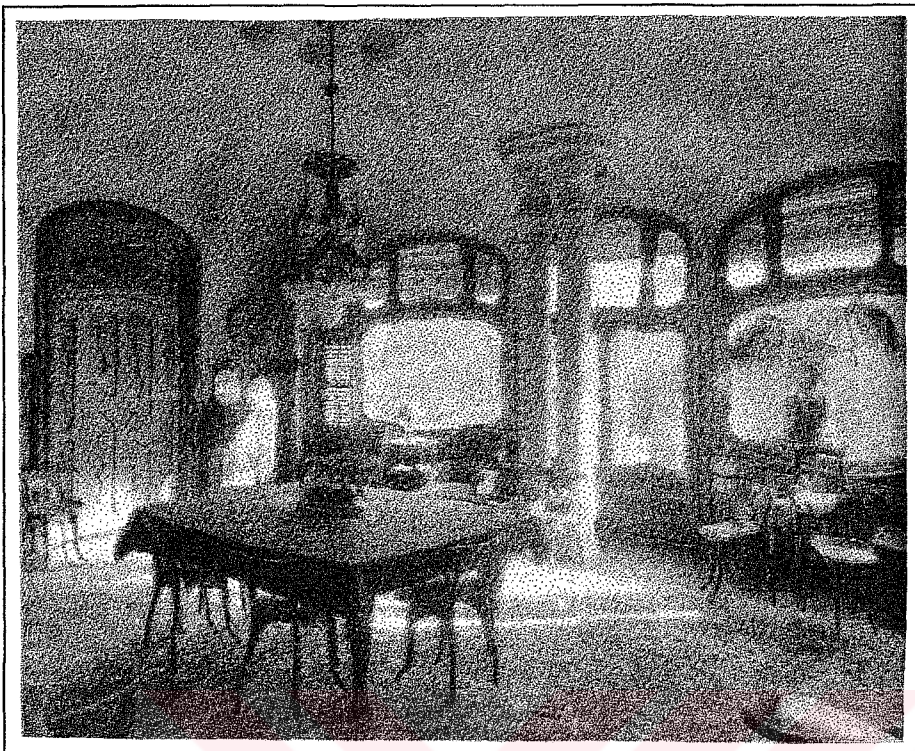


Figure 2.2-24 Antoni Gaudí: Dining room with furniture, Casa Batlló, 1906. Barcelona.

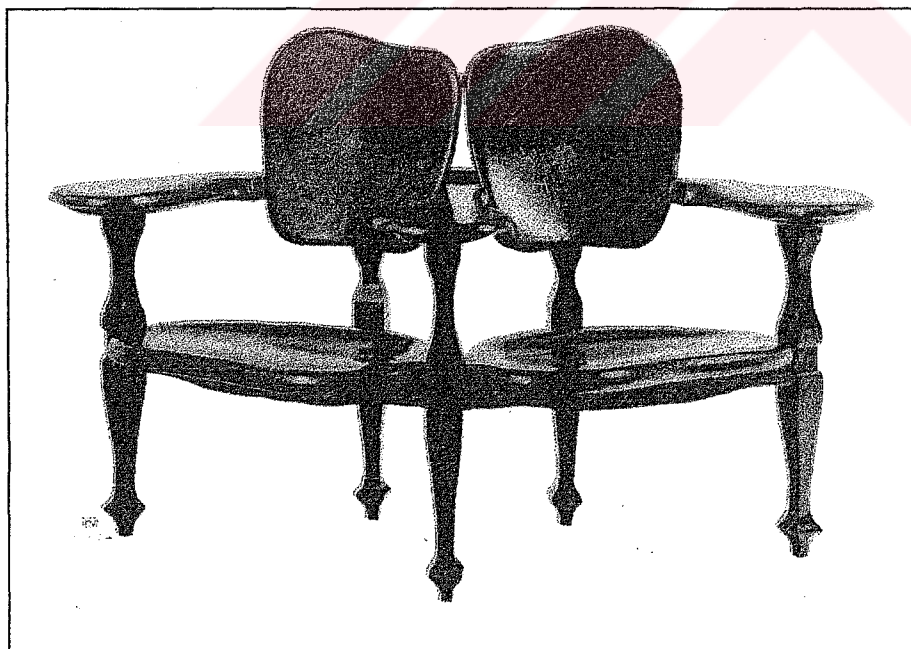


Figure 2.2-25 Antoni Gaudí: Batlló Bench, 1905-07. Furniture from Casa Batlló, Barcelona.

Gaudí's principal secular works were beginning with the Casa Batlló (Figure 2.2-22) of 1904-7, a remodeling of a block of flats. Here a virtual sport of spotting analogies can be played. Thus some critics have emphasized the maritime references of waves, corals, fishbones, and gaping jaws, while others have commented on the dragon-like roog and the possible religious significance of this as an allegory of good and evil. Whether such analogies strike close to Gaudí's intentions may never be known, but they suggest a powerful impact on the imagination of the architect's forms. [8, p. 62]

The richness of Gaudí's art lies in the reconciliation of the fantastic and the practical, the subjective and the scientific, the spiritual and the material. His forms never arbitrary, but rooted in structural principles and in an elaborate private world of social and emblematic meanings. Gaudí was much more of a 'Rationalist' than his work would lead one to believe on superficial inspection. [8, p. 60]

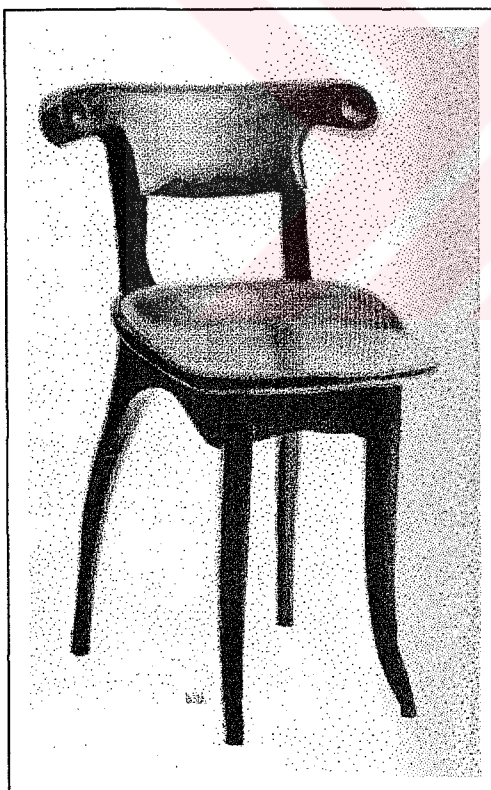


Figure 2.2-26 Antoni Gaudí: Batlló, Chair, 1905-07. Furniture from Casa Batlló, Barcelona.

Chairs (Figure 2.2-26) and other furniture (Figure 2.2-24 and Figure 2.2-25) in the Casa Batlló, as an everyday object fulfil precise function which provides an excellent

demonstration of the experimental thinking of the Art Nouveau movement. Gaudí, the principal exponent of the Catalan school showed his brilliant expressionist temperament as a designer of furniture. His chairs seem not so suitable as to response to the requirements of the human frame as to sculptural inspiration. It appears as if all the shapes were carved with the artist's own hand. [43, p. 39]

In the Casa Milá of 1905-10 (Figure 2.2-27), the plastic conception of swirling curves was applied not just to the façade (Figure 2.2-28), but to the plan and interior spaces as well. The elevation is in constant motion with its deep-cut, overlapping ledges. Once again wave and cliff images come to mind, but it is a naturalism achieved by the most sophisticated ornamentation and stone cutting. The contrived textures of the ledges give the impression that these forms have come about over the years through a process of gradual erosion. [8, p. 63]



Figure 2.2-27 Antoni Gaudí: Casa Milá, Barcelona, 1905-10.

According to Sharp, Gaudí's work more than anyone else's outside the German speaking Jugendstil circle seems even as early as the turn of the century to 'posses in embryo the body of Expressionist' architecture, with its free curving façades, a

general solidity of form, inventive and weighty structure, and its concern for the monumental aspects and symbolic qualities of buildings. [56, p. 27] The elements of religious symbolism as well as of fantasy found in Gaudí's work come close to those found in the work of later expressionists.

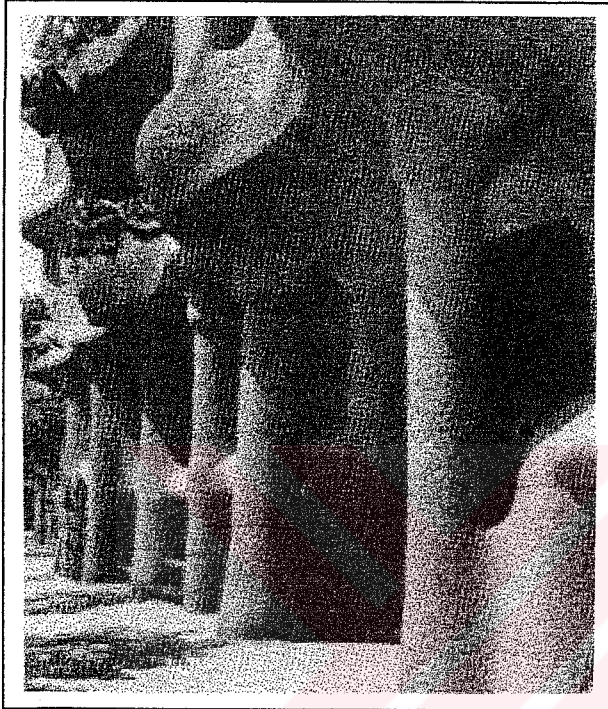


Figure 2.2-28 Antoni Gaudí: Casa Milà, Barcelona.
Detail of the façade.

Gaudí's buildings were so bizarre as to be inimitable, which naturally inhibited the immediate propagation of his style in a local tradition. One of the complaints lodged against Art Nouveau in the first decade of the twentieth century was that its propositions relied too completely on a subjective approach, and that they were not geared sufficiently to the ideal of designing types for standardized mass production. However, both Guimard and Van de Velde were able to mass-produce standardized profiles of some visual complexity. Even some of Gaudí's most complex structural sections could be realized following normal Catalan vaulting techniques using overlapping ceramic tiles. Moreover, Art Nouveau proved itself well suited to repeating print processes in such things as posters, and became a sort of popular style related to consumerism. [8, p. 63]

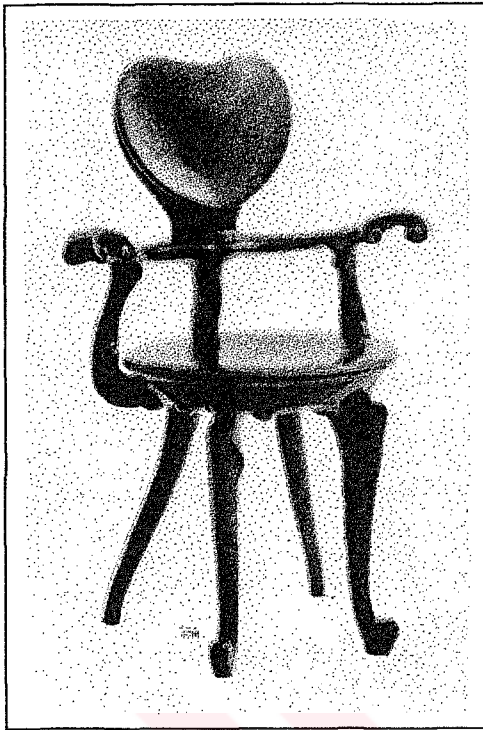
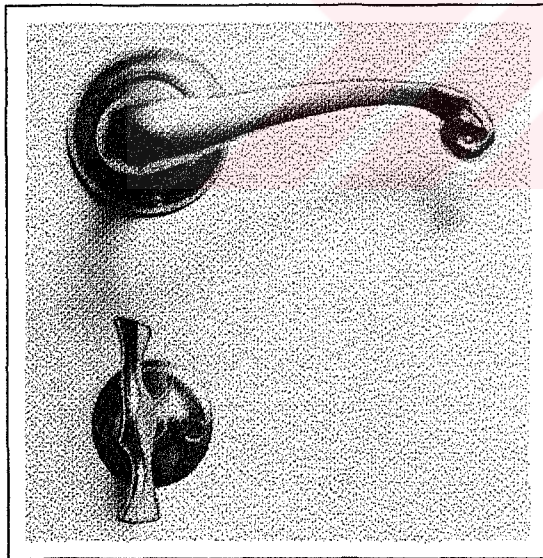


Figure 2.2-29 Antoni Gaudí: Calvet Armchair, 1904. Barcelona. American oak, carved with hand-gouge; acid dyeing and varnish with polyurethane wax.



Picture 2.2- 30 Antoni Gaudí: Top; Batlló Door Handle, 1905-7Bottom; Mila Door Knob, 1910. Solid brass.

In the context of industrial design, according to André Ricard, Gaudí was undoubtedly the most fruitful innovator of all his contemporaries not only because of the highly personal plastic expressiveness of his works but also because of his technological creativity. His works shows his almost total freedom; as if those forms

were born spontaneously out of their author's inspiration and imagination. [54, p. 223] His creativity was not limited to architecture alone. Gaudí designed door handle (Figure 2.2-30) and window frames, flooring, tiles, and furniture (Figure 2.2-29).

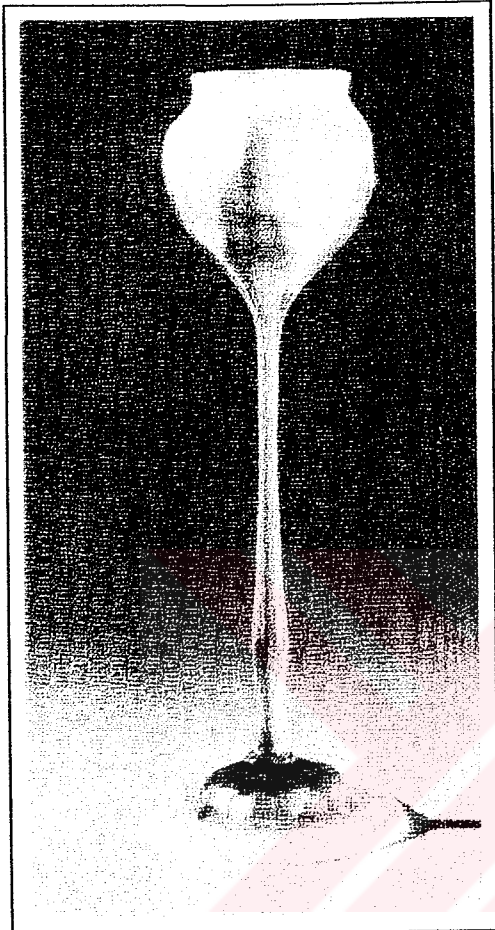


Figure 2.2-31 Louis Comfort Tiffany:
Decorative Tulip glass, 1900. Favrite glass.

Louis Comfort Tiffany, who was known as the famous master of Art Nouveau glass, exhibited his works at galleries in Paris and worked for the Maison Bing. He was interested in a wide range of craftsmanship, including ceramics, jewelry and wrought iron, but it was in glass and particularly in blown glass. Although influenced by the work of Gallé, Tiffany's products bore full imprint of his own personality in their form and subtle vibrance. To his own patent glass, with its opalescent and iridescent colouring, (Figure 2.2-32) reminiscent of Turkish pottery, he gave the name 'favrite' (Figure 2.2-31). After 1900 Tiffany began production on an industrial scale, lending his style directly to particular style of glass-making. The workmanship of these products is however, excellent, and they are of considerable value. [43, p. 59]

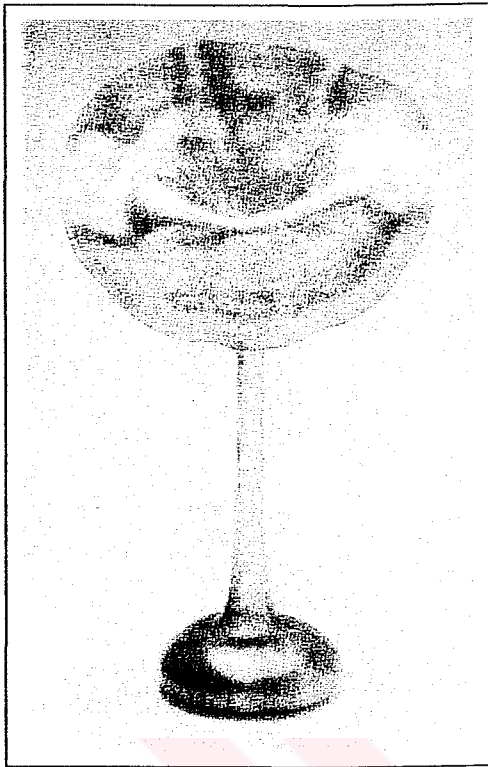


Figure 2.2-32 Louis Comfort Tiffany: Vase, 1900. Iridescent glass.



Figure 2.2-33 Emille Galle: Glass Jug, 'Nancy', shortly after 1900. Ribbed and polished glass.

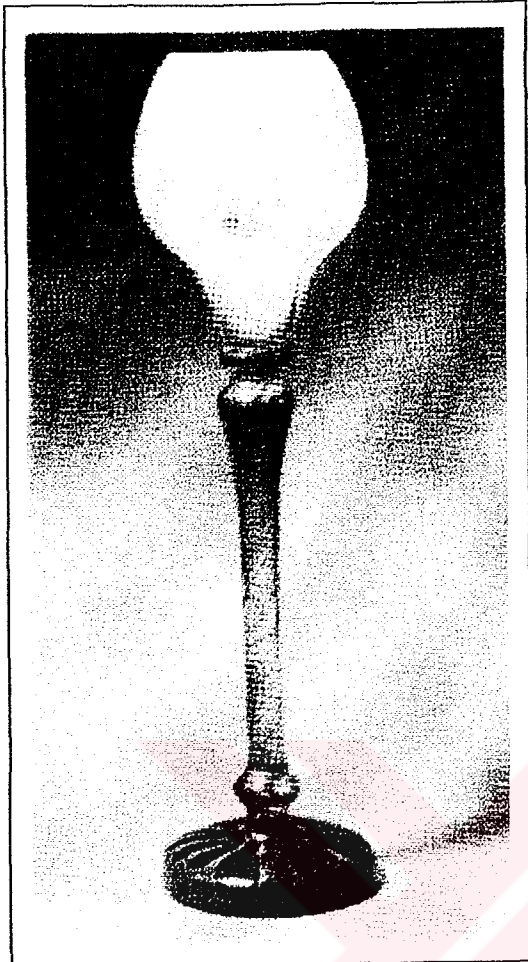


Figure 2.2-34 Emille Galle: Vase, 1900.

Some of the most brilliant Art Nouveau pieces were vases, particularly the made of glass. The greatest master of Art Nouveau glass was undoubtedly Emile Gallè, leader of the Nancy school. His skill in glass techniques kept pace with imagination that always on search of new modes of expression. From transparent vases or jugs (Figure 2.2.34), he went on to vases of thick, opaque glass (Figure 2.2.35) on which he obtained transparent relief figures with acid or the introduction of cobalt oxide, gold dust or other materials. His floral compositions were unsurpassed—as were the dragonflies and butterflies on the smooth surface of the vases. [43, p. 56]

Gallè became an international figure-head for Art Nouveau because glass itself was one of the favored Art Nouveau materials. Compared with the flamboyant delicacy and magic of the fragile coloured glass that Louis Comfort Tiffany was producing in

America, some of the vases made in Nancy seem labored and heavy, complying with bourgeois taste, and probably popular for that very reason. [6, p. 68]



Figure 2.2-35 Emille Galle: Vase with autumn crocus decoration, Nancy, 1899. Flashed glass.

Art Nouveau shared with the rococo a desire to make painting part of the general decor. Painters and decorators showed a preference for a light, high-keyed color scheme. Rococo characteristics can be observed in Horta's flowing space (Figure 2.2-6), in his asymmetrical ornamentation, his vigorous curves which, however, have substituted a more abrupt termination for the easy, elegant flow of the eighteenth century. [4, p. 12]

It has often been said that Art Nouveau was short lived, but this is not true. In fact it lasted for over thirty years, or about as long as Rococo. Moreover, the whiplash or curvilinear stroke which was its *leitmotiv* was in evidence as far back as German and French Rococo and some of its organic forms continue to persist in the works of Paul Rudolph, Eero Saarinen, Nervi and even Le Corbusier. [1, p. 14] Although Art Nouveau was short-lived, it seems to have gained eternal life as a metaphor of Utopian hope. [6, p. 9] It is a movement which not only reaches into the twentieth

century but up to the present day; and its aesthetic is an integral part of some today's design and architecture, particularly in post-war Europe. [1, p. 11] In fact, like so many its own motifs, Art Nouveau did not magically start and mysteriously stop, but grew rapidly with the technical changes of its age and converted itself by trial and error into the forms that were right for its time, discarding whatever outlived its usefulness.

To say that Art Nouveau finished after the First World War is to misunderstand its most important aspect. Certainly Erich Mendelsohn did not disdain curvilinear, organic shapes when he designed his Potsdam Tower (Figure 3.2.2-1) for Albert Einstein in 1920; and even Mies van der Rohe must have had the swinging curves of Art Nouveau in mind when he designed his Barcelona chair in 1929 (Figure 4.1-1)—the most famous and most contemporary chair of the twentieth century. [1, p. 162] Curtis also agree with Amaya while he was claiming that Art Nouveau was a relatively short-lived phenomenon, its influence lingered on in developments stressing the 'organic' and the abstraction of natural forms. [8, p. 290]

Art Nouveau traits are mainly interested in the style's essential qualities of streamlined simplicity, a sculptural molding of form and a sense of innate, growing structure compatible with function. [1, p. 14] Although concerned with standards and craftsmanship rather than with industrial production, the art Nouveau movement of the 1890s particularly in the Jugendstil variant of Germany and Austria, was an important stage in the transition to functionalism. While its development in France, Belgium and Italy was characterized by the use of abstracted natural forms, with a sinuous power of line and three dimensional moulding that blend the constituent elements of a design into an integrated whole. In Munich, in the work of artists and designers, the flowing curvilinear elements were at first subdued and controlled, and later transmuted into formal compositions of geometric elements. [63, p. 85]

In 1955, Le Corbusier's reversion to romantic plasticity in his church at Ronchamps (Figure 3.2.3-1) is another example. "The shape outside this Pilgrims' chapel is more important than the interior, which hardly has room for two hundred people. Ronchamps is a building in which all the parts are plastically interdependent. [2, p. 195]

Today, modern Swedish and Danish designers continue to re-investigate some of the unexplored paths of plasticity first hinted at in Art Nouveau. David Cardinal is still playing with Art Nouveau shapes, Alvar Aalto has used the flowing, undulating line in his pressed wood furniture; Arne Jacobsen has employed the wayward, free-flowing curve in his design.

Perhaps the best compliments to Art Nouveau in recent times have been paid by Frank Lloyd Wright's Guggenheim Museum (Figure 3.1-13), finished in 1959. American romantic architects as a whole have shown an interest in Art nouveau motifs- particularly Edward Stone with his Huntington Hartford museum, and Paul Rudolph with his stunning multi-storey car-park in New Haven, built between 1961 and 1963. But the most gratifying use of the style is the TWA terminal at Kennedy Airport (Figure 3.2.3-7 and 3.2.3-8) by Eero Saarinen, where the organic shapes of the Potsdam tower (Figure 3.2.2-1) are mingled with Gaudi's sense of counter-rhythm and interval. [1, p. 163]

3. THE MEANING OF ORGANIC AND EXPRESSIONISTIC ARCHITECTURE

In a search through the architecture there is no single title of the term, organic. According to Eric Hunting there are today three distinct architectural disciplines which go by the name of 'organic', each founded on different principles. [20, Introduction] The first one is organic by 'nature', the second one organic by 'composition', and the third one is organic by 'design'. In order to examine these three organic disciplines it is better to understand their common origin. Hunting, based their common origin on the "Primary Architecture which is founded in the basic survival need for shelter while seeking to fulfill this need to express themselves through their simple structures, applying ornament and style to their simple materials and establishing traditions of construction technique." [20, p. 2]

And he calls early man's architectural expressions a kind of dialogue with nature and in this dialogue he finds a kind of sophistication, a sensibility about order, form, and craft, which has been lost in the poly-cultural, technological, political, and commercial cacophony of contemporary architecture. He also gives a simple example (Figure 3-1) of primary architecture which has so inspired organic architecture.

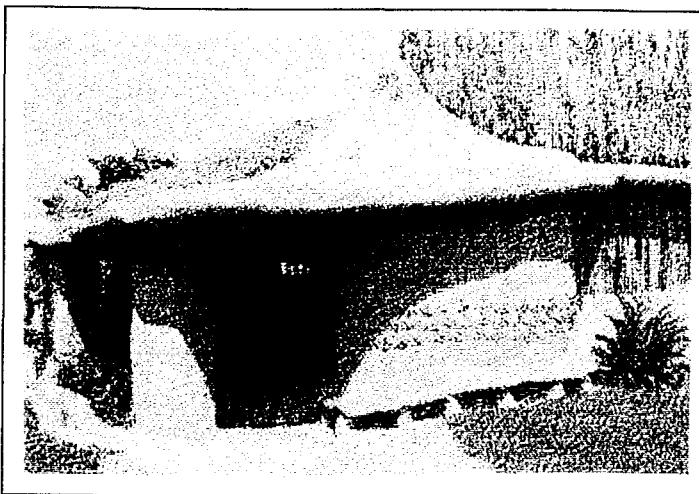


Figure 3- 1 Re-creation of African spiral hut from Puerto Vallarta villa in Mexico

Hunting claims that the structure of this hut (Figure 3-1) represents the soul of organic architecture in all three of its definitions. The structure is epitome of functionalism with its monolithic spiral wall comprises the whole structure. Alternately, a second similar wall is built around low fence wall around dwelling, made of the same materials for domestic animals and protection against nocturnal predators. [20, p.1]

As it is obvious Wright was the first architect who specifically used the term 'organic' to describe his architecture which achieved an elemental harmony between the man-made environment within the home and the natural environment outside. Hunting defines this interrelation between man and his natural environment as a poetic dialogue which forms a structure and evaluates Wright's architecture as an organic architecture by nature. [20, p.2]

According to Hunting, the second definition of the term is organic by 'composition' and this is generally known as the Green Movement or the Sustainable Habitat Movement and its objective is the development and advocacy what was referred to as organic architecture. In this form of organic architecture, 'organic' means made from natural sustainable non-toxic materials such as untreated tree-farm sourced wood, straw bales, earth clay, and stone. [20, p.3] An interesting side of the Green architecture movement is the idea that by choosing the organic approach one can create a living environment which promotes a sense of natural harmony or unity with the natural environment. This is much the same ideal Frank Lloyd Wright was reaching for.

The third form of organic architecture by the identical author depended on the same source is the organic by 'design'. In this version of organic architecture concept traces its formal roots to the 19th century. During this period a style of art, design, and architectural expression founded on the man-made of natural, organic forms. A style known as Art Nouveau. As it is often said that the Art Nouveau movement was based on the concept of reproducing natural organic forms either literally, by stylistically simulating the appearance of plants and animals, or figuratively, by emulating the curves and textures of natural structures and materials. Art Nouveau is often considered a romantic form of architecture, because it seeks to create the impression

of an idealized and magical world where human artifice and natural creation become indistinguishable. Although there is an idealization of figures, beyond the ornamentation, there was an organic sensibility, an attempt to find a continuity between the natural and artificial, derived from the duplication of the essential structural systems formal science discovered in the forms and structures of plants and animals which unsurprisingly has its counterpart in Primary Architecture. As it is seen in the African hut example, the spiral shape is duplicated by any number of different plants and the animals, and any number of different Art Nouveau designs. [20, p.6] Hunting also believes that Herman Finsterlin with his free-form organic structures, philosopher Rudolf Steiner with his unusual design of 'anthroposophy' school called Goetheanum, Herman Finsterlin with his Einstein Tower, and even Le Corbusier with his Chapel Notre Dame du Haut (Figure 3.2.3-1) had dealt with organic architecture by 'design'. [20, p.7] However, these examples in the architectural context had usually been known as the examples of expressionistic architecture, and the meaning of organic architecture, in the architectural circles, is mostly understood as Wright's organic architecture.

3.1 Organic Architecture and Frank Lloyd Wright

According to Zevi (1957), the two most important conceptions of space in modern architecture are those of Functionalism in other words the International Style and the Organic Movement. He insists that both movements are international today and the first began in America with the Chicago School of 1880-90, but found its fullest formulation in Europe and its leader in the Swiss-French architect, Le Corbusier. The second was taken hand by Frank Lloyd Wright. "Although these two conceptions have in common the theme of the open plan, they interpret it in different ways; the first strictly rationally, the second organically with a full sense of humanity." [19, p. 143]

In this classification of Zevi, he probably means that organic versus geometric, and he makes a list of the qualifying terms that are scattered from Behrendt's book:

Organic Architecture	Inorganic Architecture
1. 'Formative art'	1. 'Fine art'
2. Product of intuitive sensations	2. Product of thought
3. Work of intuitive imagination	3. Work of constructive imagination
4. In close contact with nature	4. Contemptuous of nature
5. The search for the particular	5. The search for the universal
6. Delighting for multiformity	6. Aspiring towards rule, system, law
7. Realism	7. Idealism
8. Naturalism	8. Stylism
9. Irregular forms	9. Regular forms
10. The structure like an organism that grows in accord with the law of its own individual existence, with its own specific order in harmony with its own functions and with its own environment, like a plant or any other living organism.	10. The structure like a mechanism in which all the elements are disposed in accord with an absolute order, in accord with the immutable law of an <i>a priori</i> system
11. Dynamic forms	11. Static forms
12. Forms based on freedom of geometry	12. Forms based on geometry and stereometry
13. Product of common sense (native architecture), of 'reasonable beauty'	13. The search for the perfect proportion, for the golden section and for absolute beauty
14. Anti-composition	14. Composition
15. Product of contact with reality	15. Product of education

Although there are more or less the same definitions, suggested by several authors, referring to organic design, trying to understand Wright's exact meaning of 'organic' seems difficult. The reason of this difficulty comes from the Wright's own fifty-one definitions which are poured out in the Princeton Lectures (1930) as Jencks (1973) attributed them *embarras de richesse*. [22, p. 125]

Jencks (1973) thinks that the ideas of Wright's organic architecture are few interrelated and reduced those ideas into single one idea: organic geometry. And he finds a relation between Wright's organic architecture and Wright's childhood play with the demontable Froebel blocks which has an incidental property of undifferentiated unity. Because these Froebel blocks are at once volume, colour, pattern, silhouette, construction and structure. For instance there is no difference between piling them on top of each other, the construction; and making them stand up, the structure; it is all done in a single act. According to Jencks, Wright re-derived this principle in his own building it became the fundamental of his organic architecture. Since the classicism itself based on primary forms and the superposition of the abstract shapes, Jencks redefines the difference of Wright's organic architecture from the Beaux-Art and classicism:

1. Wright's geometric ornament was '*of* the surface not *on* the surface' i.e. usually resulted directly from the construction rather than being applied afterwards.
2. Wright's method was more 'democratic' than the classical or International Style because it was open at all ends rather than closed and it was made up of many geometries (more suited to human to and fro than the right angle)
3. Wright insisted that organic architecture grew naturally out of the individual situation and thus its peculiar 'style' expressed personal 'character' rather than the impersonal, dead convention.
4. As in Sullivan's organic architecture, it did not hide, constrain or coerce the purpose of the building, but rather developed in such a way as to express or make manifest this purpose. [22, p. 127]

Frank Lloyd Wright explains organic architecture as an organic society in the 'Foreword' to the Sir George Watson Lectures of the Sulgrave Manor Board for 1939. He also implies that the organic ideals of integral building would reject rules by exterior aestheticism or mere taste because such external impositions upon life as were not in accord with the nature and character of the man, who otherwise could not be happy and useful in his living environment. [16, Foreword] Wright had also valued the ideal of organic architecture for an organic society as a great peace-maker in the world because it is genuinely constructive in his understanding. [16, p. 15] He is stressing this concept while defining architecture as a necessary interpretation of such human life as we know if we ourselves are to live with individuality and beauty. [16, p. 3]

Pfeiffer claims that from beginning to end, throughout all the work of Frank Lloyd Wright, one important element remains constant: human values. [17, p. 36] He often called it 'Humanity' and he placed man in the center of his architecture. In his book *A Testament* in 1957, he wrote that he had "referred to a more humane architecture, like organic architecture the quality of humanity is interior to man." This inner light is essential element of humanity to his architecture. He also called it Manlight which is above instinct. And human imagination by way of this interior light is born, conceives, creates. [17, p. 30]

Wright had also rejected the "major-axis and the minor-axis" of classic architecture as all his modernist contemporaries. Although he had insisted that the word 'organic' cannot apply to so-called classic architecture in any form, and it does not apply to any of the 'period' buildings, he had listed some of the periods in the architecture of the world which are organic in Wright's understanding: Japanese domestic architecture, Egyptian architecture with an expression of the feeling of the human form, and Gothic cathedrals in the Middle Ages. [16, p. 11]

When compared to Elliot Noyes definition of organic design (in chapter 4.2.1), the architectural use of the word organic has given rise to a great deal of confusion. In architecture, Zevi determines two fallacies of understanding the meaning of the word organic. One of them is naturalistic fallacy. Organic design is not truly imitating the nature. But, this particular error, as Zevi (1950) claimed, is easier to fall into since the supporters of organic architecture think a great deal of the Egyptian temples and the Gothic cathedrals, and Egyptian and Gothic decoration full of naturalistic features. [9, p. 73] Wright had also felt into such error by referring organic architecture to Egyptian and Gothic architecture.

In the book of *Towards An Organic Architecture*, quotation from the book of Behrendt who constantly makes comparisons between nature and Wright's designs describes organic building as "a building rises from the earth towards the light 'like plant'; the projecting roofs have a 'plantlike existence translated into architectural form'; the various shapes of the windows and their relations to each other remind one of the disposition of leaves; and the relation between the body of the house and its various details suggests the trunk of a tree." Even Wright could not avoid from "this

fallacy of naturalism as is shown in his Art Nouveau decoration, in the blocks of the stone between brick-work in the William Winslow House (Figure 3.1-1) where they are intended to bind the building more firmly to earth." [9, p. 73] According to Jencks, one of the early works of Wright, Winslow house (Figure 3.1-1) at once gives two definite impressions; simplicity and a horizontal line. Moreover there is a sense of relation between nature and architecture because a horizontal line seemed closer to nature than did a vertical line. [21. p. 35] These features were the signals of his organic architecture developed through the prairie house design.



Figure 3.1-1 Frank Lloyd Wright: House for William H. Winslow, River Forest, Illinois, 1893-1894

The second one is the biological fallacy. This kind of understanding had been first declared by Vassari that if architecture was to convey essential spiritual values it must seem as organic as a human body. Michelangelo also said that no one would ever be able to understand architecture without a profound knowledge of human anatomy. In this conception of organic architecture, the vital factor is the building and bodily reminiscences which is something reproducing physical sensations either directly or indirectly. [9, p. 75]

Wright had transformed the well known modernist slogan 'Form Follows Function' into 'Form and Function are One'. This new slogan is the essential to the great tradition of organic architecture because organic architecture to be the modern ideal should hold no traditions except this one. [16, p. 4] In his architectural system, an organic building can only be created by a single minded mastery of the architect.

Consequently, he had relegated the experts and the team work of the specialistic system. [16, p. 22]

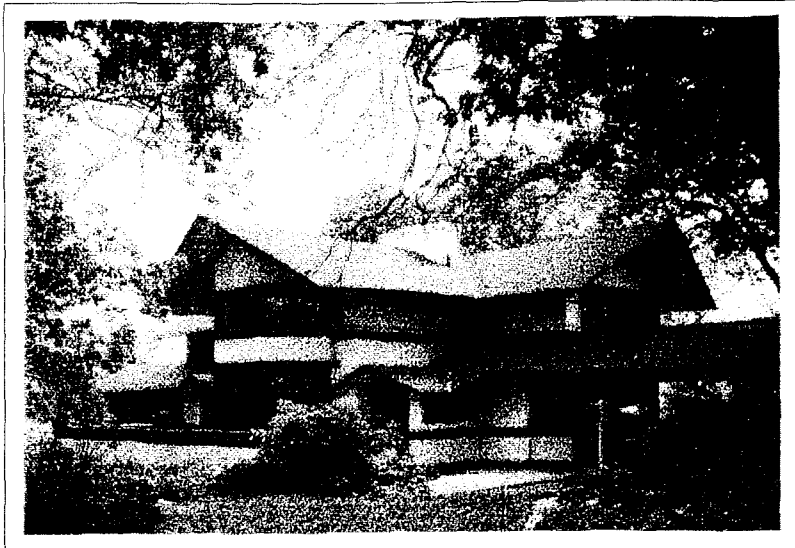


Figure 3.1-2 Frank Lloyd Wright: B. Harley Bradley House, Kankakee, Illinois. 1900. General view.



Figure 3.1-3 Frank Lloyd Wright: Frederick C. Robie House, Chicago, Illinois, 1906-1909. Street view.

According to his understanding modern architecture is organic architecture since it is a natural architecture or "the architecture of the nature for Nature" [16, p. 3] This could be the reason why he never wanted to destroy anything living in the nature unless death became a threat to life. [16, p. 15] Pfeiffer sees a paradox between the

essential elements of his work: human values and deep love for nature, industrial tools and methods. In his work we can see that he could not envision the one without the other. [17, p. 16]

He had been inspired from the declaration of Lao Tze who had lived five hundred years before Jesus. After reading Lao Tze, Wright believes that the reality of the building consisted not in the four walls and the roof but inhered in the space within, the space to be lived in. [16, p. 3] Though American architecture had its roots in European and American architecture, Wright turned to Asia for there he saw a kind of interplay between nature and artifact. The reason of this, as Hunting describes, is the beautiful and dramatic American landscape, a natural inspiration for Wright. In Asian architecture Wright discovered a set of principles which defined a poetic dialogue with nature which we can see demonstrated in the typical Japanese garden. The basic idea here is to achieve a kind of continuity between what is inside the garden or the home and what is outside. [20, p. 4] Hunting is also referring Wright as a Zen or Taoist architect since he sought much the same balance and harmony with nature nearly Zen and Taoist aesthetic have sought through their art, landscaping, and architecture. [20, p. 5]

In order to understand what organic architecture is in terms of Wright's appreciation, it is better to look at his buildings. For instance the 'prairie house' a certain type of residential design employed by Wright during the years 1900 to 1911, in the March 1908 issue of *Architectural Record* he wrote that "The prairie has a beauty of its own and we should recognize and accentuate this natural beauty, its quite level. Hence gently sloping roofs, low proportions, quite sky lines, suppressed heavy-set chimneys and sheltering overhangs, low terraces and out-reaching walls sequestering private gardens" as in the Martin house. [17, p. 18] The most crucial features of his design in this work are 'the natural beauty' and 'low proportion' in order not to disturb this natural beauty. And later in his book *A Testament* he revealed that he had an idea that "horizontal planes in buildings belong to the ground" [17, p. 20, 18, p. 57] For instance, Coonley house shows clearly this feature of Wright's prairie architecture.

As they are easy to sense in his Prairie architecture, extended horizontal line, the low proportions associated with the ground, the broad overhangs and gently sloping roofs

are the distinctive features which characterize his early domestic architecture. But behind those exterior features a whole new language of architecture was being born by following the Winslow house of 1893. Pfeiffer insists that it took almost seven years and the first step in the direction of this new language developed quite naturally in the plan of the home. [17, p. 28] Through the development of this new language of architecture, Wright had preferred more open spaces screened off from one another by simple architectural devices rather than the partitions and doors. This eventually came to be known as the 'open plan'.

Zevi, had based the origin of organic space in architecture on the open plan. Because of the problem of a home for middle-class families, and of a dwelling for workers and farmers the use of new technique of construction in steel and reinforced concrete, "which make it possible to concentrate elements of static support in a slender skeletal framework, provide the practical conditions for realizing theory of the 'free or open plan'." [19, p. 140] This realization of 'open plan' let the internal wall partitions no longer serve static bearing functions. They, now might be "thin, curved, freely movable. This creates the possibility of linking up interior spaces, of joining together the numerous cubicles of the 19th century, of passing from the static plan of the traditional house to the free, open and elastic plan of modern building." [19, p. 141] In his talk to the Taliesin Fellowship in 1952 on the 13th of August Wright had said:

I got features instead of walls. I followed with Unity Temple (Figure 3.1-4) where there were no walls of any kind, only features and the features were screens grouped about interior space. When I finished Unity Temple I had it. I was conscious of this idea. I knew, I had the beginning of a great thing, a great truth in architecture. And now architecture could be free. [17, p. 28]

What he had achieved in Unity Temple (Figure 3.1-4) was, in his own words, the "destruction of the box" in architecture. Exterior walls were no longer the support of the overhead, be it slab or sloped roof. The walls outside now became non-supporting elements which he termed "screens", either opaque - concrete, masonry, or wood - or transparent - glass windows and glass doors. The interior space took on a new freedom and at the same time a closer relationship to the landscape of nature outside. All of this act, this freeing of the interior to the exterior gave a meaning to

the phrase "the space within became the reality of the building" not the walls or ceiling. [17, p. 24]

His architecture is centered around the living reality of interior space and is therefore in opposition to elementary volumetric forms. For Wright the open plan is not a dialectic carried on within an architectural volume, but the final result of a conquest expressed in spatial terms, starting from a central nucleus and projecting voids in all directions. [19, p. 144] The plan is designed to establish an optimal flow for movement within the structure. [20, p. 6] According to Jencks, there is a successful relation of the primary geometry with the function, in the Unity Temple, whereas in the Midway Gardens there are designs for furniture, sculpture, and statues where the repeated rhythmical forms become Procrustean and force natural shapes and purposes into their mould. [22, p. 126]

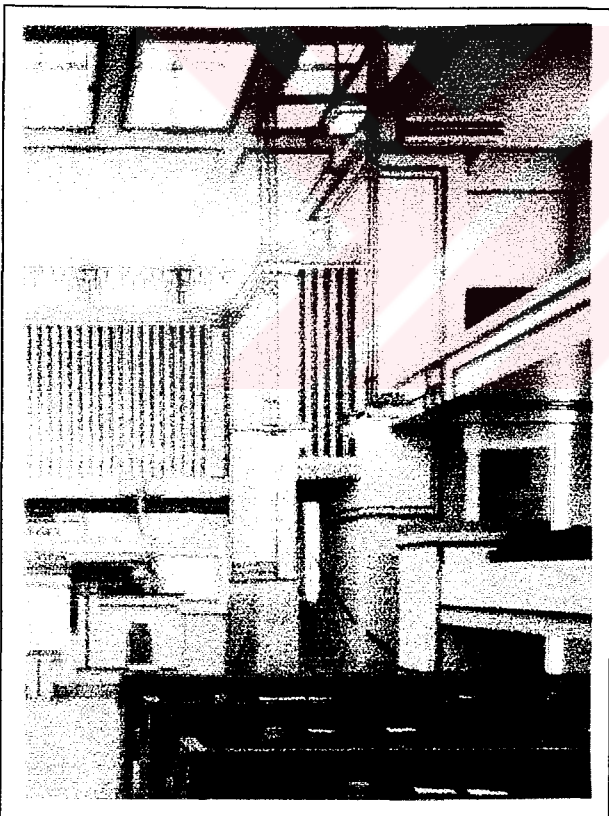


Figure 3.1-4 Frank Lloyd Wright: Unity Temple, Interior, Oak Park, Illinois, 1904-1907.

The integration of the building with its natural site was the second development. Hunting describes this integration as a synergy of artifact and nature framed by the context of individual landscapes. The plan of one of Wright's organic structures is at

first dictated by the existing landscape of the site and often by the organization of natural elements like trees, water, and rocks in that landscape. His buildings tend to reside within the natural spaces offered by the existing landscape. [20, p. 6] His earlier houses were in suburbs and for such integration in prairie architecture, for example in Bradley house he had raised the basement floor to ground level, letting it serve as a pedestal for the main floor above and used horizontal planes for wider outlook. This integration had put forward new ideas about some other natural conditions, intending to take advantage of natural lighting and solar thermal heating as well as to accommodate seasonal changes rather than merely resisting them. For instance, in order to reflect more light into rooms the cement stucco of the extended eaves painted a light color, and for more air into rooms open swinging windows had been used, and the window openings were protected against sun and wind by the overhanging eaves in prairie house. [17, p. 28] Windows were often large and located to frame exterior views as though they were part of interior decor. [20, p. 6] As Naden emphasizes, lighting, heating, and other fixtures would become architectural parts of the house, and the furnishings would also be kept simple and straight to blend with the house. Thus, organic architecture was becoming a reality, a natural simplicity was its basis. [21, p. 38]

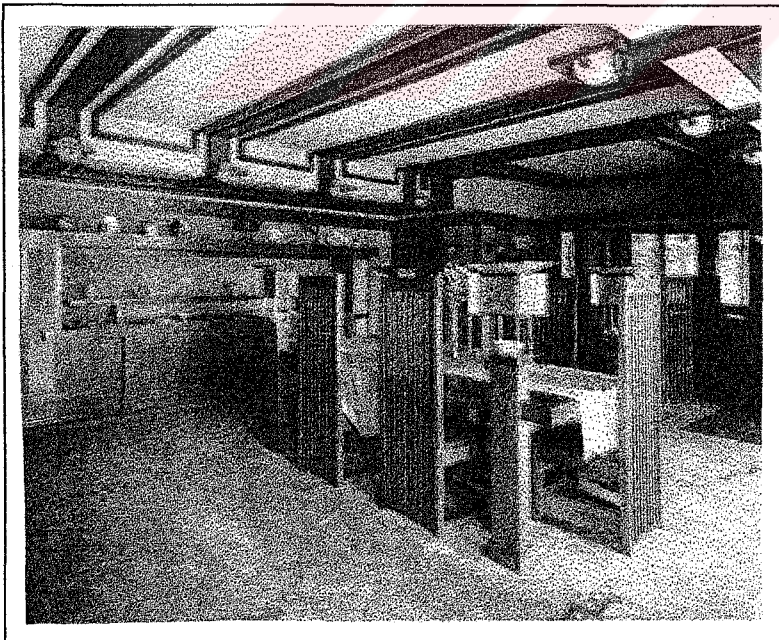


Figure 3.1-5 Frank Lloyd Wright: Frederick C. Robie House, Chicago, Illinois, 1906-1909. Living room.

As it is mentioned above his first buildings were in suburbs and this placement of the buildings in the landscape let the human being experience and participate in the joys of wonderment of the natural beauty. In our day this is actually called site planning, environmental design or something respect to earth.

The most famous work and perhaps the most epitomizing Wright's organic architecture is the 'Falling Water' (Figure 3.1-6). Naden (1968) describe this building as "It is a building that is one with nature" [21, p. 81] In this work we can see many of the features of Wright's organic architecture. One of them is the perfect harmony with its surrounding natural environment. We also can see the Asian architectural influence that "is expressed in the waterfall and the flow of passages through and around the structure" and "the rounded edges forms (Figure 3.1-9) and earthen tones of native adobe" and "the overhanging Japanese roof and the grid-like framework of the Japanese screen partition (Figure 3.1-11)" [20, p. 8]

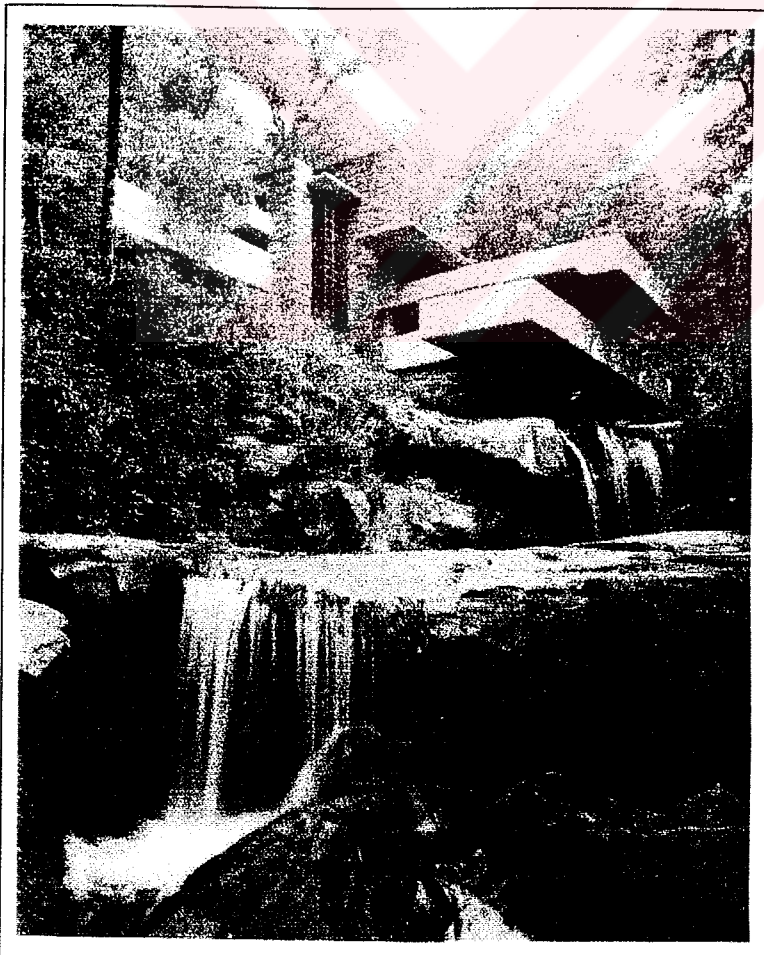


Figure 3.1- 6 Frank Lloyd Wright: "Fallingwater" House for Edgar J. Kaufmann, Bear Run, Pennsylvania, 1935-1939. View from the valley.

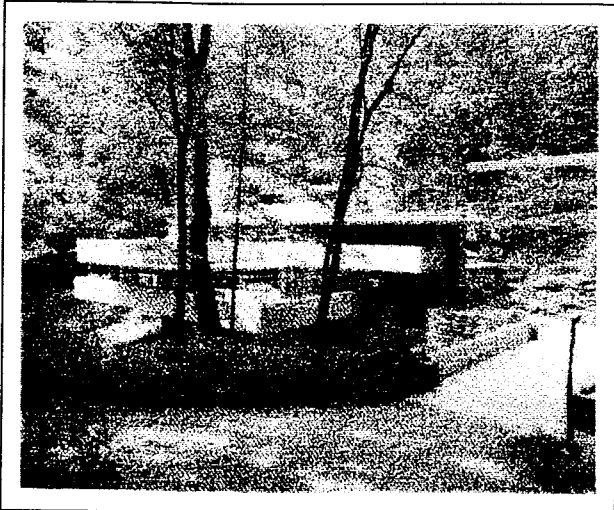


Figure 3.1- 7 Frank Lloyd Wright: 'Fallingwater' House for Edgar J. Kaufmann, Bear Run, Pennsylvania, 1935-39.
View from the driveway.



Figure 3.1- 8 Frank Lloyd Wright: 'Fallingwater' House for Edgar J. Kaufmann, Bear Run, Pennsylvania, 1935-39.
Living room.



Figure 3.1- 9 Frank Lloyd Wright: 'Fallingwater' House for Edgar J. Kaufmann, Bear Run, Pennsylvania, 1935-39.
Fireplace.

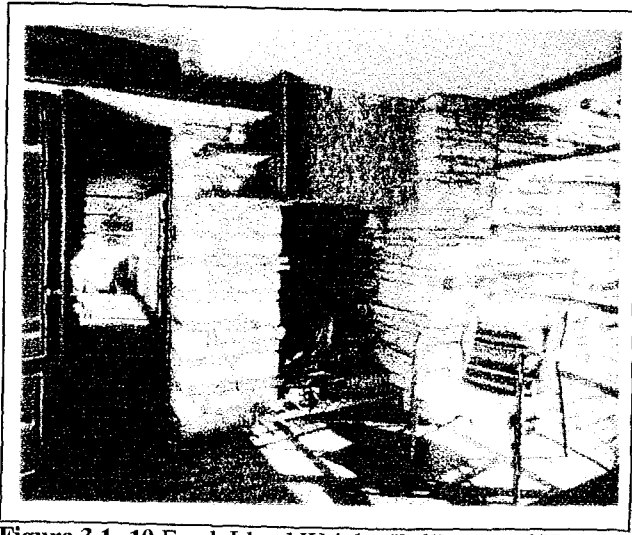


Figure 3.1- 10 Frank Lloyd Wright: 'Fallingwater' House for Edgar J. Kaufmann, Bear Run, Pennsylvania, 1935-39. Study room.



Figure 3.1- 11 Frank Lloyd Wright: 'Fallingwater' House for Edgar J. Kaufmann, Bear Run, Pennsylvania, 1935-39. Kitchen.

In the use of materials, Wright mostly preferred the application of mono-material rather than the conglomerate fashionable at the time. If there was a combination of materials, such as brick and stucco, it was kept consistent throughout the elevation of the building, to achieve repose and simplicity. [17, p. 22] According to Pfeiffer, in his very first work, Wright manifested a careful knowledge and diligent respect for natural materials. His works in the materials of stone, brick and wood always adhered to what he perceived as most natural to them, letting the masses of stone become the features of the building, or the rich earth-tones of the brick, product of

kiln rise in masses and forms that glorified the brick. [17, p. 24] He considered that wood is the most loved of all materials with his words in the May 1928 issue of *Architectural Record* "Wood is universally beautiful to man. Man loves his association with it; likes to feel it under his hand, sympathetic to his touch and to his eye."

Although he was in deep love with the beauty of natural material he had never rejected the new materials such as; concrete, steel, sheet metal, and glass. He perceived these new materials and the methods of using them as wonderful 'tool box' for the architect of the twentieth century. [17, p. 26] Wright also blended modernism into a kind of mixture, recognizing the potential that modern materials and engineering offered in terms of structural shapes and forms not possible with earlier materials and methods. Many of his famous structures made use of cantilevered structures which were made possible only by the use of modern materials like steel reinforced concrete.[20, p. 5]

Wright had elected to call his buildings 'organic architecture' a phrase firstly initiated by Louis Sullivan. But Wright's interpretation to that phrase is corresponded to the relation of all parts to the whole and relation to the whole to the parts differing from Sullivan's understanding. Similarly, he was also agree with his 'Lieber Meister's' understanding of 'organic architecture' as wherever it stood in time, being "appropriate to time, appropriate to place, appropriate to man." [17, p. 28]

Indeed he seems very consistent throughout the development of his architecture for being appropriate to the time, because his work progressed in time as Pfeiffer emphasizes: "From the massive, sculptural office building for the Larkin Company, he made 30 years later, the fluid plastic, curvilinear, light and airy office building for the S. C. Johnson & Son Company. From the formal 'sphinx-like' plan of the Imperial Hotel and Midway Gardens, evolved the ultimate concept of a fluid space flow, again 30 years later in the Guggenheim Museum. (Figure, 3.1-13)" [17, p. 28] The forms in each of these examples are different, but the principles are consistent. [17, p. 36]



Figure 3.1- 12 Frank Lloyd Wright: 'Honeycomb House' for Paul R. and Jean Hanna Stanford, California, 1936-37. Living room.

On the other hand, Amaya insists that the early works of Frank Lloyd Wright, although they copied Japanese structural themes developed by Charles Rennie Mackintosh, were straight-laced to move into the center of the Art Nouveau maelstrom of experimental design. According to him, Wright's houses in Buffalo of about 1904 are so faithfully Japanese in their rectilinear severity that they can be hardly be considered Art Nouveau. [1, p. 74] The Unity Temple (Figure 3.1-4) and

especially the interior design of it can be considered as Japanese in style. On the contrary, Amaya sees Wright more closer to Art Nouveau with the Guggenheim designed in 1946 and completed in 1959; the Guggenheim's (Figure 3.1-13) play of interior (Figure 3.1-14) space, free use of curves and eccentric.

His use of furniture, as Hunting claims, was fairly conventional but he also liked to take advantage of plan features to create seating, table and shelf space that was integral to the walls and floors. [20, p. 6] For instance, in Honeycomb house (Figure 3.1-12) and in some manner in Robie House (Figure 3.1-5) this feature of his architecture is very dominant.

Zevi (1950) has distinctly separated organic architecture from Art Nouveau style because of the spatial arrangement of the first one. In organic architecture the spatial arrangement corresponds fundamentally to actual movement of the man who inhabits it. However, in Art Nouveau the feeling of movement and a dynamic quality is achieved through the walls being covered with neurotic linear patterns which evoke recollections of movement or through the composition being such as necessitate ocular movement. So, agreeing with Zevi, organic architecture is not abstractly utilitarian but, in the integral sense of the word functional. [9, p. 75] Zevi also defined what organic architecture is in his book of *Towards An Organic Architecture*:

Architecture is organic when the spatial arrangement of room, house and city is planned for human happiness, material, psychological and spiritual. The organic is based therefore on a social idea and not on a figurative idea. We can only call architecture organic when it aims at being human before it is humanist. [9, p. 76]

One of the important principles of modern architecture is the unity of interior and exterior. Wright had never disagreed with this notion. In the Guggenheim Museum, Wright's interpretation of function is differently new, plan is provided according to this function. As a result sections and volumetric order has a unique character. This exactly means that 'form follows function' but with an active, exciting witticism. [28, p. 256]

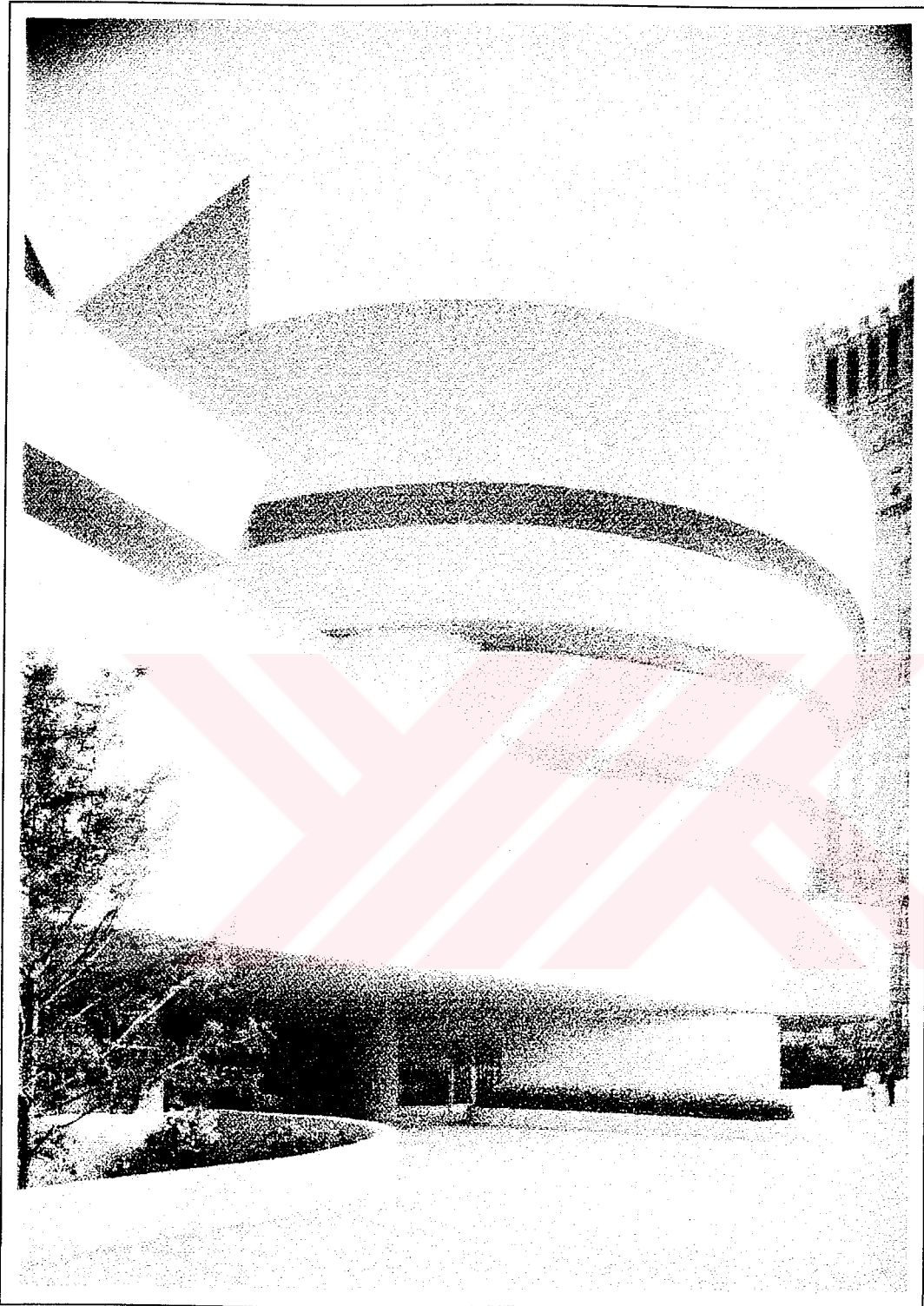


Figure 3.1-13 Frank Lloyd Wright: Solomon R. Guggenheim Museum, New York, N. Y., 1943-146, 1955-1959. Entrance view.

With the Guggenheim museum (Figure 3.1-13) Wright hoped to design a 'total work of art' in harmony with 'non-objective' painting and sculpture. [8, p. 413] Wright evidently thought of architecture as the mother art, and of furniture, paintings, and

sculptures almost internal element. None the less, the Guggenheim constituted a full demonstration of his ideal of an 'organic' architecture, in which form, structure and space were fused. Thus the Guggenheim Museum (Figure 3.1-13) was an apotheosis of Wright's organic philosophy, in which plan, section and elevation ideas of his earlier experimentation were brought together in a cogent, three-dimensional weave of form, space and abstraction. [8, p. 415]

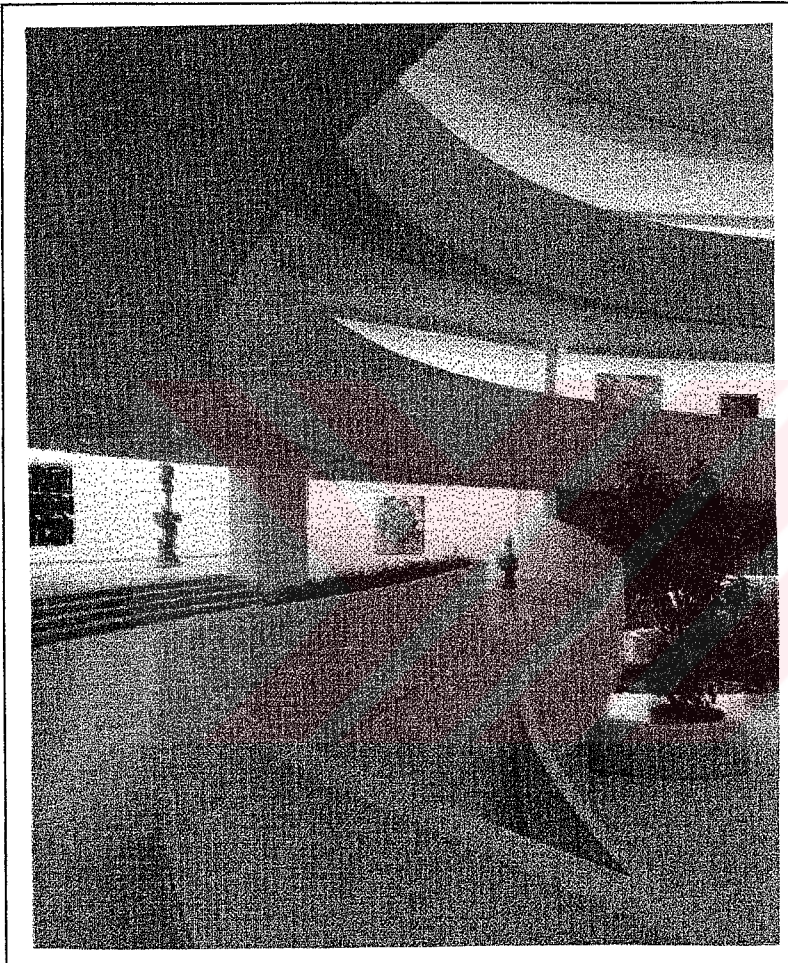


Figure 3.1-14 Frank Lloyd Wright: Solomon R. Guggenheim Museum, New York, N. Y., 1943-146, 1955-1959. Interior view.

Zevi (1950) had examined the principal elements in modern architecture, which are all essential for Wright's organic architecture:

- a) The Space Within As a Reality: A cube has no spatial reality in the human sense: it is purely stereometric figure. In Wright's houses, on the other hand, the spatial organization is organic: both in plan and in elevation they corresponds to the

activities of life and to the pleasure of the eye. [9, p. 105] Wright had thought in terms of interior space, instead of thinking in terms of plan and elevation. This gives to his rooms a freedom of shape and independence of the square and the rectangle. And, this awareness of internal space leads to a spatial continuity which embraces all rooms. [9, p. 106]

b) The Free Plan: Zevi (1950), distinguished between Le Corbusier's theoretic free plan and the organic free plan which had been applied by Wright ever since 1900. Le Corbusier's principle in its extreme form is very simple; merely that houses should be designed without any internal partitions and divided up just as the owner happens to like. Wright has never followed this principle: for him a free plan had always been a point of arrival and not a point of departure. Moreover the technique of timber construction which Wright used in his houses allowed him less freedom than a Miës or Le Corbusier who worked in reinforced concrete or steel. As a result, although Wright made use of movable partitions and treated a number of rooms as parts of a whole, he attained spatial continuity not by following any formal and mechanical system but simply by studying human needs and necessities. [9, p. 106] In Wright's work the free plan and 'the space within as a reality' are one and the same thing. He was the first of the modern architects to make use of the living-room spanning two floors in small houses and also to put up the living-room on the first floor, leaving the ground floor to accommodate services. And he is the first artist in his knowledge of how to use light as natural material for architectonic expression not by means of extravagant window-openings but by means of the graduated play of light and shade. [9, p. 107]

c) The Exterior is a Product of the Interior: His houses develop from an interior nucleus and they open 'like plants'; their conquest of space is centrifugal, whereas at Le Corbusier's Villa Savoye or Miës's pavilion at Barcelona it is centripetal. In the houses by European architects freedom is attained by giving the interior greater flexibility and sometimes, as in the case of Le Corbusier, by bringing the garden into the house. But Wright's work is expansive and he brings the interior out into the open air: in doing so he is continuing a tradition which has been operative since the earliest days of American domestic architecture when a house

was cruciform and stretched outwards, like the sails of a windmill, from a central core which was its fireplace. [9, p. 107] In Wright's buildings the various bodies cut into each other and penetrate each other, forming a complex of structural masses and volumes which is logical and perfect accord with reality. Wright's houses never merely romantic, because it always results from the interior and is the external expression of the rooms inside; and thus the great variety of outlook, with which he endowed his houses from 1900 to 1910 such as Robie House in 1908 in Chicago (Figure 3.1-5), results from organic growth, from interior to exterior. Wright's cubism - and he was practicing cubism before the cubist movement arose - can never be criticized as being a translation of spatial theories into architecture: it is not restricted to a rather artificial arrangement of planes and curves intended to delight to eye. [9, p. 108]

- d) Unity of Interior and Exterior: Here we have two characteristics, in Wright's work they are inseparable. The first European modern architects were in general afraid of nature or even had an aversion of it. We have seen how cubism with its theories of transparency had shattered the antithesis of exterior and interior. But this was affected for the most part with the help of large areas of glass and by bringing external space into the house either in the form of a garden or a verandah. The house was always separated from its surroundings was often isolated from contact with earth by being raised on pillars. Wright took the opposite view of the relation between external and internal space. He has a fellow feeling of nature, and his houses stand happily and comfortably on the earth. They emphasize the beauty of nature. Wright dreams of a house which is steeped and immersed in nature and forms an uninterrupted continuum with its environment. This aspiration he realizes through the use of natural materials.
- e) 'In the Nature of Materials': The modern houses in Europe were white at that time. If they were in the country they make violent contrast with nature. By their geometric shapes as well as by their color they assert man's superiority to the organic world. In Wright's hands rough stone, untreated granite and timber become an artistic treasure. The external timber is never painted. Very often entire sections of walling are built of local material, and the houses seem to have

risen out of earth not only because of their spatial arrangement or because their continues the line of the ground but also by virtue of their physical substance.

- f) 'The House As A Shelter': For Wright the house is a shelter, a covert into which the human animal can retire as into a cave, protected from rain, wind and light. This characteristic of Wright's buildings is partly to be explained by the fact that he builds in the vast expanses of the West where man is in the closer contact with nature. The physical weight in Wright's houses is not justified by local conditions; a house represents a human and a family center, a place of rest and a place where the fruits of labor are harvested.

Frank Lloyd Wright had summarized the meaning of organic architecture in the end of his Message to British Architects of 1939:

"...organic architecture is no more aesthetic nor cult nor fashion but an actual movement based upon a profound idea of a new integrity of human life wherein art, religion and science are one: Form and function seen as One of such is Democracy." [11, p. 44]

3.2 Expressionistic Architecture

Expressionist architecture was a short lived episode, but an inventive and effective one in the history of architecture. The roots of expressionist architecture are to be found in the Art Nouveau and also in the work of individualist architects in Germany between the wars. In the architectural dictionary of *Ansiklopedik Mimarlık Sözlüğü*, Hasol describes the term expressionism in the context of architecture:

An art and architectural movement, firstly developed in Germany in between 1910 and 1930. Expressionism, placed origin on the German Art Nouveau called as Jugendstil, benefited from the monumental and symbolic tradition of German architecture. In Expressionistic architecture there are lyricism, spontaneous formation and symbolic approach to any design, rather than being classical formalist approach. Some examples of Expressionistic architecture are the projects and buildings of Polzeig before 1928 and Mendelsohn's Einstein Tower in Potsdam and also some of Behren's buildings. All these examples had been rid of ornamentation for a powerful expression. Basically, expressionism is opposing to rationalism, whereas both have been against institutionalizing in art. In Swiss, Rudolf Steiner's Goetheanum; in Austria, in Vien, Karl Ehn's Karl Marx-Hof Worker's Quarter are the other examples of the first period of expressionistic architecture. After sixties there appears new experiments on Expressionistic architecture. The monumental expressive church of US Air Force Academy designed by Skidmore Owings and Merrill (SOM), the Sydney Opera House designed by Jorn Utzon, and TWA airport terminal designed by Eero Saarinen are some of the examples of the second period of expressionistic architecture.[27, p.157]

In general, for Expressionistic architecture, the period is defined shortly before and after the First World War. Nevertheless, at the conference on Expressionism in Florence in 1964, Bruno Zevi maintained that Expressionism was a permanent feature of modern architecture. And more recently, Borsi and König considered the Expressionist experience in terms of possible alternative to rationalism. [10, p.11] These considerations have been supporting the irrational and the futuristic sides of the expressionistic architecture.

In Özer's (1993) own words expressionism is "one of the two approaches of rejecting right angle as a necessary condition. Expressionism set architects free in transforming the function into concrete, tangible forms." [28, p. 220] In Expressionistic architecture forms were exaggerated and styled, Utopian concepts developed, and in the work of number of architects emphasis was placed on monumentalism, symbolism and on what seemed at first glance to be a 'new

irrationality'. [56, p. 21] Expressionism has been commemorated with the terms which have become definitive through their use by architectural critics and historians: visionary, fantastic, dream and Utopian architecture.

The term 'expressionism' which is closely related to the word 'impressionism' began to be applied to pictorial art in the course of the year 1911. As a collective term denoting a particular stylistic period, 'expressionism' seems to have been used first by German art critics. It appears in the catalogue of the Berlin Sezession exhibition of April 1911, and later in the works of Kurt Hiller and Wilhelm Worringer. [10, p.9] Zevi (1950) is quite agree with this opinion that expressionism in painting, was a reaction against impressionism; in architecture, was a reaction against the various current dogmatism. [9, p. 31] Expressionism is like socialism—the same outcry against materialism, against anti-mind, against the machine, against centralization, for mind, for God, for the human in man. [10, p. 26, 24, p. 29] In contrast to this claim, Expressionist architecture at all, was again dependent upon the wealthy patrons and influential firms who have supported the monumental reformist art of the pre-war period. [10, p. 27]

Although the term 'Expressionism' can still be validly used to refer specifically to a particular phenomenon that occurred within a particular area over a certain period of time. Certain characteristics of Expressionistic architecture are found not only in the work of Expressionist architects but also in some of the work of Charles Rennie Mackintosh, for example, or of Frank Lloyd Wright, or of the Russian Constructivists with their glorification of the machine. [10, p.8]

"Expressionism could have no influence on architecture" declared Sigfried Giedion in his famous book *Space, Time & Architecture*. Giedion took the view that architecture, being an applied art, was too strongly conditioned by such tangible factors as utility, materials, construction and economics to be able to heed the Expressionist call. [10, p.8, 23, p. 19] This might be the reason why Sharp is insisting that "Expressionist architecture began on paper and remained there for many architects" because architecture was primarily concerned with shaping the outward form of a building from a well organized plan. [56, p.79]

Pehnt, insists that expressionism knew nothing of the dialectic of exterior and interior which has to become increasingly important during the twenties. If the buildings of this period are sealed off from their surroundings it is because the unstructured environment was unworthy of the structured inner world of their architecture. The tendency of expressionist architecture was try to draw into itself the earth as a whole. In the Expressionist context the word *Gesamtkunstwerk*, or the 'total work of art' had a double meaning. As normally used it meant the union of all the arts in architecture, but it also referred to the total environment that called upon more than one of man's senses. Expressionist architecture appeals to the eye, to the touch, to the synaesthetic sense. [10, p.19]

Expressionist architecture went hand in hand with a boom in craft industries. Later on, the Jugendstil artists extolled the aesthetic of the machine, yet they designed principally for manual methods of production. In the period that followed, the propaganda of the Deutsche Werkbund brought about a greater acceptance of industrial production in Germany. After the acceptance of industrial mass-production, the Expressionists shared with the critics of modern period. [10, p.30]

Modernismo, the distinctive form of Art Nouveau, came so close to Expressionism as to be distinguishable from it. The most faithful naturalism and the boldest liberties are present in Gaudí's early and later works alike. Many features of Modernismo make it appear to be both a variant and continuation of Art Nouveau and also parallel to Expressionism. [10, p.58]

According to Pehnt in the expressionist period there was a common view that the architect worked under the influence of inspiration, so there was a boom in irrationality. [10, p.34] Beside this argument there was another argument that architecture is more closely and effectively related to life. The Expressionists were not only convinced of the power of expression of the architectural medium, they also placed a high value on the psychological effect of their buildings. "In the last analysis every art is a sculpting of the human being. Architecture is most powerfully and obviously so." [10, p.35, 25, p. 4]

It was not until the International style, however, that history was rejected as a source of inspiration and point of reference. The architects of Expressionism did not go so far. They felt no contradiction as yet between their demand for originality and their appeal to particular periods of history or to exotic cultures. What they looked for in history was not models that they copy but conformation of what they themselves wanted to do. They had no respect for tradition at all. They just took what they could use, transforming what they had taken into something else. They treated the achievements of the past as a yardstick for measuring their own strength. [10, p.49]

3.2.1 Utopic Expressionistic Architecture

German architect Erich Mendelsohn is an important figure in the first period of expressionistic architecture. Although his Einstein Tower (Figure 3.2.2-1) had been erected in Potsdam in between 1917 and 1921, most of his sketches and projects had not been realized. According to Özer (1993) Mendelsohn's Airport (Figure 3.2.1-2) and Railway Station (Figure 3.2.1-1) sketches in between 1914 and 1915, and his other designs (Figure 3.2.1-3 and Figure 3.2.1-4) emphasizes total plasticity and they are far from eclecticism specifically from historical eclecticism. All of them had been uniquely designed according to the semantics of modern abstraction. [28, p. 222] Mendelsohn spent his student years in Munich in the interim between late Jugendstil and early Expressionism. He was particularly attracted to sculpturally moulded form in architecture: he admired Henry van de Velde's Werkbund Theatre in Cologne for its strong contours, its layered masses and its organic unity. [10, p.117]

Mendelsohn's extensive graphic work began in 1914 and reached a climax in the sketches he sent from the eastern front during 1917. Some motifs interested him for a few years, others throughout his life. Most of designs are based on what appears to be a limitlessly extendible series of wave-like bays with slanting or upright piers, unified under a great curved roof, pairs of pylons, or portal-like superstructures. [10, p.119]

Mendelsohn described the essence of these sketches in the subsequent pages as uniformity of outline and the gradation of similar parts. They have something else in common, though: their symmetrical development about a single axis, obscured by the diagonal viewpoint from which they are drawn. [10, p.119]

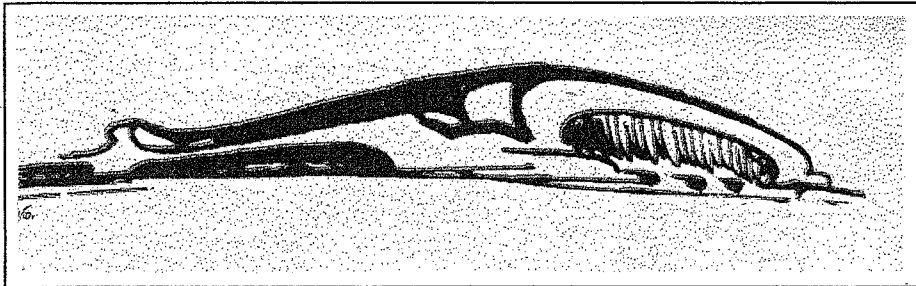


Figure 3.2.1-1 Erich Mendelsohn: Railway Station, 1915.

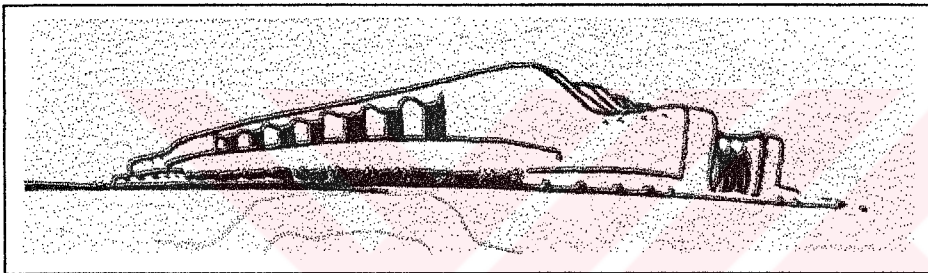


Figure 3.2.1- 2 Erich Mendelsohn: Central Airport for airships and airplanes, 1914

There is no doubt to agree with Pehnt about Mendelsohn's sketches that Mendelsohn thought in terms of volume and only secondarily in terms of function. Even where a plan is not given, his designs seem to be worked out. As Pehnt insists, his sketches are impressive images of isolated and in almost every case easily comprehensible buildings. The power of these sketches (Figure 3.2.1-3 and Figure 3.2.1-4) derives from a further abstraction, which is that the surroundings are irrelevant. Mendelsohn also refused to heighten the effect by distorting the surroundings. No rising suns transfigure his architecture; no plunging perspectives over plains or mountains awaken alpine is in the forms themselves, not in the accessories. [10, p.120]

According to Curtis because Mendelsohn was Jewish, recent attempts at linking his forms to the geometrical symbolism of ancient Jewish mystical texts should not be dismissed out of hand. He absorbed the theory of empathy, according to which the essential character of forms perceived through a translation, mimetically, of the

tactile sense into the forms of architecture. Some of these concerns are already clear in a series of remarkable sketches Mendelsohn drew while serving in the trenches during the First World War. The forms of the buildings are sensed in a state of extreme tension (or dynamism) and the structural stresses are dramatized and accentuated so that parts and whole merged together. For Mendelsohn the tension of a work was increased and enriched by a fusion of the organic with a strong geometrical armature employing axes, and by accentuation of an actual structural system. [8, p.187]

In Zevi's (1950) consideration, the expressionists made short work of the formal canons of functionalism and tried to express the content of a building symbolically through and exuberant, arbitrary plasticism within a literary and mystico-romantic atmosphere. A factory (Figure 3.2.1-7) for the production of optical apparatus was designed by Mendelsohn, with two large openings like gigantic eyes. [9, p. 31]

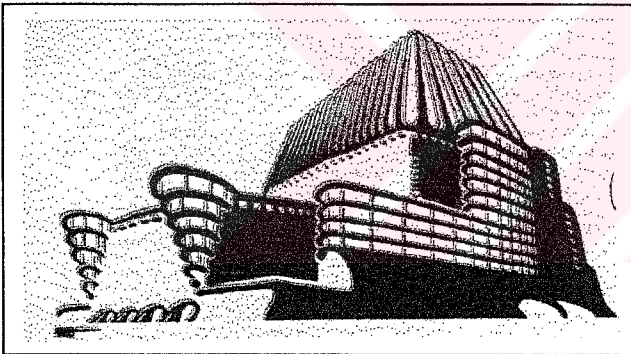


Figure3.2.1-3 Erich Mendelsohn: House of Friendship, 1918.

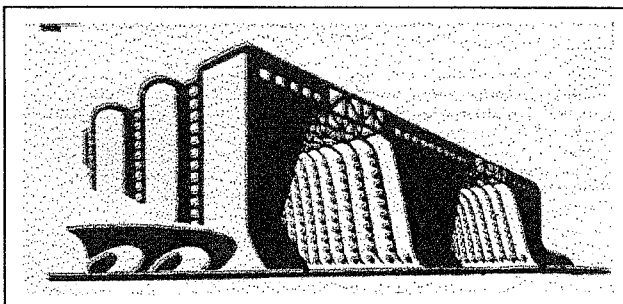


Figure3.2.1-4 Erich Mendelsohn: Silo over a harbor, 1914.

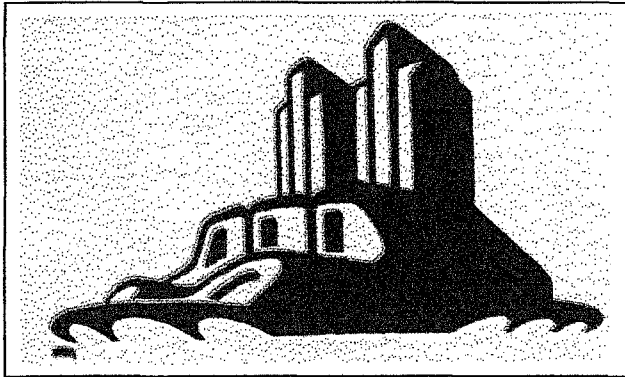


Figure3.2.1-5 Erich Mendelsohn: Sketch, 1917.

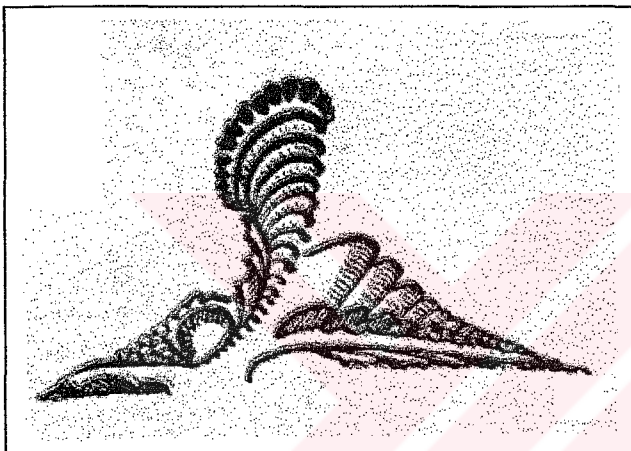


Figure3.2.1-6 Erich Mendelsohn: Fantastic sketch, Pleasure Pavilion, 1920.

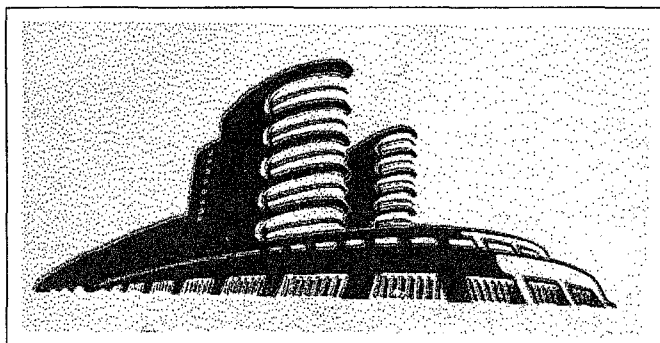


Figure3.2.1-7 Erich Mendelsohn: Sketch for an Optical Factory

Another important figure in the first period of Expressionistic architecture was Hermann Finsterlin. Where most of the Expressionists believed in an anonymous 'Zeitgeist' or 'spirit of the age' whose tools they thought themselves to be, Finsterlin actually believed that there was a biological creative urge in art which made use of

the human medium. Some of his five hundred or so watercolors and ink sketches depict isolated buildings, often drawn from an anthropomorphic patterns. In some cases they display grimacing features or Dada collages or organs. [10, p. 96] Sharp describes his designs as truly organic. As Sharp declares, a building for Finsterlin was to be natural living organism; an idea that was quite different from what Frank Lloyd Wright's concept of an 'organic' building designed 'in sympathy with nature'. In Finsterlin's work (Figure 3.2.1-8) the tension and energy inherent in a building's enveloping materials were exploited plastically to form the skin and bones enclosing the habitable spaces. The interiors of his buildings were liberated from the restraints of right angles. [56, p. 97]

The apogee of Finsterlin's fantasy, however, is represented by a group of works dating from around 1920. These depict sections of a single, exciting from landscape in which interior and exterior are drawn together into continuous planes and spatial entities. As in Taut's 'Alpine Architecture', the forms of the earth are here extended imaginatively into the realm of a second, artistic nature. [10, p. 96]

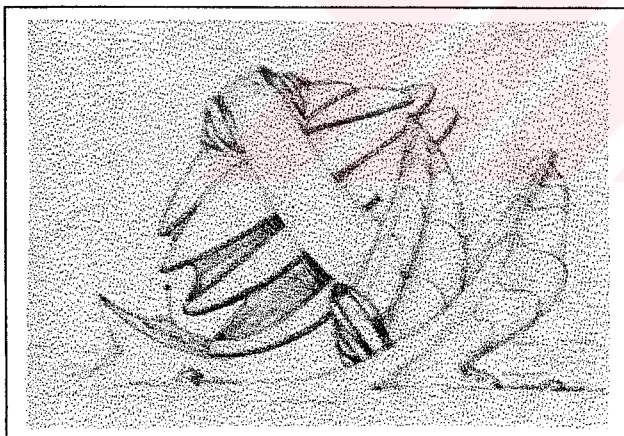


Figure 3.2.1-8 Hermann Finsterlin: Casa Nova (XI-5), 1920. Watercolour, photograph retouched in pencil.

One thing Finsterlin shared with Art Nouveau artists was an interest in natural forms as source of inspiration. Unlike many Art Nouveau artists, Finsterlin condemned straight translation of natural into artistic forms. Finsterlin has always devoted that he is a Utopian. Form meant everything to him. With the discovery of his 'giant hollow sculptures' (Figure 3.2.1-10), he thought the future is already at hand. Finsterlin had no feeling for reality of building, nor did he wish to cultivate one for fear of losing

his freedom of vision. Where materials are indicated in his drawings the reference is to their appeal to the eye or touch rather than to their structural possibilities. The same formal idea bears different functional designations—housing (Figure 3.2.1-8), concert hall, arts center, vegetarian restaurant, or chapel. Frequently the sculptural mass was evolved without any preconceived ground plan; conversely he drew fantastic ground plans with no suggestions for structures that they might represent. [10, p. 98]

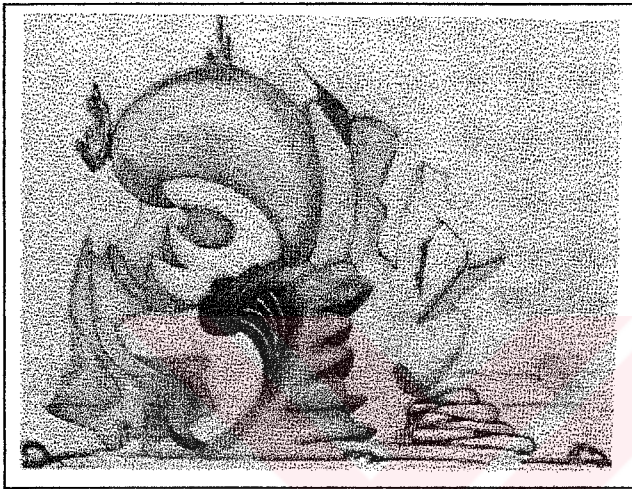


Figure 3.2.1-9 Herman Finsterlin: Casa Nova (XI-3), 1923. Watercolor.

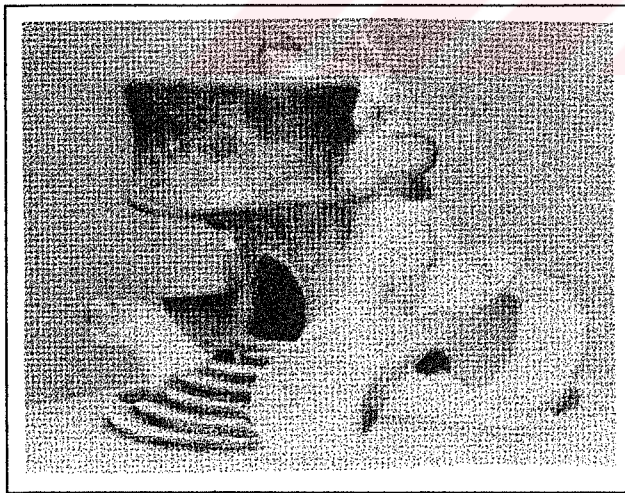


Figure 3.2.1-10 Hermann Finsterlin: Villayette. Plaster model.

Finsterlin and the other Expressionists overlooked the fact that Gaudí, in the luxuriant vegetation-forms of his ground plans of Casa Batlló (Figure 2.2-22) and Casa Milá, (Figure 2.2-27) moved further away from traditional architecture than any Expressionist ever did in anything that was actually built. [10, p. 60]

For Finsterlin a building was a "work of all arts together, a gigantic hollow sculpture with endless possibilities for exterior and interior shaping." [56, p. 98] Unfortunately, none of Finsterlin's projects were erected.

In the history of art, Steiner's creations are perplexing, for they stand in virtual isolation. In them, architectural Expressionism was taken an extreme; but they scarcely show any recognizable origins, and they established no tradition except within the anthroposophical movement itself. The chief preconditions of anthroposophical architecture were Steiner's genius and the fact that he was a total outsider. In Steiner's eyes architecture was an important medium of 'white magic' by which he meant the careful preparation and training of the powers of the human soul so that it would not be overwhelmed by the powers of the spiritual world. [10, p. 137]

In a manuscript, Gropius claims that "wherever a new saving truth, a new religious idea is born, there too the swing to art is most likely to take place, for art is none other than the transforming of supramundane thoughts into objects of sensory perception" [10, p. 35; 40] This type of thinking led easily to the old tripartite pattern of eschatology: 1. the lost Paradise, which in the eyes of architects was represented by India or the Gothic Period; 2. the chaotic present, marred by intellect, competitive strife, and profit-oriented thinking; 3. the new era to come, the rebirth, the age of the spirit, of faith, of love, the communion of peoples, and all the other chiliastic expectations of the post-war period. Significantly, the images used to describe the age to come were taken from the fund of religious metaphor. [10, p. 35]

This unknown religion of the future has been partly illustrated in Taut's watercolors. This was the perfect ground for the Utopianism. Thus the architects in Germany reverted to the creation of paper projects in which they foresaw the image of a new society. Bruno Taut, in his watercolors of *Alpine Architektur* (1919) portrayed collective buildings of glass facets, rising like crystal from glaciers and mountain peaks. These were meant "to embody an apolitical socialism, an ideal realm for the brotherhood of man, in which national boundaries and individual greed would

dissolve away and in which a natural society undisturbed by inherited class divisions would emerge." [8, p. 183]

Probably, the crystal form in expressionist architecture symbolizes this unknown religion. The editor of *Wendungen*, Wijdeveld illustrated the meaning of this crystal symbol in a passage: "The crystal conceals nothing. Its secret lies in its transparency. Its surfaces reflect the light of the external world" [10, p.37, 26] According to Pehnt, the crystal is the emptiness in which the whole is mirrored - a suitable symbol not only for the Expressionists' penchant for mysticism but also for that specifically Expressionist non-religious religiousness. [10, p.37] Indeed, crystalline forms, star shaped plans, and decorative elements drawn from the mineral world are legion in the years of Expressionism. [10, p.38]

The prophecy of a Dionysian Age, the long shadow of Friedrich Nietzsche (1844-1900) lies across Expressionist architecture as it lies across Expressionist poetry. The sketches of Bruno Taut are annotated with quotations from his works. *Also Sprach Zarathustra* (1883-85) was a canonical text for the Expressionists. Nietzsche's rejection of the bourgeois world, history and established authority and his scorn of the state for the people's sake made him appear the only liberated German of his time. His description of the creative act in the 'Birth of Tragedy' in terms of ecstatic revelation corresponded to the Expressionists' view. [10, p. 41] The essay 'The Birth of Tragedy' is concerned with music and dramatic art in which Dionysian enchantment is the important factor, and Nietzsche indicates that "In this enchantment the Dionysian revealer sees himself as a satyr, and as a satyr he in turn beholds the god that is, in his transformation he sees a new vision outside himself as the Apollonian consummation of his state. With this new vision the drama is complete." [56, p. 4]

Taut, a pacifist, did not believe that the embodiment of his social ideals would suffice to contain human aggression. Thus he refers in *Die Auflösung der Städte* to his monumental undertaking in *Alpine Architektur* of 1919 (Figure 3.2.1-11). This 'alpine architecture' was to transform the entire chain of mountains from the lakes of northern Italy to the Mont Rosa into a fantastic landscape of Grail-shrines and crystal-lined caves. In a second stage—'earth-crust architecture' all the continents of

the earth were to be covered with a glass and precious stones in the form of 'ray-domes' and 'sparkling palaces'. With his 'stellar architecture' Taut extended to the cosmic sphere. [10, p. 82]

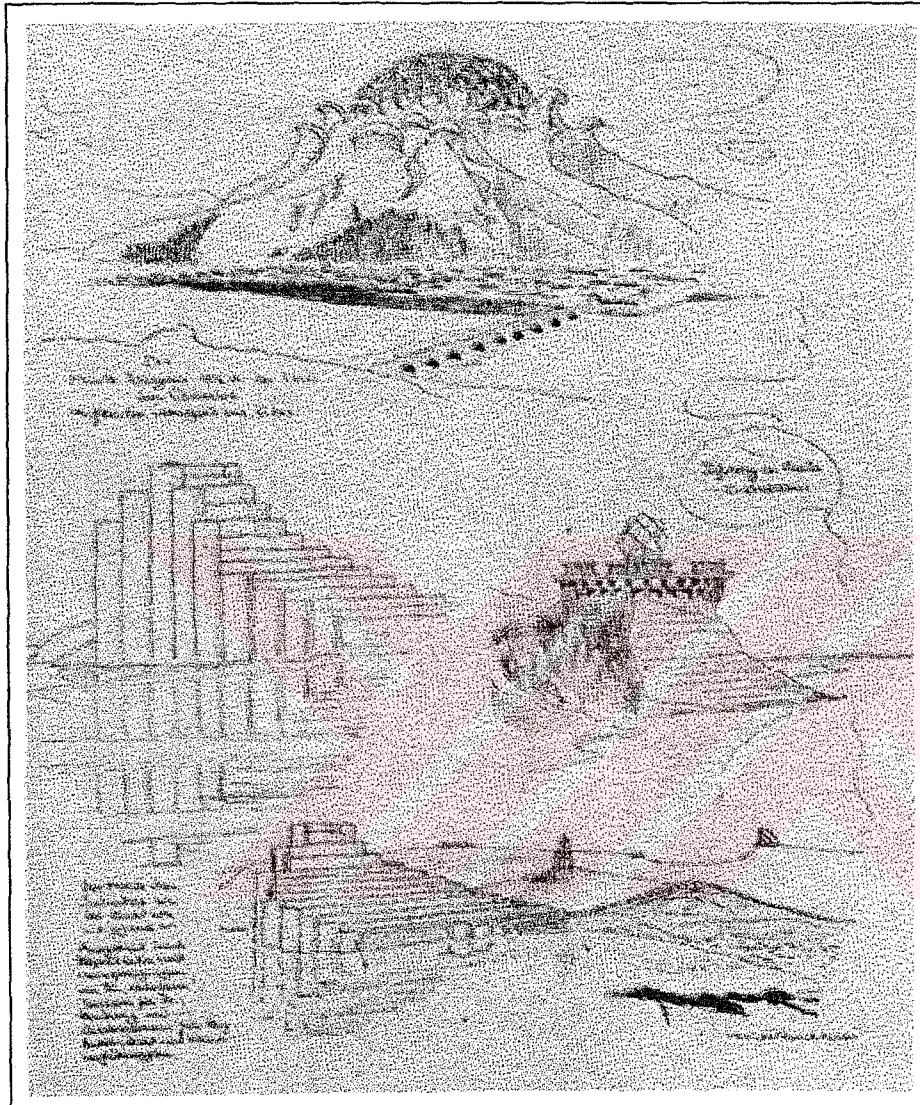


Figure 3.2.1-11 Bruno Taut: "Monte Resegone, and other 'wrought' mountain peaks"
Illustration from *Alpine Architektur*, Hagen, 1919.

Taut's first draft of *Alpine Architektur* is dated 1917. Similar thoughts were expressed by Scherbart, and by other authors as well, of whom the most prominent was Nietzsche. Taut's own creation in architecture seems not very different than the following passage quoted from Kohtz's *Gedanken über Architektur* (1909): "The time may come when man has the power ... to play with mountains as child play with sand. To create works of art as high as Himalayas (Figure 3.2.1-12), formed from his imagination as the jeweler forms a casket for his jewels, perforated like lace, with

stone used like metal, forest and field like jewels, glaciers like pearls, and water like crystals ..." [10, p. 83; 41, p. 3]

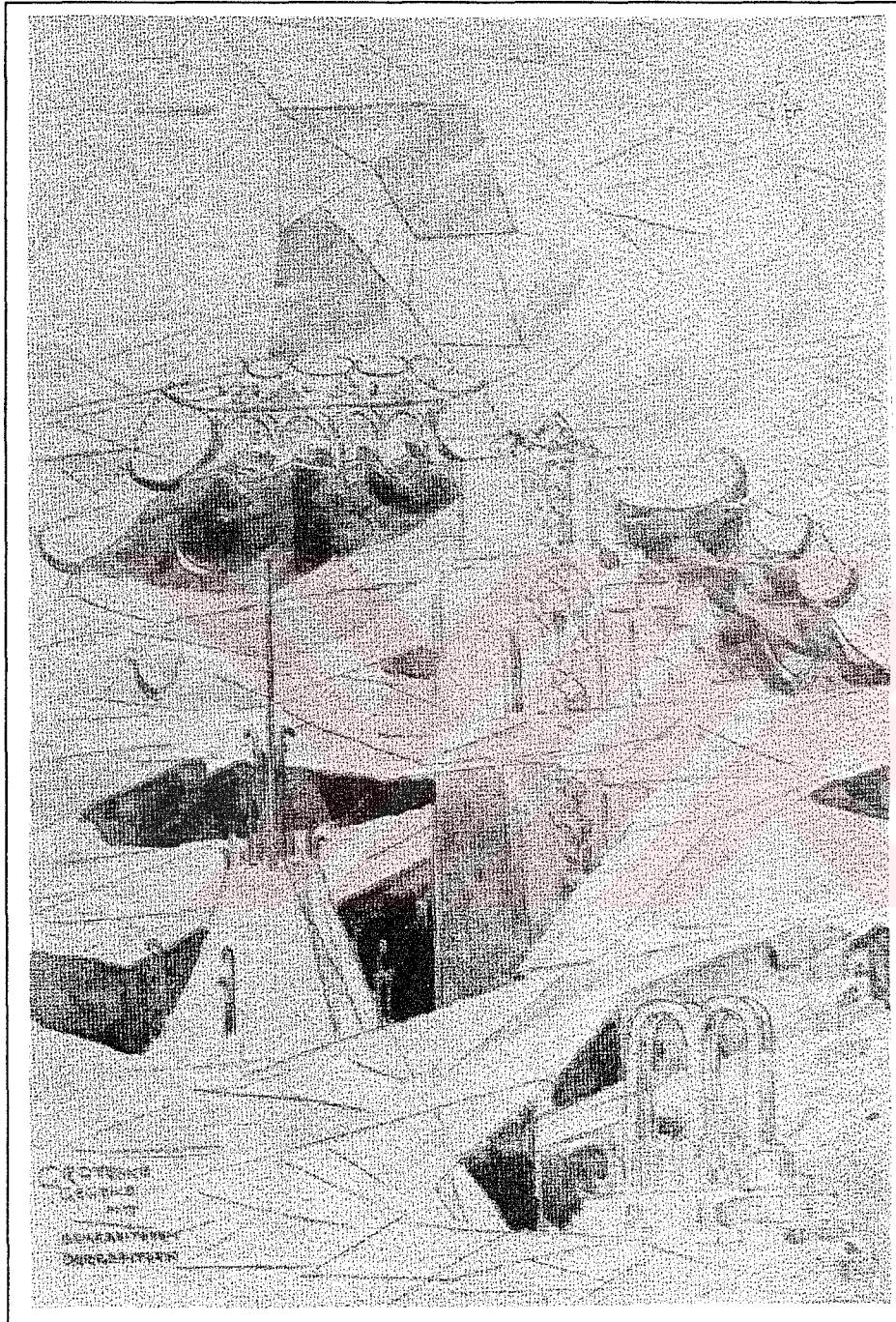


Figure3.2.1-12 Bruno Taut: "Grotesque Landscape with wrought mountain peaks"
Illustration from *Alpine Architektur*, Hagen, 1919.

The thirty plates of Taut's *Alpine Architektur* were drawn and coloured in a way which made use of all the techniques of the comic strip: time-sequences in order to determine figures; changes from overall view to detail which are reminiscent of film;

different scales used in the same illustration; text incorporated into the figure; textual elements exploited visually—color, capitalization, strength of stroke, rhythmic successions of lines—we even find him using speech-bubbles. [10, p. 83]

Similar to Finsterlin; both Mendelsohn and Taut acknowledged their debt to Jugendstil sources: Taut wrote that he had had Olbrich's 'delightfully drawn sketches' in mind when writing his *Alpine Architektur*. [10, p. 54; 42, p.24]

3.2.2 Early Examples of Expressionistic Architecture

In 1920 Mendelsohn had a chance to translate his biomorphic fantasies and intuitions about a new world order into an actual building when he was asked to design an observatory at Potsdam. The Einstein Tower (Figure 3.2.2-1) was to combine a telescope with an astrophysical laboratory for the exploration of spectroanalytic phenomena. Mendelsohn organized these requirements over an axial plan, with overlapping curved forms in high tension rising to a crescendo in a tower telescope. The surfaces of the building were modeled as a free-form sculpture, windows and other openings being made so as to accentuate the overall dynamism. [8, p. 187]

The Einstein Tower is one of the most German Expressionist buildings. It looks as though it was kneaded by some godlike hand, to create a dramatic play of light and shade - the light modulated by the curved surfaces, and the shade cutting deep into the mass of the building, forcing it open. No other building of the period invites such anthropometric epithets—grim threatening. What he build was not merely a laboratory: it was a monument. One contemporary thought to relate the building's monolithic form to its namesake and called it 'Ein Stein' which means 'a single stone' [10, p. 121]

Ironically, this monument to the sculptural potential of concrete was only partially made of that material. [10, p. 121] Due to a delay in the delivery of cement, the Einstein Tower was built in brick and covered with a layer of concrete. In fact the material was not at all the single 'plastic' sculptural one it appeared but brick cosmetically coated in plaster and cement. [8, p. 187]

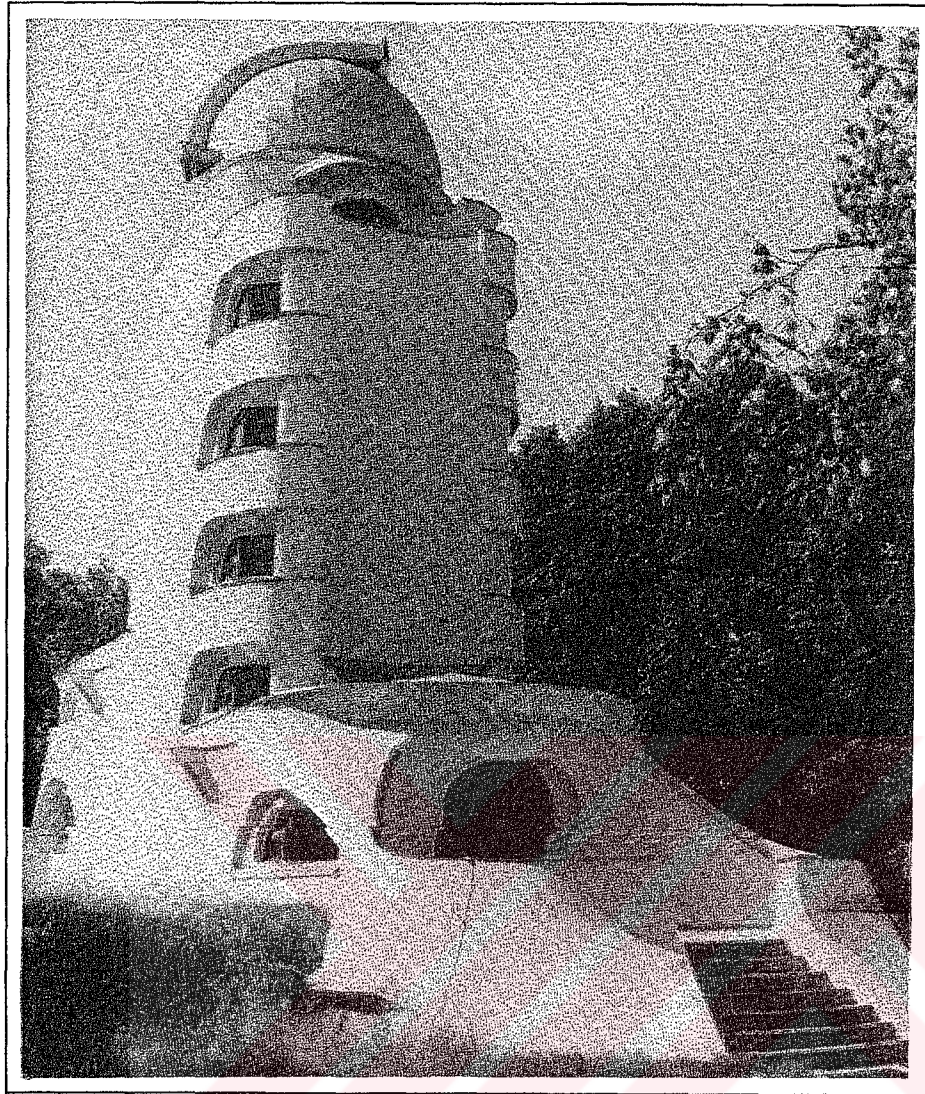


Figure 3.2.2-1 Erich Mendelsohn: Einstein Tower, Potsdam, 1917-21.

'Expressionism' was scarcely mentioned in the early literature on modern architecture, perhaps because the extreme bizarreness and emotionalism underlying some works labeled this term were at odds with the personal taste of the historians because the tendency to seek out a unifying 'Zeitgeist' at the core of modern culture left them looking for a single 'true' modern style. A work like the Einstein Tower by Mendelsohn sat awkwardly in this scheme of things, while a curious creation like the Goetheanum (Figure 3.2.2-3) at Dornach outside Basel, Switzerland by Rudolf Steiner, simply had to be left out of the account altogether. [8, p. 289] Indeed, Steiner was not an architect. Actually he was a philosopher and in 1902 at the age of forty-one he became the leader of the Theosophical Society in Germany. From this society, in 1912 he and his followers derived and later founded the first Anthroposophical

Society. This movement 'Anthroposophy' took its name from the Greek words; Anthropos—man, Sophos—wise, the wisdom of mankind. Anthroposophy, Steiner wrote in 1925:

"is the path of knowledge to guide the Spiritual in the human being to the Spiritual in the Universe. It arises as a need of the heart, of the life of feeling; and it can only be justified inasmuch as it can satisfy this inner need." [56, p. 147]

This mystical approach—Anthroposophy, extended into the world of Steiner's architecture. According to Sharp Steiner was:

"... a spiritual romantic inspired by the sensuous forms to be found in nature. In using these forms he appointed some a symbolic purpose and lent to others a static quality. Many of the forms he used and invented had a powerful erotic quality—or perhaps were unconscious fertility symbols—indicating, no doubt, his sympathy with nature. A similar tendency towards this kind of eroticism in art forms can be clearly seen in the religious and symbolic sculptures of primitive societies..."

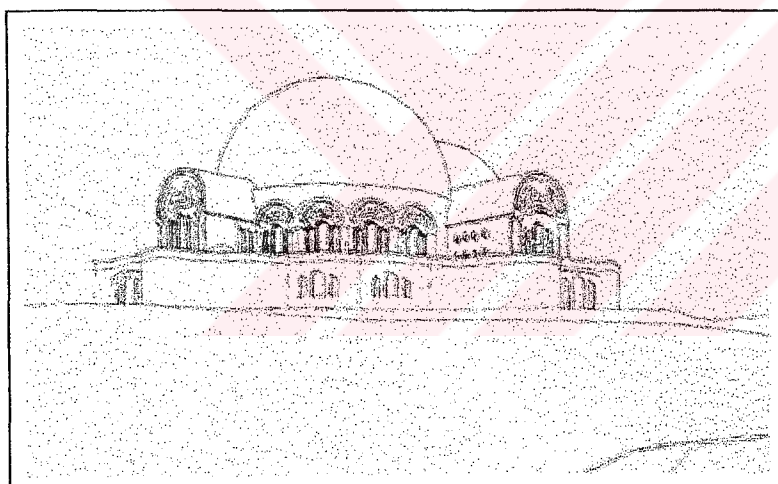


Figure 3.2.2- 2 Rudolf Steiner and Carl Schmid-Curtis: Preliminary design for the first Goetheanum, Dornach, 1913. View from the north-west.

Steiner's excursion into architecture began almost by accident, and quite late in his career. The Goetheanum, which was the main center of the Anthroposophical Society, would be a high school for spiritual science. In 1908, Steiner conceived the idea of a double dome. Two spherical shells side by side took the place of the main ellipsoid, and in a later stage of the design—which became the first Goetheanum (Figure 3.2.2-3)—the complex intersections of ellipsoid ambulatory domes with the main dome were also abandoned. With its two domes, the building was informed with a tension between two spatial poles. The practical justification of the new

architectural idea lay in the mystery plays which Steiner wrote and the eurythmic performances which called for a division into stage and auditorium. [10, p. 139]

The concept of a 'Christian' two domed structure was the assignment that Steiner laid before the architect. The detailed solution of the plan was provided by a geometrical constructions worked out by Schmid-Curtis (Figure 3.2.2-2): the points of intersection and the radii of the two circles, as well as the course of the inner circle of columns, were worked out on the basis of a pentagram construction. The divisions fell into the ratio of the Golden Section. The absolute distance between the centers of auditorium and stage were set by Steiner at 21 meters, thought to be length of Solomon's Temple. [10, p. 140]

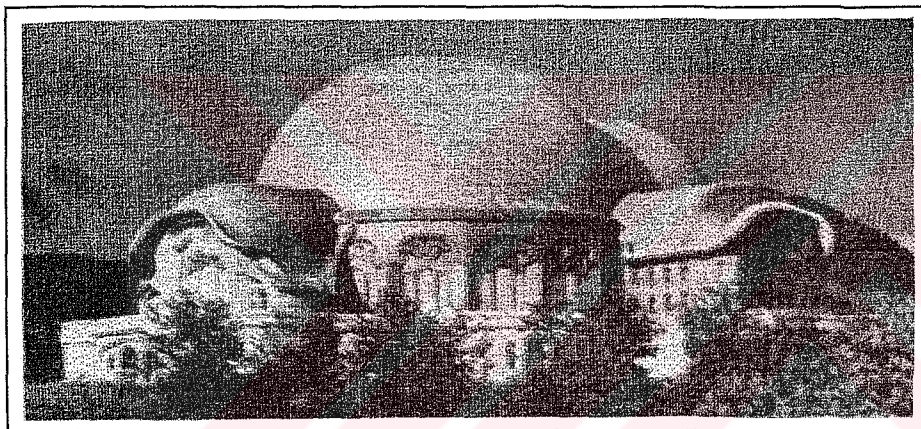


Figure 3.2.2-3 Rudolf Steiner: First Goetheanum, Dornach, 1913-20. View from the south-west.

The Goetheanum was the headquarters of Steiner's World Anthroposophical movement and included an auditorium for mystical plays and congress. Combining two domes over a radial/polygonal plan, this earlier structure had been conceived as a cosmogram of sorts, marking the energy center of Anthroposophy as a system of beliefs and ideas. [8, p. 290]

Steiner himself emphatically denied that the Goetheanum incorporated any secret mystical allusions. The proportions and forms of the building, he maintained, had grown out of their own intrinsic life, and the people who created them had, in obeying their own artistic perceptions acted in conformity with the principles of 'the creative cosmic world'. The principle underlying the design of capitals and bases of

the internal supports and the frames of windows and doors was derived from Goethe's morphological studies: basic motifs alter their form, according to the situation and circumstances in which they occur. Steiner did not regard as 'mystical allusions' the fact that the seven pairs of supports in the larger room were meant to evoke the rhythm of human life, the epochs of civilization and the souls of the various peoples on earth, and that the twelve capitals of the smaller room were thought of as symbols of the planets, as cosmological ciphers. [10, p. 140]

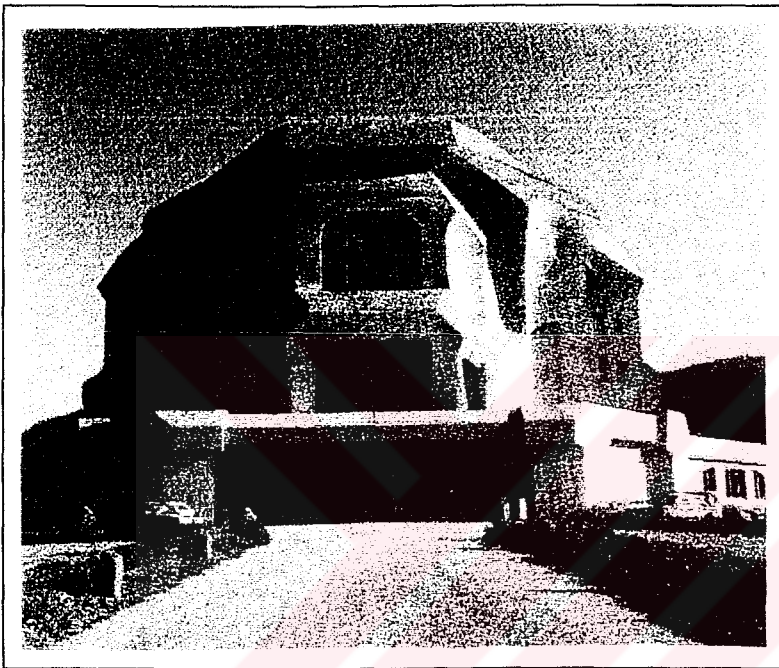


Figure 3.2.2-4 Rudolf Steiner: The second Goetheanum, Dornach, 1925-8

The flow of surfaces and the dynamism of elements in the Goetheanum need to be understood in the light of Steiner's intuition that all phenomena were in a transition from one state to another, that all tangible and visible things were the outward expression of inner and invisible process. To the rear of the site was a curious abstraction of a tree, a virtual totem, an allusion, perhaps, to Goethe's theories on the origins of plant species. Steiner may have been influenced by Kandinsky's ideas on the spirituality of forms guided by 'inner necessity', by the crystalline, Alpine imagery of Bruno Taut, even by certain of the formal precepts of Art Nouveau. [8, p. 290] Steiner later alluded to a different geometrical arrangement for the Goetheanum plan which would have divided the length of the axis into two, three, four, five, seven and twelve equal parts. The numerical proportions implicit in both plans naturally offered abundant material for meditation. Bruno Taut's speculations on the effect of

the numbers three and seven, the numerical mysticism of the early Bauhaus compared to the schemes of the Anthroposophists. [10, p. 140]

On the night of New Year 1922/23 the first Goetheanum (Figure 3.2.2-3) burnt right down to its concrete platform. Second Goetheanum (Figure 3.2.2-4) was opened in 1928, three years after Steiner's death. The choice of reinforced concrete as the material for the new building, although it was natural after fire had destroyed the wooden domes, he interpreted as a surrender. [10, p. 148]

This 'simpler spiritual home', as Steiner's wife called the new building, is in actual fact one of the most magnificent pieces of sculptural architecture of the twentieth century. Its monumentality derives not from absolute dimensions but from the all-inclusive volumetric treatment of the building. The curves of and the edges of the raw concrete mould reflect the light differently at every moment of the day, from a pale, silvery gray to the deepest, darkest shadow. [10, p. 148]

The major buildings erected at Dornach before Steiner's death in 1925 are rightly attributed to him, rather than to the particular architect who carried out the work. Steiner conveyed his plastic and architectural ideas in a variety of ways—through verbal instructions, sketches and models. [10, p. 137]

The first buildings erected at Dornach do not in fact show any sign of formal homogeneity. The slate-covered domes of the first Goetheanum are treated as stereomatically pure volumes. The sculptural treatment of detail varied in extent because the lower part of the building was executed in reinforced concrete and only the superstructure, a timber-frame construction, could be thoroughly worked on a delicate scale. [10, p. 143]

A house of dental surgeon, Haus Duldeck for Dr Grossheintz (Figure 3.2.2-5) stylistically stands midway between the first Goetheanum, with which it is contemporary, and the second Goetheanum because of somehow artificial forms of the roof. The forms of the roof are reminiscent of Gaudí's apartment houses in Barcelona. In the post-war period Steiner clearly felt the need for establishing a

hierarchy of forms and keeping the free plastic solutions in reserve for the main building. [10, p. 145]



Figure3.2.2-5 Rudolf Steiner with Hermann Moser and Ernst Aisenpreis. Haus Duldeck for Dr Grossheintz, Dornach, 1915-16. View from the north-east.

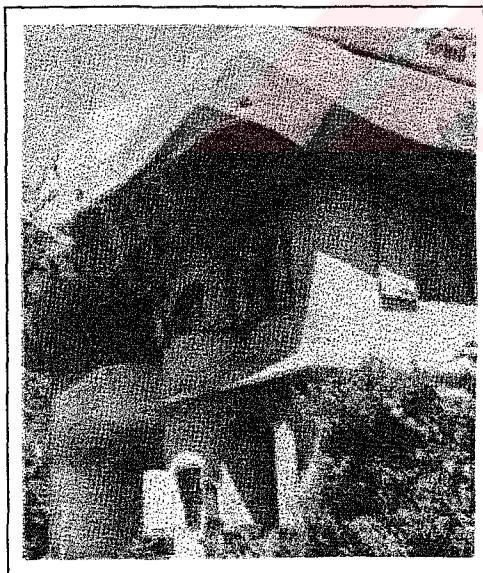


Figure3.2.2-6 Rudolf Steiner with Hermann Moser and Ernst Aisenpreis. Haus Duldeck for Dr Grossheintz, Dornach, 1915-16. View from the south.

Kenneth Bayes, an English architect was a prominent member of the Anthroposophical Society and was well acquainted with Steiner's writings. In an analysis of Steiner's architecture, Bayes suggested three important characteristics: movement, sculptural form, and metamorphosis of form.

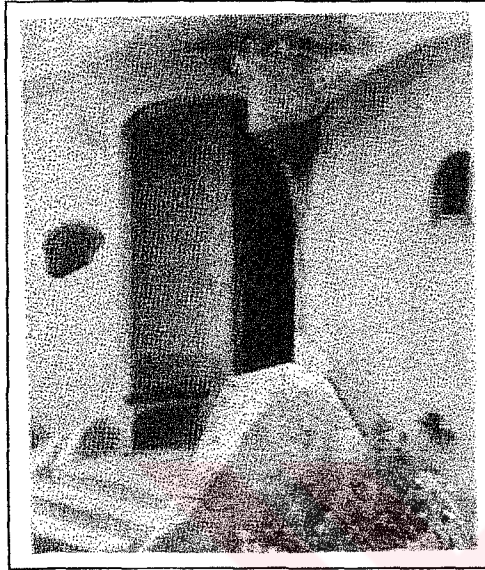


Figure 3.2.2-7 Rudolf Steiner with Hermann Moser and Ernst Aisenpreis. Haus Duldeck for Dr Grossheintz, Dornach, 1915-16. North entrance.

The first character movement, is similar to the linear qualities of Art Nouveau, can be seen in the roof of the first Goetheanum (Figure 3.2.2-3). The second one is the sculptural quality, which can be seen in the second Goetheanum (Figure 3.2.2-4) in the form of a jelly mould, described by Steiner's metaphysical ideas as 'architecture stands on the earth in a central position. The third quality, metamorphoses is most commonly associated with Steiner's sculptural and architectural work. In Saarinen's TWA Terminal building, each part was the consequence of another and all belonged to the same form-world. This feature of Saarinen's architecture may be corresponded to the metamorphosis of Steiner's architecture. Bayes suggest a meaning for metamorphosis:

Metamorphosis in terms of building means the repetition of a particular motif (or motifs) in different parts of the building. This must not be an exact repetition, but with the motif changed or developed in its form. The motif must not just be changed in any way, but changed in organic development. [10, p. 145]

3.2.3 Later Examples of Expressionistic Architecture

In architecture, Le Corbusier who is one of the leading theoreticians and defense councils of rationalism—a poet of right angle—in the mid of the twentieth century made the art and architecture critics surprised with his extra-ordinary Ronchamp Chapel. [28, p. 224] At the time of its completion in 1954, the Chapel at Ronchamp shocked the critics who flocked to see it. Pevsner complained of retreat into 'irrationality' (thus betraying his prejudice that Le Corbusier's earlier works had been somehow 'rational') while the British architect James Stirling was dismayed by 'conscious imperfectionism' and 'mannerism', and questioned whether the building 'should influence the course of modern architecture. [8, p. 420]

In the years between 1950 and 1955, Le Corbusier's most personal statement of the plastic possibilities Notre-Dame-du-Haut (Figure 3.2.3-1) had been erected in Ronchamp, France. This small church serves as a hilltop chapel and a focal point for pilgrimages. The interior (Figure 3.2.3-3) is an almost cave like retreat; from the exterior pulpit. As Jones claims that Le Corbusier's Chapel at Ronchamp (Figure 3.2.3-2) evokes images of a nun's coif or abstract sculpture of a man. [29, p. 37] The inventions of Ronchamp were not without precedent in Le Corbusier's paintings, in his rugged wooden sculptures of the late 1940s, in his sketches of shells and boats of the early 1930s—the roof structure was, in fact, directly inspired by a crab-shell—in the landscape sculptures of the buildings in his Algiers schemes, and in the curved rubble wall of the Pavilion Suisse. [8, p. 420]

The church itself is first seen by the pilgrim approaching on foot as a great coif rising on the brow of the hill. The walls made of rubble left over from the previous chapel are covered with concrete stucco whitewashed to bring out its rugged surface. The actual supports are columns buried within, and appear only where the space between wall and roof is left open. The walls themselves arbitrarily thickened for plastic effect, are pierced by irregular windows, in which glass carrying votive prayers. [29, p. 41]

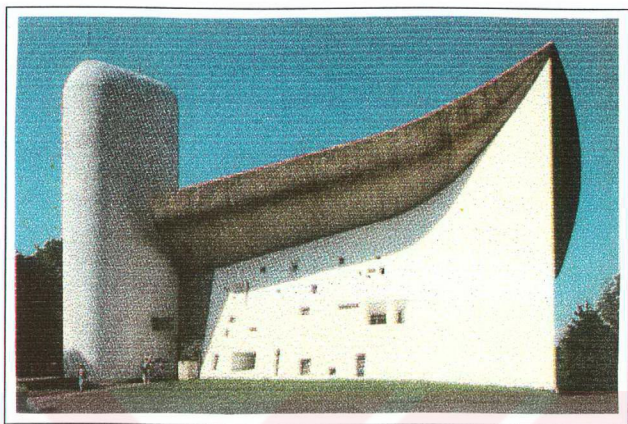


Figure3.2.3- 1 Le Corbusier: Chapel of Notre-Dame-du-Haut, Ronchamp, 1950-1954.

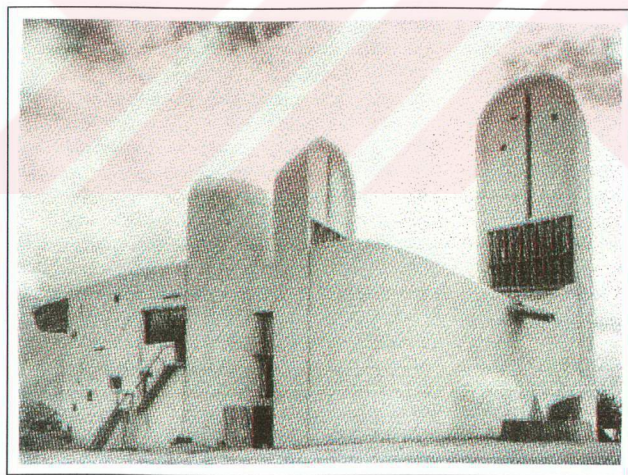


Figure3.2.3- 2 Le Corbusier: Chapel of the Notre-Dame-du-Haut, Ronchamp, 1950- 1954. View from the north-west.

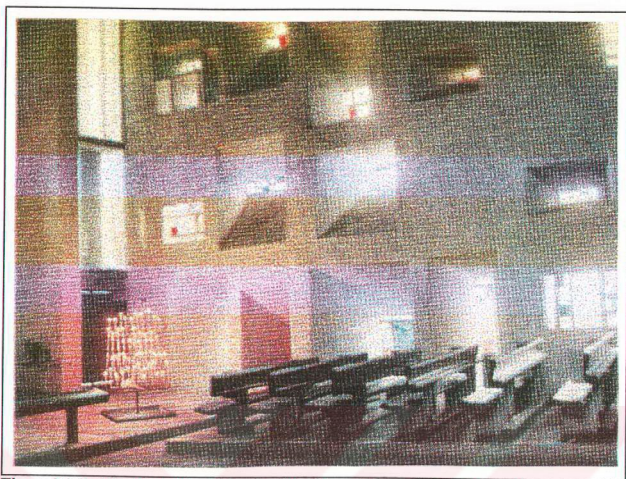


Figure 3.2.3- 3 Le Corbusier: Chapel of the Notre-Dame-du-Haut, Ronchamp, 1950- 1954. Interior.

The main entrance to the Chapel is through a glazed door covered with one of Le Corbusier's designs. Exterior pulpits serve during pilgrimages; the interior floor, which, following the line of the site, slopes toward the altar, is ill lighted, dark and broadening. Only the chapels, which glow a brilliant red as the light funnels down from the clerestories overhead, relieve the austerity. Emphatically, this is no 'machine for praying,' but a magnificently modulated piece of sculpture. As a combination of painting, sculpture and architecture, it expresses all three sides of Le Corbusier's artistic genius, a unity achieved through the synthesis imposed by a man. [29, p. 41]

The Chapel of Notre-Dame-du-Haut (Figure 3.2.3-1) at Ronchamp of 1950-4 stands brooding on a hilltop in the Vosges mountains with views across valleys of evergreens towards the far horizons. A dark roof with pointed angle and complex curvature rests uneasily on convex and concave battered-rubble walls punctured by irregular openings and sprayed in whitewashed gunnite concrete. The fluidity of resulting composition is held in check by three hooded towers facing in varying directions. These and the undulating surfaces echo the pressures of the surrounding landscape. The interior is hollowed out like a cave and has a sloping floor which

focuses attention towards the altar. The smaller chapels are top-lit within the towers, while the perforated south wall pours light into an otherwise sober interior. The junction between roof and walls is handled deftly with a slight gap so that a crack of daylight gleams through; what seemed solid from outside becomes planar and thin from within. Such ambiguities of mass and space, support and supported, are basic to the formal character of the chapel, and the reading vary as one changes position. Ronchamp is a sculpture to be seen in the round; exterior and interior movements of the spectator become involved with the dynamics of the composition and are central to the concept of the work. [8, p. 420]

When we look at the roof terrace of Le Corbusier's Unité d'Habitation, we see a series of sculptural objects—the gymnasium building, the crèche, and the bizarre form of the ventilator stack. Curtis defines this stack as reminiscent in its surreal mood of chimneyscape by Gaudí. [8, p. 438]

One of the important architects of the modernist period was Eero Saarinen. He, certainly, described himself as a child of his period and continued: "I am enthusiastic about the three common principles of modern architecture: function, structure, and being part of our time." In his understanding, the first principle of modern architecture, functional approach to a design may sometimes become overwhelming principle in directing the formula of design. According to Saarinen, in this period, the principle of structure has moved from being 'structural honesty' to expression of structure' and finally to 'structural expressionism.' For him, structural integrity is a potent and lasting principle. The third common principle of modern architecture, in his words, is "the awareness of thinking and technology of our time." [30, p. 6]

Saarinen had believed that great architecture is both universal and individual. The universality is achieved because the architecture is true expression of its time. The individuality comes through as a result of special quality. This quality is the philosophy and thinking behind architecture: it is the expression of man's unique combination of faith and honesty and devotion and beliefs in architecture, in short, his moral integrity. [30, p. 10]

He initially studied sculpture at the Académie de la Grande Chaumière in Paris (1929/30) and later architecture at Yale University in New Haven, Connecticut, graduating in 1934. [32] He returned to Cranbrook in 1936 and from 1937 worked together with Charles Eames on furniture design. In 1941 they won the two first prizes in the 1940 organic furniture design competition organized by New York Museum of Modern Art. Until 1950 Saarinen was in his father's architectural practice. Some of his later architecture uses dramatically curved forms, notably his TWA Terminal (Figure 3.2.3-8) at Kennedy Airport in New York between 1956 and 1962; the mobile lounges at Kennedy were an ingenious amalgam of architecture, design and engineering. [7, p. 427]

Although Saarinen describes himself as a modernist architect, in the history of architecture, he has been considered as an expressionist architect in the second period of the term. For Saarinen, expression does not seem to much of a problem for the ordinary buildings that are really just part of a 'building space', whereas expression is important for the crucial building. He thought that the character or expression of any building can only be achieved if it is itself total expression, like any work of art, it must be dominated by a strong, simple concept. In Saarinen's words "architecture must make a strong emotional impact on man." [30, p. 10] His wish that a building make an expressive statement established new horizons for modern architecture. He largely initiated a trend, however, toward exploration and experiment in design—a trend that departed from the doctrinaire rectangular prisms that were characteristic of the earlier phase of modern architecture. [31]

In June 6, 1961, Saarinen talks to a friend about the Ingalls Hockey Rink (Figure 3.2.3-4):

"...I would agree the Hockey Rink marks an important moment in my work. You could say it strengthened my convictions about making everything part of the same 'form-world' and gave us confidence about handling vaults and suspended roofs. It influenced both TWA and Washington airport." [30, p. 54]

Saarinen describes the concept of the Ingalls Hockey Rink (Figure 3.2.3-4) which let him arrive at a completely logical consequence of the problem: The functional requirement of the problem was standard size of a hockey rink with seating units.

These requirements indicated a stadium-like plan, roughly oval in shape, with access corridors or ramps around the seating area. The question for Saarinen was how to best to span this huge area. Saarinen and his team wanted it to be both structurally effective and beautiful. Their arrival soaring form was further emphasized by the lighting fixture at the entrance end, which they commissioned from a sculptor, Oliver Andrews, so it would have expressive as well as functional meaning. these curved walls are counterparts to the arch: they are in plan as the shape of the center arch is in section (Figure 3.2.3-5 and Figure 3.2.3-6). These walls which surround the scooped-out stadium, were also made to slope, both in order to increase structural efficiency and to enhance the visual expression of the stress flows. Saarinen believes that the contrast of the concave and the convex on the exterior seem to have achieved the kind of sweep and the lightness. [30, p. 54]

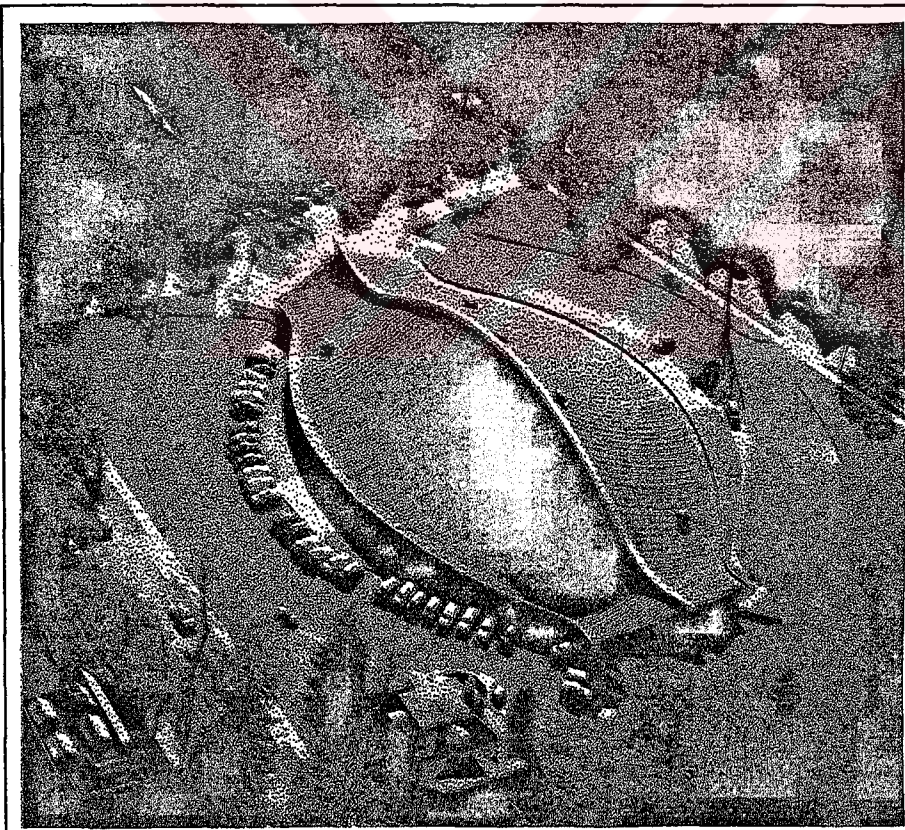


Figure 3.2.3- 4 Eero Saarinen: David S. Ingalls Hockey Rink, New Haven, 1953-59. Air view.

Jones (1961) deems that the experimental roof of Saarinen's Yale Hockey Rink by far is the most successful one which is dominated by a monolithic 355-foot-long curved spine of concrete from which steel cables are hung in catenary curves. With

its soaring curves and clearly expressed balance of tension and load, has been compared both to an upturned Viking ship and an Oriental barn. [29, p. 145]

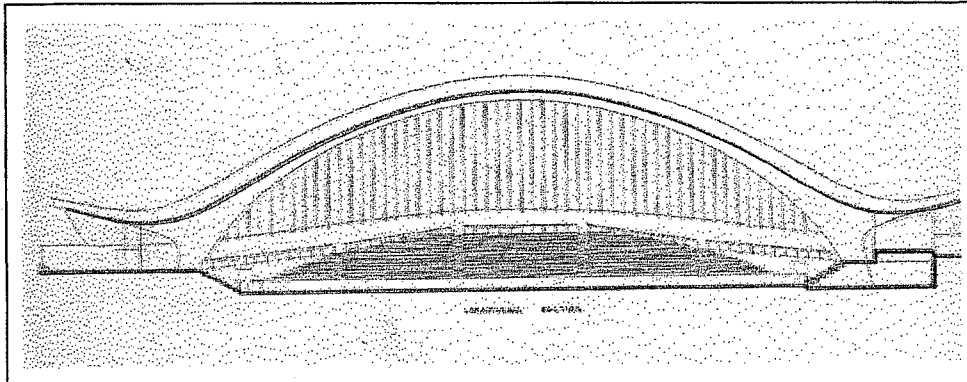


Figure 3.2.3- 5 Eero Saarinen: David S. Ingalls Hockey Rink, New Haven, 1953-59. Longitudinal Section.

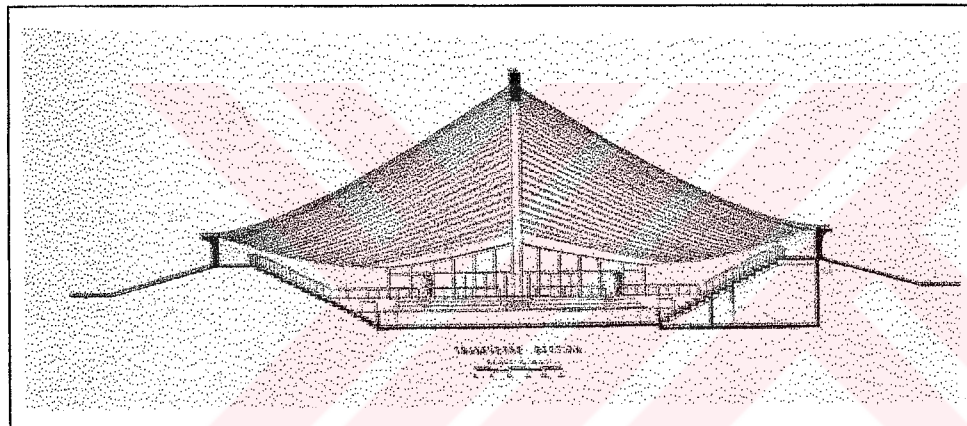


Figure3.2.3- 6 Eero Saarinen: David S. Ingalls Hockey Rink, New Haven, 1953-59. Transverse Section.

Saarinen's Trans World Airline Terminal (Figure 3.2.3-7) at Idlewild International Airport, New York, is a further exploration of concrete forms, here dramatized more in terms of their great plastic values than as pure shell construction (Figure 3.2.3-8). Indeed the great wings of this structure are held up by main force, rather than their strength's being a function of form, as in true shell structures. [29, p. 145] Because of the shell vaults of TWA Terminal at Idlewild as the basis of fantastic curvatures, Curtis (1996) claims that Saarinen moved towards an increasingly personal expression in his designs. [8, p. 401] Although he often preferred plastic forms in his designs, his opinion about plasticity is very interesting. As it is obvious, technology has made plastic form easily possible for architects. But, in his view, it is the

aesthetic reasons which are the driving forces behind its use. What interested him was when and where to use these plastic shapes. In his understanding the choices of plastic forms really become sculptor's choices, but architects must beware of going too far because architectural form cannot become all sculpture. [30, p. 11]

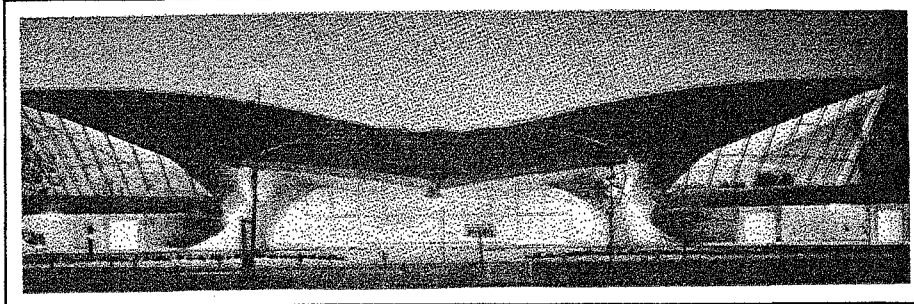


Figure3.2.3- 7 Eero Saarinen: TWA Terminal Building, 1956-1962, Idlewild. Exterior at night.

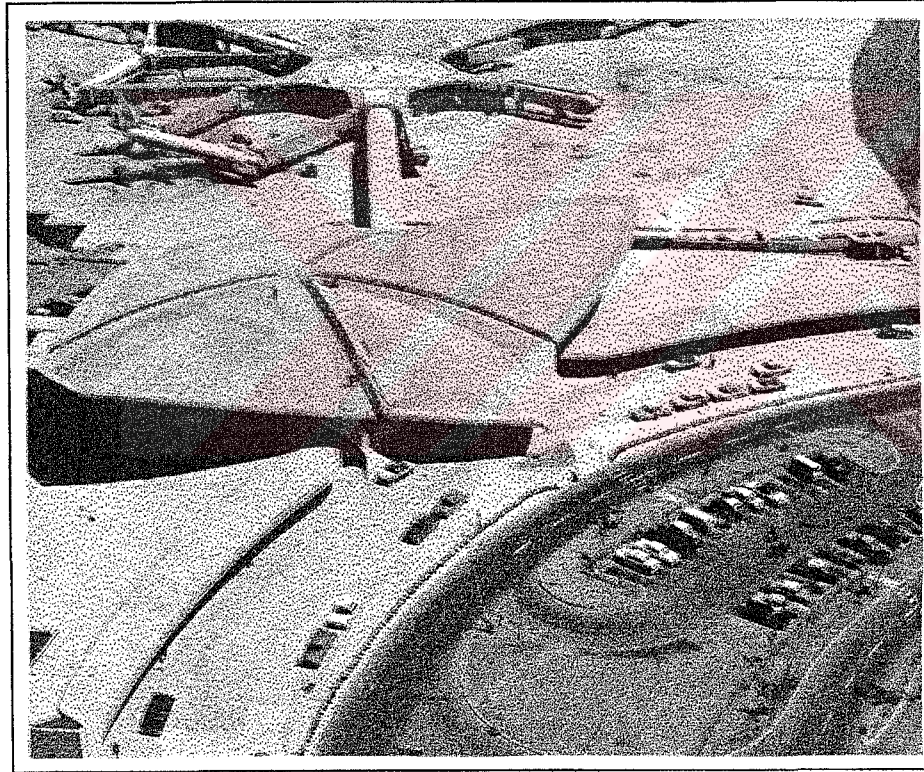


Figure3.2.3- 8 Eero Saarinen: TWA Terminal Building, 1956-1962, Idlewild. Air view.

In his book of *Twentieth Century Architecture: a Visual History*, Sharp describes Saarinen's TWA Terminal Buildings at New York:

"One of the most self-assured, self-confident—even self-conscious—buildings to emerge as a result of the interplay of the architectonic and engineer-inspired buildings. It alarmed the remaining purists of modern architecture. Its bird-like symbolism, exciting forms and

cavernous interior were not simply a casual reminder of the changes that had taken place in architectural thinking in the 1950s, but a demonstration of the architect's role as an originator and, in the American scene, as a 'building stylist'...Clearly it represented a revival of architectural Expressionism..." [34]

But sculptural the TWA terminal certainly is. This great vaulted structure seems poised as if for flight, the most expressive structure since Erich Mendelsohn's Einstein Tower of the early 1920s. Four interacting vaults are locked at the center and supported on four Y-shaped columns. Bands of light separate the four vaults, emphasizing the sense of airiness and lightness. Within, the same plastic form world is consistently adhered to, down to the shapes of signs, telephone booths, railings and even air-conditioning exhausts. [29, p. 145] Curtis determines this building as the 'modern Baroque' reactionary to the International Style of the time. [8, p. 517]

In spite of being made of concrete, the construction really gives a sense of lightness and airiness. It results from "the consistent use of upward-soaring curves in the vaults and columns and also from the bands of skylights at the junctures of the vaults." [33] From a distance, the curves of the vault structure take the shape of a bird extending its wings. According to Özer, with this allegory of bird just landed or poised for a flight (Figure 3.2.3-7), Saarinen wanted to attribute a symbol to his design while obtaining a balance between the symbolic form and its plan and its possible structure. Moreover, the relation between interior and exterior is parallel to the principles of modern architecture because of the unity of them. Özer is also agree with many architectural art critics who classify this building as a late-modern between modern and the post-modern era because of this symbolic feature of the building for aesthetic reasons. [28, p. 260]

For Saarinen the challenge of the TWA terminal was twofold: One, to create, within the complex of terminals that makes up Idlewild, a building for TWA which could be distinctive and memorable. Two, to design a building in which the architecture itself would express the drama and specialties and excitement of travel. For this reason, Saarinen and his team wanted the architecture to reveal the terminal, not a static, enclosed placed, but as a place of movement and of transition. [30, p. 60]

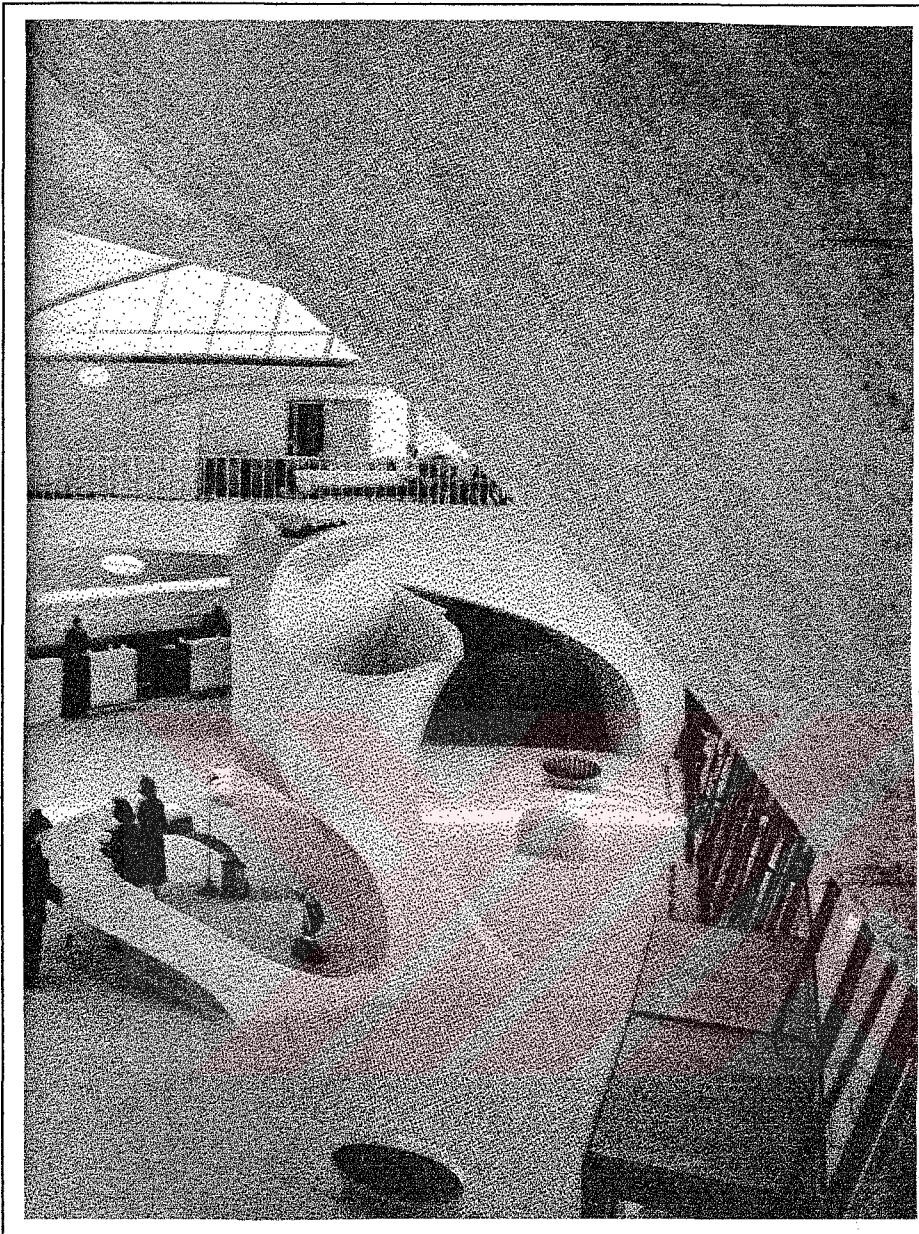


Figure3.2.3-9 Eero Saarinen: TWA Terminal Building, 1956-1962, Idlewild.
Interior view.

With this non-static quality of the concrete shell vault he became successful in creating dynamic space. He believed that all the curvatures, all the spaces and elements, down to the shapes of signs, information boards, railings and counters, would have to have one consistent character. By the way, as the passenger walked through the sequence of the building, he or she would be in a total environment where each part was the consequence of another and all belonged to the same form-world. He insisted that only through such a consistency and such a consequential

development can a building make its fullest impact and expression. [30, p. 60] In order to achieve such a consistency, as Özer claims "unity of interior and exterior was provided with Saarinen's mastery and in this way, what is signifier and signified in this building became identical that is echoing to the Gestalt as external communicative form" [28, p. 266]

Jones claims that by contrast to the clear, cool and impersonal discipline of the cube of modern architecture, Saarinen with his Ingalls Hockey Rink (Figure 3.2.3-4), TWA Terminal (Figure 3.2.3-8), and Dulles International Airport (Figure 3.2.3-10), seemed hovering on the verge of a 'new' Art Nouveau. [29, p. 145]

Here it is the Dulles Airport Commentary that is quoted from Sylvia Hart Wright's *Sourcebook of Contemporary North American Architecture: From Postwar to Postmodern*:

"Set on a huge (10,000 acre), flat site, this is highly distinctive building with colonnades of tipped and tapered columns on its two long façades, a gracefully curving roof hung between them, and a pagoda-like control tower nearby. "[35]

According to Sharp, at Dulles, Saarinen had a unique series of problems: he was designing a complete new airport, providing a modern gateway to the capital of the nation and building it for the Federal Government. The site was flat plain. The main terminus is a single, compact structure, not entirely free from formalist tendencies but one which is technically exciting. The final design concept arrived at was suspended structure, 'high at the front, lower in the middle, slightly higher at the back', generated by a rectangular plan. The building is thus capable of lateral extension. [36]

Another example of expressionist architecture in the post-war period is Utzon's Sydney Opera House (Figure 3.2.3-11). Drew (1995) determines this building as a symbol not only of Sydney, but of Australia, with its distinctive zig zag arc roof adopted for the succesful Sydney 2000 Olympic logo. [37, p. 4]



Figure 3.2.3-10 Eero Saarinen: Dulles International Airport, Terminal Building, 1958-1962, Chantilly. Exterior at night.

A Danish architect transformed the variety of modern and ancient influences into good purpose was Jørn Utzon, who was born in 1918 and studied at the Academy of Arts in Copenhagen. The period between the end of war and 1957, when he won the Sydney Opera House Competition, was one of the constant travel, few commissions, and a vast absorption of impressions. He worked for a time with Aalto, absorbed much from the work of Asplund and visited Wright at Taliesin; he also drawn to sculpture of Henry Lurens, which provided basic lessons in abstraction and anthropomorphism. He traveled extensively in Mexico, the Far East, and North Africa. [8, p. 466] Drew insists that there is a deep influence of the architecture of Alvar Aalto on Utzon and the source of many of ideas behind the Sydney Opera House. [37, p. 10] It is therefore insufficient to see Utzon as a mere follower of his Scandinavian mentors Asplund and Aalto, though he did draw on both in evolving qualities of subtle ordering and spatial complexity. [8, p. 466]

The major building for which Utzon is internationally known is the extraordinary Sydney Opera House designed between 1957 and 1966. As it can be perceived easily the Sydney Opera House (Figure 3.2.3-11) composition is based on the simple opposition of three groups of interlocking shell vaults and a heavy terraced platform. The two halls were arranged side by side and their longitudinal axes inclined very slightly so that they meet at the base of the concourse. This accommodated the wedge of shapes of the halls. The auditoria were scooped out of the high north end of the podium platform like Greek theaters in order that they face south, with the stage areas between them and the main foyers. [37, p. 10]

There is no doubt, any original work of art serves only limited purpose to list possible sources, or analogies. Curtis (1996) thinks that the platform of the Sydney Opera House is similar to Utzon's housing designs but in a monumental context, Utzon might be inspired by the artificial hills with ceremonial steps of Monte Alban, the ancient Mexican site which Utzon had sketched during his travels. Curtis even then approves the shells as a staggering invention, he thinks that Utzon is partly influenced by Bruno Taut's curved crustacean abstractions of the 1920s, and is prompted by the complex interlacing curvature which Utzon had seen in the work of Aalto. Whatever the historical or natural analogies, they were absorbed into a fresh synthesis, an idea which abstracted the waves and sails of the harbor even as it made visual references to the flow of sound. It is curious that this *symbolic expression* of musical rhythms should in fact posed considerable acoustic problems. [8, p. 469]

Although Curtis (1996) evaluates Utzon's entire approach to design as an oscillation back and forth between abstraction metaphor and structural thinking, he finds some levels to the symbolism of the building such as a sense of modern cathedral as Utzon himself referred to his sculptural Opera House as a sort of church. [8, p. 469]

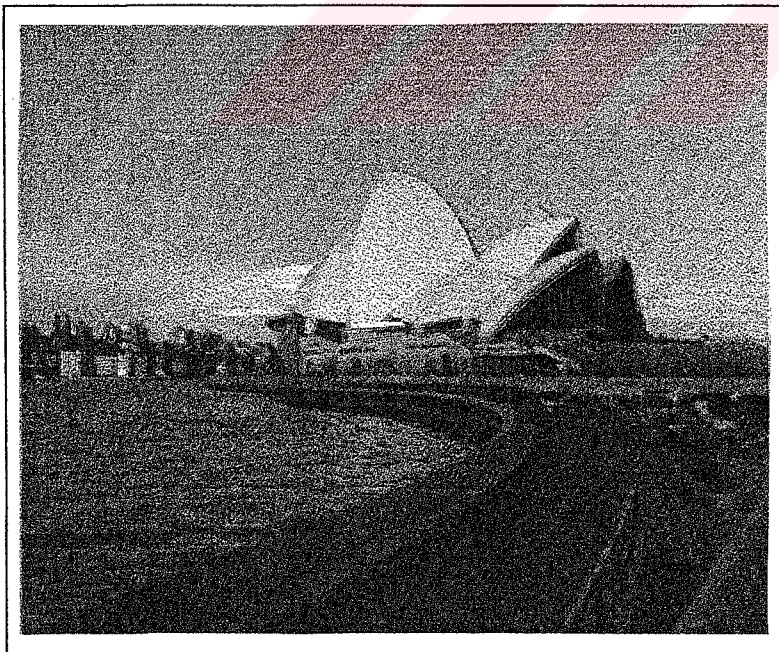


Figure3.2.3-11 Jorn Utzon: Sydney Opera House, 1957-66.
Southern panoramic view.

Utzon explains the reason of choosing such a sculptural form:

Instead of making a square form, I have made a sculpture—a sculpture covering the necessary functions, in other words, the rooms express themselves, the size of the rooms is expressed in these roofs. If you think a Gothic church, you never get tired, you will never be finished with it—when you pass around it or see it against the sky. It is as if something new goes on all the time and it is so important—the interplay is so important that together with the sun, the light and the clouds, it makes a living thing. [37, p. 10]

The Opera House roof was of major importance as it can be seen from above and from every side. Utzon called it "the fifth façade" for this very reason. [37, p. 10] As Drew insists that the roof surfaces (Figure 3.2.3-13) at the beginning lacked a defined geometry. These geometrically undefined surfaces were connected to each other by a further series of side surfaces. [37, p. 10]

Contrary to popular belief, the inspiration for this spherical geometry (Figure 3.2.3-13) came from a segmented orange—not from a sails. [38, p. 13] According to Drew, with the choice of a spherical surface there achieved several things: it established a geometry of great clarity; the convexity of the surface pushes outwards and upwards, and so makes us more aware of the universe. [37, p. 14] The roofs are a source of radiation—fundamentally Baroque technique to the extent that the individual roof vaults are fractions of pre-existent whole, and their very incompleteness makes them to dissolve in infinity. White tiles were chosen as covering to serve light; their appearance is never static but varies according to the light conditions. The Opera House (Figure 3.2.3-12) always look different depending on where you stand. Its images embrace us, and this serves to engender a feeling of a microcosm—a very Baroque feeling indeed. [37, p. 15] The image of these soaring white curves at the end of Bennelong Point, jutting out into the harbor and echoing the silhouette of the bridge and the sharp curves of the sails nearby, still has great power to move. They rise upwards from low platforms which themselves step up to their highest point at the water's edge. [8, p. 466]

The original idea for the interiors is best grasped from a section (Figure 3.2.3-15) which shows a sort of counterwave motion of curved ceilings flowing beneath the vast roofs above. The fly-towers, finally were buried under the highest of the shells, thus disturbing some hard-line puritans who were unable to enjoy to the contrast and

complexities between the interior and the exterior. [8, p. 469] According to Özer this contrast gave a shock to the unity of form and function as a principle of modern architecture. Here, the wish for separating the functional interior from exterior, or Gestalt, in other words, the contained meaning from the containing cover had arrived at a point of historical climax. In the Sydney Opera House, Utzon left a fender area between the functional interior and urbanistic exterior, in order to achieve a communicative symbolic outer look. [28, p. 266]

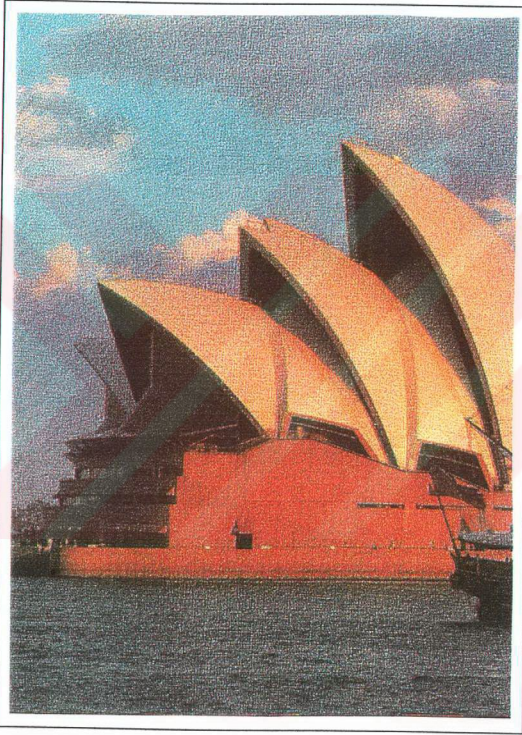


Figure 3.2.3-12 Jorn Utzon: Sydney Opera House, 1957-66.
West Elevation.

Drew finds an analogy between the Sydney Opera House and Botticelli's *The Birth of Venus* (© 1485) in which Venus emerges from the sea, borne towards the evergreen garden of eternal spring on a shell. Considering this analogy, the shell has delicate

curved radial ribs like the Opera House. There is a wonderful tension between the land and the shell, just as there is between Bennelong Point and the Sydney Opera House which gives every appearance of wanting to slip its moorings and sail down the harbor. [37, p. 24]

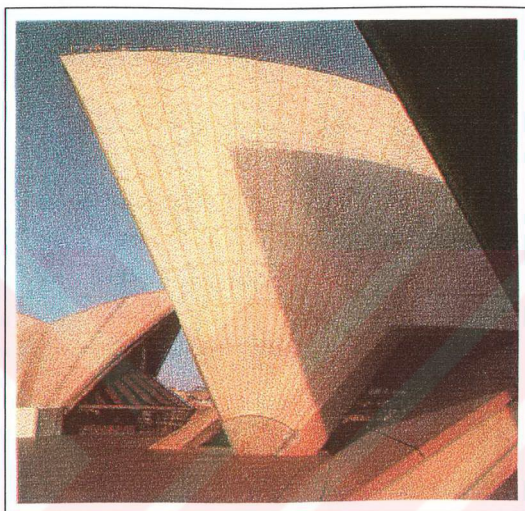


Figure 3.2.3-13 Jorn Utzon: Sydney Opera House, 1957-66.
Spherical geometry of the roof.

According to Drew, the Sydney Opera House is a building about the sea—a kind of Gothic ship. This experience as Drew mentions, has been converted into forms which are poetic as Boticelli's painting. Utzon, a highly practical man as well as a great artist, set out to build the Opera House as one might build a ship. Coming from the sea, the Sydney Opera House is a building equipped to express its very site and to serve as a chief symbol and focus of a great city at the precise location where the Opera House, as theatre-at-the-water's-edge, looks across towards its harbor-stage. [37, p. 24]

Whatever the sources of Utzon's building, they were transmuted into a new terminology, a genuine style, based on private, intuitive rules. A guiding image informed all the parts and brought them into a tense unity. [8, p. 613] In those years

Utzon's design was or still is a great architectural idea. It was an idea which, in its combination of the abstract and the naturalistic, in its fusion of the complex and the simple, in its enrichment of the structural and spatial ideas of earlier modern architecture, and in its transformation of ancient monumentality, encapsulated some of the aims of a new generation. [8, p. 469]

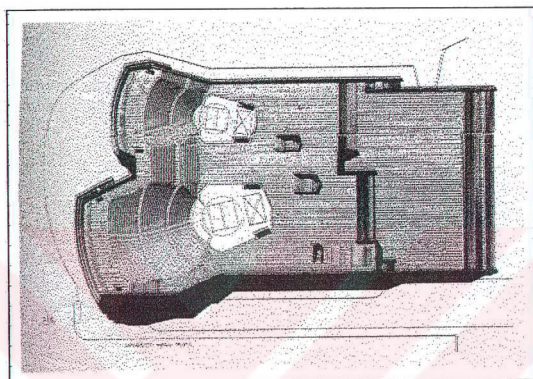


Figure 3.2.3-14 Jørn Utzon: The Sydney Opera House, 1957-73. Plan.

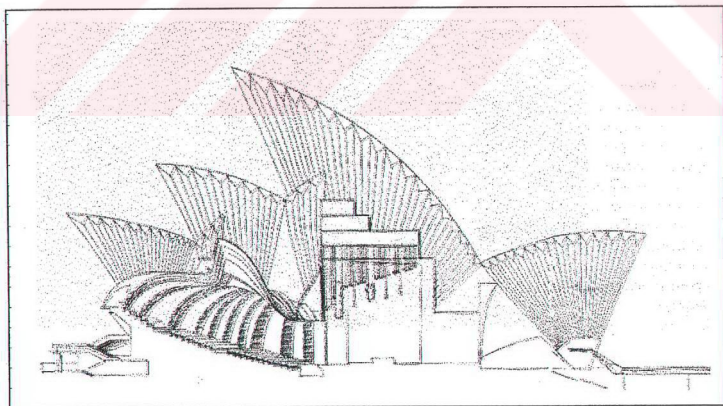


Figure 3.2.3-15 Jørn Utzon: The Sydney Opera House, 1957-73. Section through original scheme.

Gottfried Böhm, who began by working with his father Dominikus Böhm, has gone beyond any early Expressionist architecture. [10, p. 11] His works range from the simple to the complex, using many different kinds of materials, with results that sometimes appear humble, sometimes monumental. He has been described in the sixties as an expressionist, and more recently as post-Bauhaus, but almost always he stands alone in departing from the conventions of established architecture, seeking to go one step beyond. [61, p. 1]

Böhm did not discover a different style; what he discovered was a clear conviction of the importance of every single architectural assignment along with the factors of time and place, man is the most important value to be taken into consideration. In his teaching, Böhm, warns against "the exaggerations of the historicizing movement, and mindless imitation of earlier eras." In the past, he has insisted on "spiritually enriching human values in architecture" and speaking out against overcrowding the environment with unnecessary design features." [61, p. 2]

During his career Böhm designed a large number of buildings including churches, museums, theaters, town halls, and so on. In his designs, Böhm blended old and new styles to create successful internal spaces. He integrated building parts and spaces with both his overall design concept and with his choice of materials. In Böhm's own words, he describes what a building is:

"A building is a human being's space and the background for his dignity and its exterior should reflect its content and function. New buildings should fit naturally into their surroundings, both architecturally and historically, without denying or prettifying the concerns of our time. You cannot just quote from history and above all you cannot take it out of context, in however humorous a fashion. On the contrary history has a natural continuity which must be respected" [61, p. 2]

The Bensberg Townhall, which had been designed by Gottfried Böhm, fit naturally into their surroundings both architecturally and historically. According to Özer (1982), in The Bensberg Townhall "Böhm had rejected to juxtapose the office buildings side by side" instead he followed a curvilinear axis by which "the old Bensberg has been connected to new one." In order to achieve this connection "the ruins of old castle dating from Middle-Ages had been included to the new building." [60, p. 69]



Figure 3.2.3-16 Gottfried Böhm: Church of the Pilgrimage, Neviges, Germany. 1962.

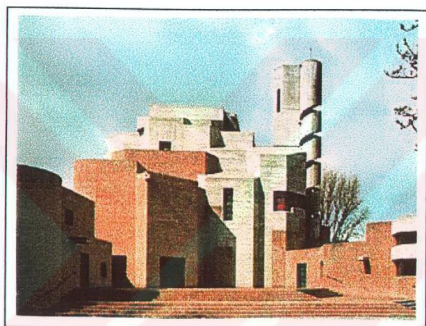


Figure 3.2.3-17 Gottfried Böhm: Church/Youth Center/Library. Cologne-Melaten, Germany.

Irrationality in the design of Bensberg Townhall let the building be contained by the border of the old castle. By the way the movement of the terraces in its three-dimensional appearance makes possible to fit the building into its surroundings. As Özer (1982) claims that while designing this building, Böhm seems to be inspired by the irrational plasticity of the Bergfried conical hat of the old castle. [60, p. 69]

The Pilgrimage Church (Figure 3.2.3-16) in Neviges, which is designed by Gottfried Böhm, is suited on a slope, in conjunction with a flanking development. His own guiding principle which can be summarized in the term "creating connections" is to form an unflinching part of his work, from the very beginning today. What is implied

here is the complex interplay of material and immaterial components of a building within its own natural and cultural context. [62, p. 2]

In 1981, Peter Davey in *Architectural Review*, described some of Böhm's buildings as "unique subjective works of art that showed Germany—and Europe—that the Expressionist tradition was still alive. His brut modern concrete meets ragged medieval stone with contrast yet sympathy: the new forms are as complex as the old..." Davey was referring in this instance to the town hall at Bensberg and the Pilgrimage Church (Figure 3.2.3-16) at Neviges. [62, p. 2]

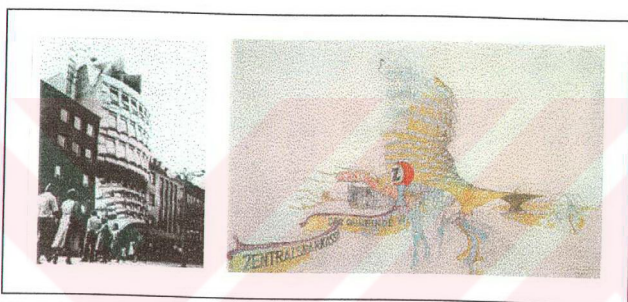


Figure 3.2.3-18 Günther Domenig: Zentralsparkasse Bank, Vienna. 1984.

One of the late examples of expressionistic architecture in the last two decades of the 20th century is the Zentralsparkasse Bank in Vienna which is designed by Günther Domenig. In the *Friends of Kebyar*, Golden and Bowlby describe this unusual building as "a high-tech organic composition of metal sinews interwoven with a coalescence of earth-like concrete forms in which structure is an integral part of the sculptural effect." [64, p. 2]

Douglas Cardinal is one of the contemporary architect and practicing architecture in Edmonton. His curvilinear, organic buildings have been categorized as an indigenous Canadian style of architecture and the method by which these buildings come into being is an organic process where the shape and form of each room is wrapped around its function. Thus the building begins with the particular, with its individual functions, but develops into a complete organism. [39] On the same web site Douglas

J. Cardinal Architect Ltd. are described as forerunners in creating innovative architecture and their architectural design process is determined step by step:

"Once the shape of a room is determined, the room may be understood to act much like a single cell. with its own genetic code. Through the use of diagrams, area relationships are planned between the individual 'cells', to eventually create a matrix of rooms. With this matrix the building begins to design itself. Through a natural and organic process, a spinal cord develops as the rooms, or cells, form into clusters of relationships. In this initial stage the design is quite flexible as the cells in the cord may be rearranged in endless variations.

Gradually the relationships between the functions of the organism evolve. Once these relationships are tested and analyzed by the potential inhabitants of the building, the building is transported into the site, where the natural elements, such as the wind and sun angles, will shape the building from the outside in. A balance must be achieved between the external and internal elements which shape the building, much like a tree which has its own genetic code but which is also shaped by the natural forces acting upon it.

Once the form of the entire organism is defined, images which give an aesthetic expression to the character of the building are incorporated in the design. The exterior shell of the building then becomes a sculptural expression of the themes and ideas of the design, and of its internal environment. In this way the organic process, the internal and the external, binds together to create a work of architecture." [39]

DJCA Ltd. believes that architecture is a powerful language, an art form that should inspire everyone who walks through its portals. In their understanding of architecture, buildings should make a statement, declaring the commitment of the people for whom it was built.

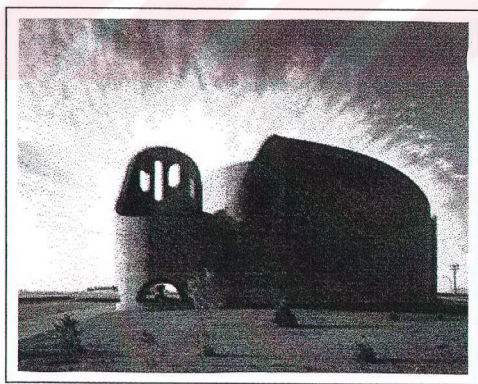


Figure 3.2.3-19 Douglas Cardinal: St Mary's Church, Red Deer, Alberta Canada.

In the web site of DJCA Ltd. they describe the St Mary's church (Figure 3.2.3-19):

The whole church complex grows from the main altar. The altar is the center of the composition and the most important element in the church: it symbolizes Christ and is the central element in the sacrifice of the mass. The roof is a complex catenary post-tensioned reinforced concrete shell, constructed with cables and mesh used as the integral form as well as the reinforcing. It is amorphous in composition, serving as a canopy over the people and a baldachino over the main altar. The roof sweeps down over the high wall behind the sanctuary, down low over the main altar, further increasing its dominance. A skylight bathes the altar with light and conveys to the beholder that this is the source of life and divine light.

Brick has been used ingeniously to serve as the formwork for the exterior walls. Two wythes of brick that taper towards the top were first laid in five foot layers, and then reinforcement and concrete were placed between them. The men were specifically instructed to tap the bricks slightly askew to impart a rough-hewn monastic look to the building. The sculptural forms of the Church were a challenge to the skill and mastery of the masons, as every brick was carved to shape at the intricate junctions between parapets and walls. The building demonstrates the fluidity with which brick can be used as a sculpting tool. [39]

In the same web site they also determine how they designed York Regional Headquarters (Figure 3.2.3-20):

Under one roof, the York Administrative Center houses the many functions and departments of the York Regional Government. It consists of office, civic and electoral spaces, with a discrete wing for the Regional Police Department. The design provides either exterior windows or atrium exposure to all offices regardless of seniority. This was accomplished by a string-like arrangement of offices that either lined both the sides of internal, skylight atria, or lined exterior locations. The frequent changes in staff and departmental reorganization necessitated flexible floor plans that permitted departments to expand or shrink. These were planned around fixed "nodes" that contained core functions such as reception areas, secretarial spaces, fire and exit routes. This modular planning was used throughout the Headquarters, to space sprinklers, heating units, light fixtures etc., so that partition changes would not disrupt building services. Wrapping the exterior shell of the building around these interior layouts ensured that the integrity of room functions was maintained.

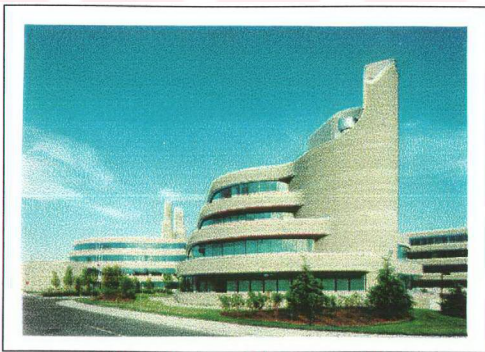


Figure 3.2.3-20 Douglas Cardinal: York Regional Headquarters
York, Ontario, 1992

After examining the architecture and writings of the expressionists, let us have a look at what Sharp formulated the basic principles of the expressionist architecture:

- "a) The continuation of the Art Nouveau-Jugendstil idea of the plasticity and movement of form; but not its curvilinear decorative quality.
- b) Freedom from historical precedent.
- c) Freedom in the experimental use of new materials and constructional techniques.
- d) A belief in the monolithic nature of reinforced concrete as well as its elastic quality. Its usefulness as a sculptural material.
- e) The idea that the internal spaces and the external shape of a building had an organic and biological purpose.
- f) The notion that spatial boundaries could be removed by the introduction of large areas of glass—often of varying colours—and that the volume of a building was unlimited and part of a wider cosmic space.
- g) Each building was a total work of art, an artifact complete in itself, a significant object or 'image'. This was related to a belief that architecture was a national phenomenon and each building something of a monument to national taste and pride.
- h) The idea that a building should exhibit a certain clarity of form and emphasis—a marked horizontality, verticality, or angularity.
- i) The idea that each part of a building was to be clearly defined architecturally and precisely organized as an integral part of the whole.
- j) Lastly, the embodiment in the concept of a vision of a Utopian society. [56, p. 167]

4. THE MEANING OF ORGANIC AND EXPRESSIONISTIC IN INDUSTRIAL DESIGN

4.1 Beginnings of Organic and Expressionistic Attitudes in Industrial Design in the Early 20th Century

In the 1920s, European designers such as Marcel Breuer and Ludvig Mies van der Rohe, developed new, minimalist conceptions for furniture, using tubular steel and thin upholstery. Mies van der Rohe had a considerably influence upon furniture design though he had no formal training as an architect, served as an apprentice architect and designer with Peter Behrens, who was then working as an industrial designer as well as an architect for AEG. From Behrens he acquired a sense for classical form in design. Breuer's equally classical simple forms for furniture became especially influential during the 1930s. [15, p. 117]

The Bauhaus was a major influence in the period between the wars. Located in Weimar from 1919 to 1925 and in Dessau from 1925 to 1932, it was influenced as much by the Dutch de Stijl movement as by Russian constructivism and the Japanese tradition. The goal of the Bauhaus was to integrate all the visual arts into society. The Bauhaus designers invented a new conception of interior space that focused on man. The steel of war time now found its way into a tubular metal furniture of Breuer and Mies van der Rohe. Gropius's and the Bauhaus' main goal was to merge art and crafts. With this goal, the Bauhaus curriculum was divided into two main segments: the teaching of construction and materials and the teaching of form and design. This concept was to have far-reaching effects on the designers of the postwar years, who experimented with designing forms based on the inherent properties of construction materials. [44, p. 3]

Perhaps the most famous of all Bauhaus designs is Mies van der Rohe's steel and leather chair (Figure 4.1-1) created for the German pavilion at the Barcelona Exhibition of 1929. With its sweeping curves of chromium steel, it became a symbol of the whole modern movement. [44, p. 4]

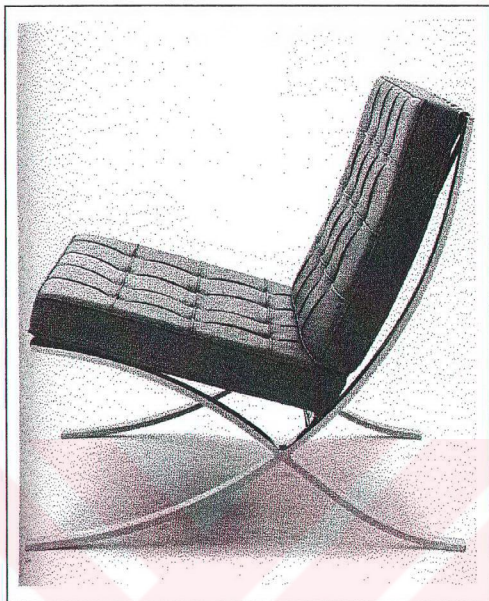


Figure 4.1- 1 Mies van der Rohe: 'Barcelona' chair, polished steel and leather, 1929

Despite van der Rohe's objectives was unfortunately to design a chair fit to receive a king, a dictator or an ambassador, the Barcelona chair (Figure 4.1-1) is elegant and monumental. Meadmore insists that van der Rohe's approach here has been likened to Gothic architecture with its chatedral-like skeletons of exposed, flowing, linear structures. [48, p. 62]

An original aspect of the metal furniture designed by Mies van der Rohe and Breuer is the employment of the cantilever principle in order to combine strength and lightness. Marcel Breuer entered the Bauhaus as a student in 1920. His initial attempts at expressionist and De Stijl-influenced design were soon superseded by an interest in the standardization of furniture and architecture. [44, p. 4]

Mies van der Rohe, Breuer, and the Bauhaus were certainly not the only ones working to develop steel-tube furniture, which was rapidly becoming the modern counterpart to the bentwood chair. [44, p. 5]

In stylistic terms the move from the 19th century to the 20th century was simply a matter of leaving behind the natural world and the individual as the symbolic sources of the language of mass produced objects and of adopting, instead the metaphor of the machine and the mechanized environment as the stimuli for a new theory of form. [46, p. 41]

According to Zevi, the word organic can only be applied in its strictest physical sense to some of the products of modern architecture, to Aalto's door handles, to the outline of his chairs (Figure 4.1-3 and Figure 4.1-4), and with still better justification to chairs (Figure 4.2.1-12) designed by Saarinen. [9, p. 72] As one of the most famous designers of laminated wood furniture the Finnish architect Alvar Aalto borrowed ideas originally pioneered by Thonet's bentwood process and developed them within the context of the established principles of modern design. His furniture was light, practical, and inexpensive, finding its way into many bathrooms, nurseries, and kitchens of the 1930s home.

Michael Thonet had developed a process which made it possible to bent wood by steam treatment. In 1842, he was granted the privilege of being allowed to "shape and curve any type of wood with his chemical and mechanical methods." In 1856 he opened a large industrial factory, in which his chairs were machine-produced at such low costs that they could be widely distributed. His most famous Chair type No. 14 (Figure 4.1-2), first developed in 1859. [45, p. 16]

Thonet's invention as a revolutionary mass production of furniture consisted of clamping a thin flexible strip of steel along one side of a piece of steamed wood. This side, after bending, became the outside of the curve. Without steel, compression of the inner edge and the tension on the outer would result in the outside cracking on the curve. As Meadmore says, this simple process enabled Thonet to use extremely tight structural curves, just as strong or even stronger than the wood in its normal state before treatment. [48, p. 13] Another result was the elimination of virtually all complex jointing in the construction, as elements could be lapped over one another and joint with screws. All of Thonet's furniture represents a rare example of continuity, unity and also formalism before its time. As it is obvious these features are essential for organic design.

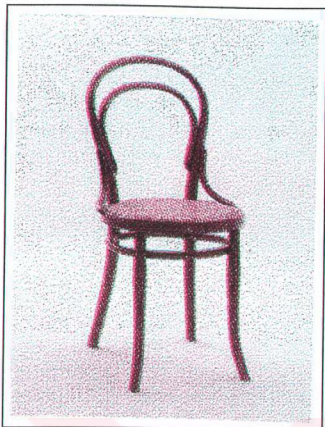


Figure 4.1- 2 Michael Thonet: Chair Model No. 14. 1859.

Agreeing with Meadmore, the beautiful curves of the Thonet chairs, dictated by the intrinsic qualities of the material, were echoed by the Art Nouveau movement in which the same plant-like curves were used; but Thonet preceded the Art Nouveau style by some forty years. Bentwood had been used since the 18th century for the backs of rural, craft-built chairs but only a rather strained and gradual curve was possible before Thonet's process. The Thonet chair uses wood expressively in its most natural-looking form, invoking the way it originally appears in trees. [48, p. 14]

One of Aalto's focal points was the belief that the human body should only come into contact with organic materials. His primary idea was to utilize the natural moisture in wood, capitalizing on its inherent pliability, rather than depending on solely on steaming, as the Thonet process had done. His first experimental chairs had plywood seats supported by metal tubing. On later models, the metal tubing was replaced by wood. [44, p. 5] In 1932 Alvar Aalto produced a chair with bent plywood seat on a tubular metal frame. Soon after, he made chairs entirely of laminated wood (Figure 4.1-4) and rounded out a series of design concerned for quantity productions and manufactured by Artek in Finland. [11, p. 7]

In the case of Aalto's armchair, the single sheet of plywood, which daringly and dramatically forms the seat and back, varies in thickness according to the structural requirements. At the seat, where the weight of the body exerts more strain on the plywood span, additional interior plies are added, thickening the sheet at this point to give more strength. [11, p. 7] Aalto influenced a new generation of designers in Europe and the US. He recognized the need for rationality and standardization but he thought that an exclusive focus on these matters denied the expressive nature of the human imagination. [13, p. 204] By the late 1930s Aalto had extended the vocabulary of modern furniture design by tempering angularity with swooping curves, and exchanging the cold material of metal with wood. [15, p. 117] Although Aalto had experimented with various materials (including tubular steel) he had favored wood because of following reasons:

The tubular steel chair is surely rational from technical and constructive points of view. It is light, suitable for mass production, and so on. But steel and chromium surfaces are not satisfactory from the human point of view. Steel is too good conductor of heat. The chromium surfaces give too bright reflections of light, and even acoustically is not suitable for a room. The rational methods of creating this furniture style have been on the right track, but the result will be good only if rationalization is exercised in the selection of materials which are most suitable for human use. [13, p. 204 quoted in 14, p. 77]

As the primary source of construction material for architecture and industrial design especially for furniture, wood has been categorized in two main families: softwoods and hardwoods. Softwoods are generally used in building construction or inexpensive furniture while hardwoods are preferred for furniture because of their higher strength and durability. This traditional material had been replaced by plywood in the early examples of Alvar Aalto.

Armchair 406 (Figure 4.1-6) and others (Figure 4.1-4 and Figure 4.1-5) like it stem from Aalto's Armchair 41 (Figure 4.1-3) designed in 1930. Aalto was concerned with bent laminated and plywood, searching out its strengths in curves and in cantilever structures. His forms are springy and entirely natural and appropriate to the material, but his technique was highly sophisticated, and included the subtle extension of the number of laminations proportionately at points where extra load or stress had to be born. He developed a whole series of related designs using variations of this technique. [48, p. 74]

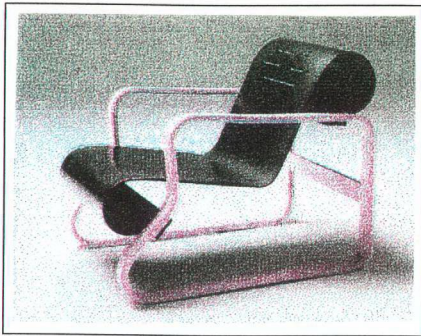


Figure 4.1- 3 Alvar Aalto: Armchair, Model 41, for the Paimio Sanatorium laminated birchwood frame, seat of shaped, varnished plywood, 1930-33. Artek.

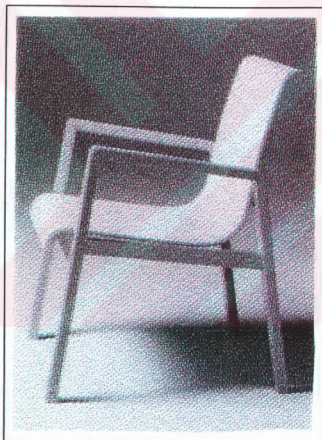


Figure 4.1- 4 Alvar Aalto: Stackable armchair, 1931-33, Artek. Seat and back in bent plywood.

Although Aalto's furniture and wares look organic in terms of form, all of his designs especially his furniture were created in relation to his buildings, taking the form, as he himself pointed out "accessories of the architecture." [51, p. 341] Nonetheless his designs possessed the quality, shared only by the best of design, they belong to the building not to the user.

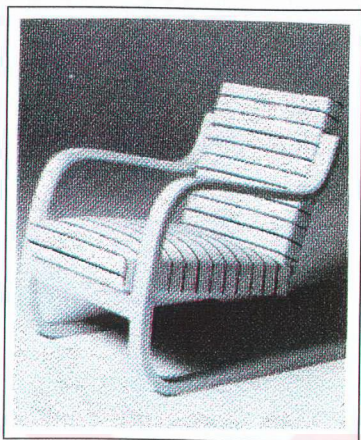


Figure 4.1- 5 Alvar Aalto: Armchair, 1933.
Laminated wood with upholstered seat and back.
Artek.

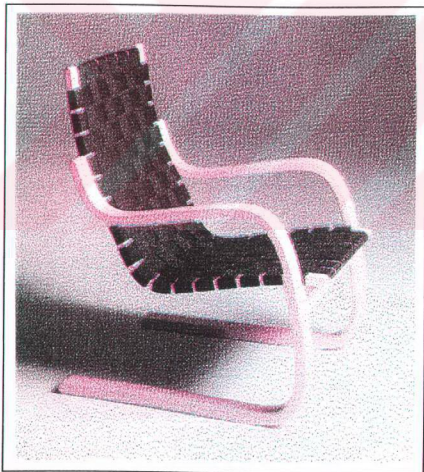


Figure 4.1- 6 Alvar Aalto: Armchair, Model 406, bent
birchwood with interwoven straps, 1935-39. Artek, Helsinki.

Indeed, in lamination technique, which was well known as far back as 1856, gluing the layers of wood veneer with their grains at right angles each other is nearly the same technique that used in the construction of the modern plywood. Because the

plywood consists of layers of wood veneer laminated together with the grain direction running at the right angles in each successive layer for balance and strength.

There are some correlations between the reasons of Aalto's material choice and Drexler's definition of the term 'organic'. In Drexler's definition the primary meaning of organic refers to a kind of wholeness different from harmony and other forms of aggregation, because it precludes the possibility of interchangeable parts. [12, p. 10] As it is obvious that the interchangeability of parts is synonymous with rationalization. Thus, it can be said that one of the essence of organic design beside wholeness is irrationality.

Another characteristic which distinguishes Aalto is his great attention to the detail of minor objects such as vase (Figure 4.1-7 and Figure 4.1-8) and fittings. Aalto's furniture and more particularly his chairs and birchwood armchairs (Figure 4.1-6) constitute an industrial triumph of mass production in their novel use of plywood; and at the same time, being shaped in accord with the organic line of the human body in the various positions of eating, reading, dressing, and resting, are proof of the vividness of his interest. [9, p. 60]

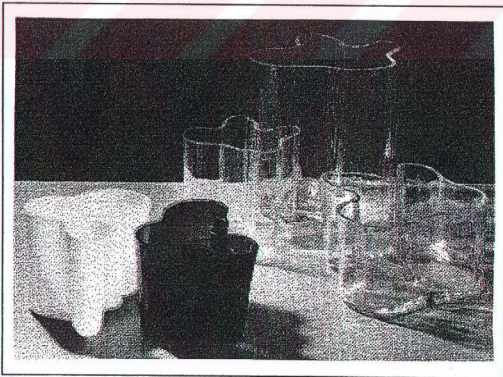


Figure 4.1- 7 Alvar Aalto: Flower vases, 1937. Glass. Artek

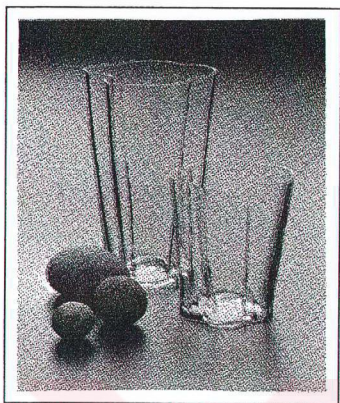


Figure 4.1- 8 Alvar Aalto: Flower vases, 1936.
Glass. Ittala Glassworks.

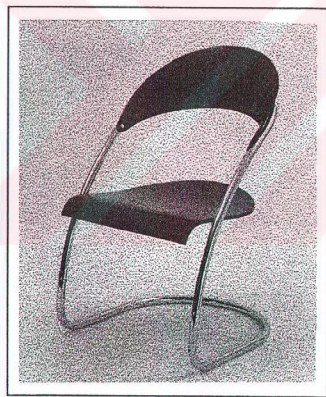


Figure 4.1- 9 Wassily and Hans Luckhardt:
Chair, Model S36, 1930. Gbr. Thonet,
Frankenberg.

One of the important example of expressionistic industrial designs of this period was Wassily and Hans Luckhardt's Model S36 (Figure 4.1-9), designed in 1930. It is clearly seen that the fluent form of the chair both in the steel frame and the plywood seat and back rest, compared to its time, was something messenger of Eames dining chairs a decade later. In this example, as the architect Hans Luckhardt wrote:

"The increased use of steel in the manufacture of furniture is beginning to have a significant influence on the development of a new furniture style in the same way as the use of steel structures in building construction did on modern architecture. The formal transformation of chairs and sofas by the use of a framework of resilient metal is a clearly visible characteristic. The seat is held by elastic supports, which has led to completely new and unusual forms. Everything is dominated by smooth, elegant lines; from this point of view, the steel armchair is unsurpassed. Steel has a natural elasticity, which can be exploited to a high degree in the interest of comfort. And steel had the added advantage of a certain uniformity, from a psychological and aesthetic point of view, ..." [45, p. 115]

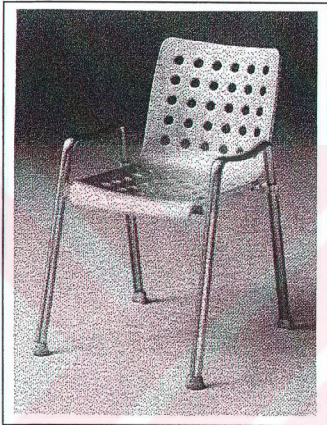


Figure 4.1- 10 Hans Coray: Landi, Stacking Chair, 1938. Zanotta.

Hans Luckhardt also wrote for their Model S36 (Figure 4.1-9) in the magazine *Innen Dekoration* in 1931:

"With its clear and attractive appearance, steel furniture is a living expression of our striving for rhythm, functionality, hygiene, cleanliness, lightness, simplicity of form. Steel is the material that is hard, resistance, durable, but which, at the same, flexibly responds to the free creative urge. A well formed piece of piece of steel furniture possesses an exclusive, independent aesthetic value of its own." [45, p. 117]

In the years between the wars, there had been some experimental designs with some other materials like the Landi by Hans Coray. The Landi designed as a stacking park chair for the Swiss National Exhibition in Zurich in 1938, using the latest

developments of the time in aluminum technology, both in terms of alloys and hardening treatments. The shell is made for strength and flexibility whereas the leg structure is as rigid as possible. As Meadmore qualified, the shell is a single mass-produced shape, comparable to the Eames shell of eleven years later. [48, p. 80]

De Noblet describes the reason of organic forms; towards 1935, as a result of Surrealist influence, because the new forms began to appear which had nothing to do with geometric forms and primary colors favored by the Post-Cubist avant-garde. [50, p. 210] This new aesthetic tendency left its mark on consumer products, but its influence, unfortunately was deferred by the economic crisis and the freeze in the development of civilian technology resulting from the war.

4. 2 Later Development of Organic and Expressionistic Industrial Design in the 20th Century

If one term can represent a movement in design, then surely the phrase 'organic design' is the essence of the postwar movement. Organic design was an attempt at harmony on a grand scale, a humanistic and endeavored to combine all the elements of design into one unified whole derived from concepts laid down by nature. [44, introduction] When we examine the chapters up to this point it is doubtless true to say that without the work on aluminum forming (Figure 4.1-10) pioneered by Hans Coray, Eames plastic shell designs (Figure 4.2.1-5 and Figure 4.2.1-6) could not have been made. Eames's uses of plywood are also refinements of what Aalto began. This period can be characterized by refinements of the classic ideas and by developments of their implications resulting from the availability of new materials and techniques.

In the 1940s, furniture designers were excited by the possibilities offered to them by new laminates, new bending techniques, and combinations of laminated wood, metal and plastic. By making a means of moulding materials in two directions at once, furniture designers were able to switch from constructed assemblage to sculptural forms. These new and rounder designs appeared also in Italy and to some extent in Britain. [15, p. 119]

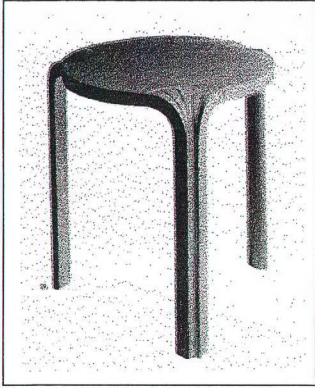


Figure 4.2- 1 Alvar Aalto: Stool, 1954. Round seat ash-veneered or upholstered. Artek.

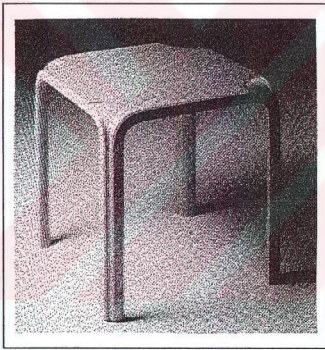


Figure 4.2- 2 Alvar Aalto: Stool, 1954. Square-shaped seat ashed-veneered or upholstered. Artek.

Alvar Aalto is again in the arena in this period with his stools (Figure 4.2-1) of 1954. According to Fehman his stools, manufactured by Artek, were perhaps his masterpieces, a culmination of the years of experimentation. Constructed of bent, solid wood with fanned bends that blend beautifully into the wood of the seat, no screws are used to hold it together, proving that bent solid wood can be transformed by the process of sawing into laminated wood. The effect is near perfection of design, a whole considerably greater than the sum of the parts. [44, p. 9] With the integral unity of whole design and the choice of material makes his design

sufficiently organic. In this designs Aalto had gradually moved away from rationality by the cancellation of screws. He also describes the importance of creativity in design process by his statement:

In order to reach practical goals lasting aesthetic forms in connection with architecture, you cannot always begin from a rational and technical standpoint—perhaps even never. Man's imagination must be given free rein. That's the way it usually was with my experiments in wood. Purely playful forms, with no purpose at all, did not lead to useful forms in some cases until ten years later. [44, p. 9]

While the Scandinavian designers focused on natural materials, the Italian and American designers of the postwar period turned their attention to making new materials and new technologies work for them. The development of inexpensive and reliable plywood and laminated boards was one of the chief technical advances of decade before World War II. The other, taken from experiments made in the automobile industry, was foam-rubber upholstery. Plywood and other kinds of wood products not only offered an alternative to frame and panel construction, they also made it possible to put a large part of production on a fully industrialized basis. Therefore architects began to think of rooms as capsules in which the building structure, furniture, and function were completely integrated. [44, p. 10]

Although the plywood had been known since the beginning of the twentieth century the moulded plywood was developed during the second World War for the aviation industry. Compared to the ordinary wood, plywood is more stable material available for more complex curvilinear forms rather than simple surfaces. Its invention had opened a new way of designing new forms in industrial design. First of all it has allowed to produce furniture light in weight. It is also useful because the strips of wood with their grains flowing in the same direction, when glued together in narrow strips. Plywood and moulded plywood as an advanced form of lamination by the rapid investment in research into the construction of aircraft during the war made the wood strips a strong resilient material which is superior to create curves of much greater strength than the bentwood in the 19th century or in the Art Nouveau style.

Moulded plywood chairs (Figure 4.2-3) were patented in the US in the late 1860s by Isaac Cole and in the 1870s by the Gardner Company of New York. Plywood technology improved during the first World War, and by the 1920s a considerable

amount of plywood furniture was available. In the 1920s avant-garde designers recognized the potential of using this new material to produce cheap furniture for the masses. The avant-garde interest in plywood was part of a broader movement to democratize design which had flourished in several countries—Austria, Germany, Britain—ever since the early years of the twentieth century and which had roots in the Arts and Crafts movement's appreciation of commonplace objects. [13, p. 202]

The postwar period is one of the most exciting in design history, not only because it is responsible for the introduction of completely new furniture forms and materials but because of its dedication to achieving perfection. The designers of the postwar period took the technology of war and turned it into something positive. [44, introduction] With the development of the new technologies of the second World War, the companies had begun to enlarge the scale of their production in order to cover a new demand of the people. The most noticeable development was in the adoption of the new materials and the new production techniques. Thus, it was the time to produce with machinery in mass, rather than producing a fine carefully crafted product. In order to supply the new demand of the people, the manufacturers and the designers had to be innovative, original and even fantastic and futuristic.

On the simple popular belief that angular chairs are uncomfortable, but organic and round ones are welcoming, it would be easy to set the designer of angular forms against the designer of organic furniture. What connects all the Modernists—Mies van der Rohe and Charles Eames, Marcel Breuer and Eero Saarinen—is a belief in themselves as planners, experimenters and perfectionists. [15, p. 117] When the concern is "organic industrial design" we see the products made of bent or moulded plywood, sheet metal, metal rod, rubber, plastic, and foam. The characteristics and the uses of these new materials have also added something more to the aesthetic quality of the so called products.

According to Dormer these technologies made the creation of the style possible in a practical sense and he counts down the reasons that made it intellectually safe to follow the course of biomorphic furniture:

First, rounded forms look comfortable for seating. Second, with the new technology of thin materials, it was possible to achieve comfort without having to become reactionary and revert to cushions, or the floral decorated upholstery of the lower-middle classes. But third and most important of all-was the examples set by modern sculpture. [15, p. 119]

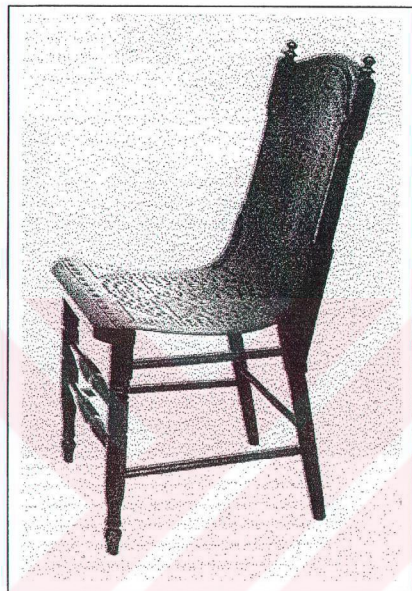


Figure 4.2- 3 Isaac Cole: Chair with one-piece seat in perforated, molded, and laminated wood . From about 1870 to 1920. Gardner and Company, New York.

It is obvious that metal is not a new material but the way of processing itself and the construction methods had been renovated during the second World War. As a construction material metal was rarely found in commercial use until the early twentieth century. The obvious advantages of metal use in industry are its inflammability and ease with which it adopts to industrial production methods. Especially in furniture, metal usually takes the form of tubing, sheets, bars or small structural elements. Furniture frames are connected by cutting metal tubes into sections bending the cut lengths and assembling them by welding or mechanical connectors. The joints are minimized by polishing the welding during the finishing processes.

There is no doubt, plastic is the true technological invention of the twentieth century industry. The word 'plastic' has been commemorated with the adjectives of formative, flexible, synthetic or capable of continuous and permanent change. It made possible to achieve nearly any form in industrial production. Thus, designers have ventured experimenting new forms by the use of this magic material. It made also possible to imitate the natural materials: Synthetic leather, for upholstery applications; wood grained laminates as surfaces and so on. Moreover it made possible some new structural forms that has been only imagined and not realized before the invention of plastic.

In addition to the use of plastic as a structural material for the post war industrial production, the process of foam moulding led the new innovations in upholstery of furniture. Especially for upholstery cushions; urethane, styrene and polypropylene have been processed to form air bubbles, causing the material to become a foam that can be produced in sheets or slabs.

Rubber—especially foam and moulded rubber—altered the concept of upholstery. It could be used as an alternative to metal springing or conjunction with it. Either way the use of rubber enabled the creation of comfortable forms with a much narrower section than was afforded by traditional upholstery. And a narrow, slimline section suited to the contemporary view of what a modern style should look like. [15, p. 121]

Dormer is to be right in his third reason when we look at the examples of respectable avant-garde sculptors from 1914 onwards, such as Constantin Brancusi, Jean Arp, Henry Moore. It seems to be indispensable to catch the round aesthetic of these sculptures. Dormer also claims that the cutting edge of industrial design, and therefore rationalism, was the aircraft industry—and its forms were biomorphic too. Furniture designers experimenting with biomorphic styling could point to the sculptors on the one hand and advanced technology on the other—and use both to legitimize their reasoning. [15, p. 120]

4.2.1 The Museum of Modern Art's Organic Design in Home Furnishing Competition and the Cranbrook School

The Museum conducted in 1940 an inter-American Competition for the Design of Home Furnishings. Other stores and eventually manufacturers also joined in sponsoring the project, which was called "Organic Design in Home Furnishings". [12, p. 5] The purpose of this competition was to encourage good designers in the task of creating a better environment. Realizing that modern techniques were being used only to duplicate weary old styles that were often neither beautiful nor practical. [44, introduction] Saarinen and Eames collaborated on their design entries to the 'Organic Design in Home Furnishings Competition' held at the Museum of Modern Art, New York, 1940-41.

The 'Organic Design in Home Furnishing Exhibition' introduced Charles Eames' and Eero Saarinen's prize-winning design to the public at large, giving stature to the concepts born at America's version of the Bauhaus, the Cranbrook Academy of Art. This exhibition established organic furniture as a style which grew out of new technologies in plastic rubber and wood lamination. Plastics, however did not have much influence in furniture until the late 1950s. [15, p. 119] Some of the most interesting furniture design in the early postwar years came from the United States, from the Cranbrook Academy of Art. [15, p. 119]

The most advanced of all these systems appears in the group of chairs (Figure 4.2.1-2) by Saarinen and Eames. In an ordinary chair there are seat and a back which support them at two or three points. In the case of a usual large upholstered chair the body sinks into a general softness until it reaches support. The principal in these chairs by Saarinen is that of continuous contact and support with a thin rubber pad for softness at all points. Eames' work has influenced furniture design in virtually every country, and his mastery of advanced technology has set new standards of both design and production. [12, p. 3] In 1947, the works of Charles Eames was published in *Domus* and this stimulated younger architects in Europe to try out new ideas with new materials.

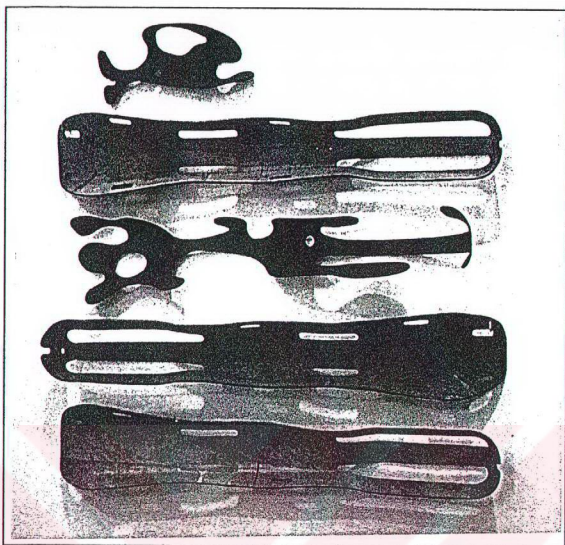


Figure 4.2.1- 1. Eames Office: Molded-plywood leg splints. 1942-1944.



Figure 4.2.1- 2 Charles Eames and Eero Saarinen: Cabinet units, armchairs, chairs and tables, designed for the 'Organic Design in Home Furnishings Competition', 1941.

The term "organic" was explained in the exhibition catalog by Eliot Noyes, the director of the Museum's Department of Industrial Design, who had recently completed his studies with Gropius at Harvard. "A design may be called organic ...when there is an harmonious organization of the parts within the whole, according to structure, material, and purpose." This definition of organic was not altogether persuades that seeks to relate ideas that have no need for conjunction: thus utility emerges as the ultimate determinant of form; and the beauty is the product of rational decisions. [12, p. 5] The definition of the term 'organic design' by Eliot Noyes helps in understanding the conceptual motivations behind Eames's work.

Actually, while the exhibition catalog reviewed the pioneering work of several modern designers, it omitted mention of Frank Lloyd Wright, who popularized the term. Noyes seems to have overlooked Wright's concept of wholeness, focusing instead on the harmony of separate parts rather than on the concept of totality that is today being termed 'holistic design'. Wright's notion of wholeness required that a whole must remain a totality in both concept and construction. To remove any part of a whole destroys the whole and harmony. The concept of 'organic design' stems from living organisms, therefore precluding the possibility of interchangeable parts. An ideal in organic design was the concept of a single harmonious unit of one-piece construction. This concept was taken up by Saarinen, but Eames adhered to a different approach. [44, p. 17] The same concept is clearly seen in Aalto's designs.

In 1941 Ray Kaiser and Charles Eames were married and moved to southern California, where they worked to develop low-cost techniques for wood lamination and molding. They developed not only new furniture but machines with which to make it—the KZAM!, machines named by Eames because KZAM! was the noise they made. This research resulted in a 1942 commission from the U.S. Navy to produce molded plywood stretchers and leg splints (Figure 4.2.1-1)—a project that gave the Eameses access to molding technology. [44, p. 18]

Through their extensive research by 1946 they developed chairs that surpassed the promise of the 1940 competition, and the museum offered Eames one-man show of his furniture, entitled "New Furniture designed by Charles Eames." Of the chairs included in the museum's 1946 exhibit, the shock-mounted side chair of molded

plywood with tubular steel frame (Figure 4.2.1-2) produced in both dining and lounge heights, emerged as a totally successful and aesthetically appealing design. [44, p. 18]

Practically, this chair (figure 4.2.1-4) has become a standard of office worldwide. Among the many ingenious design designs that followed it, the molded plywood and leather-padded lounge chair, and perhaps the aluminum frame long chair, are now also considered major achievements in the development of twentieth-century furniture.

In these plywood group designs; the five-ply wood panels, molded in compound curves, are 5/16-inch thick. Although now made in walnut, early production models used ash, walnut, and birch. Part of the elegance of this design (Figure 4.2.1-5) must be attributed to the contours of the seat and, even more, those of the back panel. Eames discarded hundreds of studies because the contours of these two elements somehow did not blend well together and did not satisfy his sense of aesthetics. [44, p. 18] In order to join the two components to each other, Eames used techniques from the car industry. Because he was a technician, and engineer, he thought in terms of industrial production and working. Eames found a solution in dividing the components into simpler parts and then joining the curved seat to the back with metal components. In order to have a elastic mounting for the plywood components, Eames used sheets of flexible rubber. All the separate parts were originally made of wood (Figure 4.2.1-4). But when a long series of experiments showed that the base always required thicker plywood than the seat and the back, Eames turned to steel for the supporting elements. In his opinion, these designs looked more attractive, and they were also cheaper. [45, p. 166] From Eames point of view, it was ultimately preferable to use the two different materials—wood and metal—for the two different functions emphasizing their differences rather than trying to minimize them. [44, p. 19]

In both models, the back panel has been described as a rectangle about to turn into an oval, the transformation being arrested at a point midway between the two shapes. Seen as a whole, however the shape is harmonious proving itself to be truly organic in form. [44, p. 19]

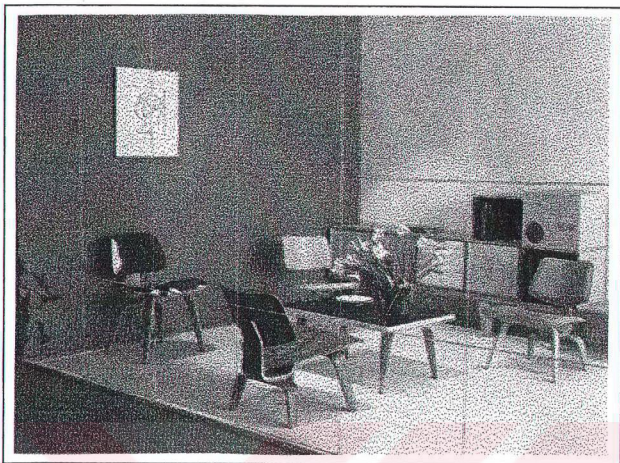


Figure 4.2.1-3 Charles Eames: Room as part of the exhibition "New Furniture Designed by Charles Eames" in the Museum of Modern Art in New York, 1946.



Figure 4.2.1-4 Charles Eames: Table and LCM chair from the 'Plywood Group', 1944-46.

During the late 1940s extreme lightness in furniture design and construction came to epitomize the American ideal. The distinctive and memorable image of this chair is now simply referred to as "the Eames® chair." The most famous of the Eames® chairs was LCM chair (Figure 4.2.1-4) which was made in two leg heights, with a chromium-plated steel leg frame. Meadmore insists that "the LCM, to our eyes, expresses the very best in Post-war design." [48, p. 87] Eames's designs do not try to suppress or camouflage mechanical details but rather make them plainly visible.

Eames continued his experiments with molded plywood from 1941 to 1948. His objective was the resolution of technical problems, but he considered aesthetics an integral part of design. [44, p. 19]

In 1948 the Museum of Modern Art conducted an "International Competition for Low-cost Furniture Design." Eames entered a molded fiberglass version of his earlier laminated plywood shell chair (Figure 4.2.1-3), which had been developed with the help of a University California team. The chair tied for second prize. By 1950 the results of the competition were in production. Since economical methods of manufacturing molded plastic had been set up by Herman Miller Furniture Company, manufactured versions were produced in plastic, although the metal versions had been exhibited. [44, p. 20] "La Chaise" (Figure 4.2.1-6) designed by Eames were also submitted to this competition but it was never produced. The full scale-model is a stressed-skin shell which sandwiches a dense core of foamed, hard rubber between thin sheets of plastic. Variations in thickness provide strength where needed. The gestural quality of the shell is enhanced by its being perched on a pedestal combining no less than three different groups of elements. It is abstract sculpture in which one might sit possibly quite comfortably. [12, p. 36]

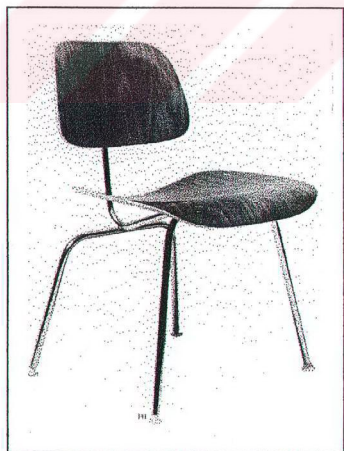


Figure 4.2.1-5 Charles Eames: Dining Room Chair, 1946. Herman Miller.



Figure 4.2.1-6 Charles Eames: "La Chaise", prototype. The model for an International competition by the Museum of Art with the theme "Low-cost Furniture Design", 1948.

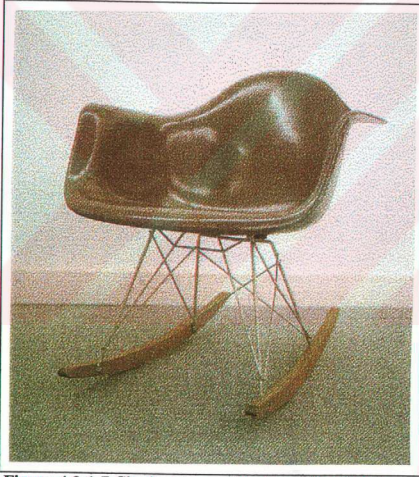


Figure 4.2.1-7 Charles Eames: "Rocking Chair" 1950. The model for an International competition by the Museum of Art with the theme "Low-cost Furniture Design", 1948.

Eames had experimented with plywood for many years, attempting to mould a chair in one piece, then using separate sections that could be produced more easily. He later turned his attention to stamped steel, aluminum castings (Figure 4.2.1-10), fiberglass reinforced plastics (Figure 4.2.2-1 and Figure 4.2.2-2), thin-gauge wire and steel rods (Figure 4.2.1-8). With his later experiments in moulded polyester (Figure

4.2.2-1), Eames returned to the problem of producing a chair in one piece. [63, p. 138]

Manufactured with legs either of metal rod, or a kind of cat's-cradle of metal wire, or wire with rockers (Figure 4.2.1-7), the chair has been a remarkably serviceable object. A side chair version without arms was also developed as a stacking chair and is a singularly compact and sturdy solution to the problem of storage; the same shape was also made of bent wire with an upholstered pad in fabric or leather (Figure 4.2.1-8), making a somewhat more unified design. [12, p. 34] These chairs produced between the years 1949 and 1963 by Eames Office are regarded as a seat element made of a shell that should be countered to the human body and the leg structure of the chairs should be quite distinct base, to which the shell is attached. Meadmore is definitely right by saying that "Eames' chairs belong to the occupants not to the building" compared to the chairs of Breuer, Mies and Aalto. [48, p. 92]

Although modern chairs are comfortable as those available to polite society in the 18th century, few modern furniture designers have been able to invent new forms for the kind of comfort provided only by well padded cushions in generous sizes. Eames is the only designer to attempt lounge chair which would surpass in comfort anything an English club can offer, to achieve this comfort in formal terms consistent with his lighter, more casual designs. [12, p. 41]

His lounge chair (Figure 4.2.1-9) consists of three rosewood shells padded with leather cushions. These are filled with a mixture of down, latex foam, and gray duck feathers. Padded armrests are encased in leather. The chair pivots on a five-pronged base of aluminum with polished top surfaces, whose connectors support the two back shells of the same material. A matching ottoman allows the chair to function as a chaise lounge. The design of the rosewood shells is deceptive one; curved across their width, they are flat on the longitudinal axis, and the combination of straight and curved lines is skillfully carried through the metal hardware. The scale is also deceptive; while appearing large enough to dominate any furniture grouping, but not too large to be arranged in groups themselves. Like all of Eames's furniture, the chair's rounded sculptural shape does not require fixed or formal placement. [44, p. 20]

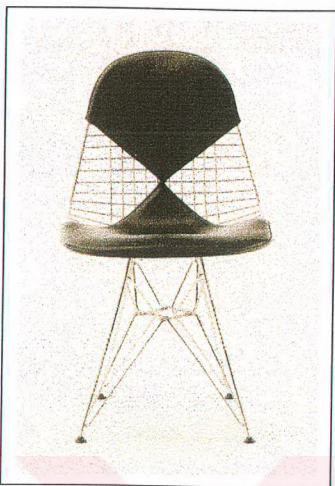


Figure 4.2.1-8 Charles Eames: Wire chair with removable upholstered elements, 1951.



Figure 4.2.1-9 Charles Eames: Lounge Chair and Ottoman, 1956. Herman Miller.

According to Meadmore Lounge Chair (Figure 4.2.1-9) is the only chair that Eames designed to achieve comfort both actual and psychological. The design was made with the psychology of comfort very much in view. Thus the leather is permanently wrinkled by the way in which the buttons are replaced, to suggest that it has recently been sat in; and the chair has generous proportions—its elements placed and angled in a way which indicates the comfort to come. [48, p. 103]

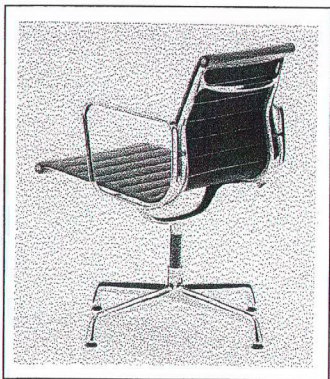


Figure 4.2.1-10 Charles Eames: Aluminum Group, Armchair, EA 107, 1958. Herman Miller.

In 1958 Eames introduced a series of chairs known as the Aluminum group (Figure 4.2.1-10) in which he repeated the thin, flat profile. Here, the seat and back are made as one continuous plane slung between structural ribs of die-cast aluminum. An elegant design, the structure consists of six metal components in two different styles, with more structural detail concealed within the seat pad. It should be noted that the most interesting technical development is the seat itself, which is constructed of front and back layers of fabric or vinyl-coated foam. This combination of materials is welded together through pressure and high frequency current, with welds occurring at intervals. [44, p. 20]

In the design of aluminum group (Figure 4.2.1-10), as Fehman claims, the marriage of metal and vinyl seems a completely natural one. Moreover, all of the aluminum-group chairs are light, comfortable, and durable, making them ideal for use in both commercial and residential applications. [44, p. 21] Their comfort can be significantly increased by the addition of leather cushions in the group known as the 'soft-pad' chairs.

When we look through the Eames' designs over a period of more than thirty years, we see the most significant modification made to all of them as the addition of a padded surface to his original molded plywood design. According to Fehmann when the plastic shells of 1950 were given a padded surface to provide additional comfort,

the design remained virtually intact, but the padded version of the 1946 plywood dining chair (Figure 4.2.1-5) was altered so radically by the addition of padding that it seemed like a new design. The visual change came from the addition of urethane foam sandwiched between a shell skin of fabric vinyl. [44, p. 21]

In this period, according to Sparke (1986), the US designers lacked, however, the political and social idealism that inspired their European counterparts and soon their slogan 'styling follows sales' had replaced the more purist 'form follows function' and the machine aesthetic had been transferred from a philosophy into a marketing device. [46, p. 49] When the second World War began military technology was still shaped by the lessons of the first World War. During the second World War, new advances in the technology were transformed to our daily life. For instance; television, transistors, plastic materials which are first became available 1950s are the results of the military technological researches of the second World War.

New materials such as light metals and plastic provided an important stimulus. Especially new plastic could be used to make almost any house hold object or piece of furniture. When the concern is organic design, in order to design a truly organic product, Saarinen was aiming at blending the construction and the material in a unity of design. As it is mentioned before, Saarinen won the first prize with Charles Eames in the 1940-41 Museum of Modern Art Organic Design in Home Furnishings competition. He together with Eames revolutionized the traditional concepts of the chair with its three-dimensional molded plywood shell-shape. But the legs were still a problem for Saarinen with his Womb chair (Figure 4.2.1-11) in 1946. Both Saarinen and Eames had a background of Cranbrook Academy of Art. Eero Saarinen's father was the president of the Cranbrook Academy of Art in 1920s, and in 1933 Eero completed the Cranbrook Institute of Science. Eames also contributed his expertise to education at the Cranbrook Academy of Art as well as lecturing internationally in many universities of the USA.

Fehmann believes that Saarinen carried the tenets of organic design even further than Charles Eames, because Saarinen was insisting: "a chair should not only be unified as an object but should also attain unity with its user and its architectural settings. A chair was incomplete without a person sitting in it " [44, p. 24]

Saarinen's Womb chair is considered by many to be one of the most comfortable contemporary chairs ever made. When conceptualizing the Womb chair, Saarinen was guided by two considerations: comfort and unity of space and architecture. Like Eames, Saarinen was concerned with anatomy, and its relationship to furniture. Thus, he set out the design a chair that would accommodate the way in which we really sit, not the way we ought to sit.



Figure 4.2.1-11 Eero Saarinen: The Womb Chairs, 1948. Knoll International.



Figure 4.2.1-12 Eero Saarinen: Tables, 1956; Womb chair, 1946-48; Pedestal (Tulip) chair (with or without armrest), 1956. Knoll International.

As it is perceived easily, the Womb chair (Figure 4.2.1-11) was an outgrowth of the collaborative effort between Saarinen and Eames that had won the 1940 Organic Design competition. Saarinen took the very similar model of the plywood armchair—submitted to the competition—by molding it as a plastic shell and upholstered it in foam rubber with loose seat and back cushions. This variation was designed for Knoll Associates in 1948. Saarinen has described the Womb chair as:

an "...attempt to achieve psychological comfort by providing a great big cup-like shell into which you can curl up and pull up your legs (something that women seem especially like to do). A chair is a background for a person sitting in it. Thus, the chair should not only look well as a piece of sculpture in the room when no one is in it, it should be also flattering background when someone is in it—especially the female occupant." [44, p. 24]

According to Saarinen's description of the Womb chair, one can understand that his approach to a furniture was quite divergent from that of Frank Lloyd Wright or Rietveld, whose main concern was the way chair would relate to the architecture rather than to the sitter. As Sembach mentions most of his designs aimed at casual shapes, in which people could let themselves go. The basic idea as Saarinen put it "a basket full of cushions." [45, p. 171]

Up to 1950s many designers were continuing to experiment with the concept of shell-form seating in plastics and plywood but the legs were still treated as separate units. Saarinen became dedicated to design a chair in which body and base were a unified structure. This led to his Pedestal group (Figure 4.2.1-12) of 1956-57, which consisted of an armchair, two stools, a side chair, and several tables. The chairs were constructed of three parts: a cast aluminum base with plastic coating matching the color of the metal; a molded plastic shell reinforced with fiberglass; and an upholstered pad of latex foam.

Even though the Pedestal group was visually organic in design, Fehman claims that it was technically still impossible to construct these pieces from a single material. Fehman also believes, someday, a single material may be developed that will allow the Pedestal chair or the Tulip chair to be manufactured to Saarinen's original concepts. [44, p. 25] Throughout his career, Saarinen's work was rooted in the organic approach. He described the ideal interior as:

"one that grows together with and out of the total concept of a building. In a sense, it grows the way chromosomes multiply out of the original sperm and the thinking of the total concept is carried down to the smallest detail. This organic unity is the ideal." [44, p. 26]

In short, with the realistic goals of the production line, Saarinen had evolved a philosophy that enabled him to conceive of the sculptural forms of his furniture for mass production technology.

Another important figure from the Cranbrook Academy of Art was Harry Bertioia who has much influenced by Eero Saarinen and Charles Eames in his designs. After having graduated from Cranbrook Academy of Art in 1937, he had began teaching full-time at Cranbrook in 1938, having been appointed Metal Craftsman.

Bertioia became fascinated with creating inexpensive, well-designed objects from nonprecious materials and with combining precious and nonprecious materials together. By 1942 Bertioia was trying out new possibilities for surface decoration, such as textures and irregular biomorphic forms. Fehman conceives that Bertioia's experiments in jewelry and his ambiguous statements in organic forms were forerunners of later designs. [44, p. 34]

After 1943, Bertioia had worked with Ray and Charles Eames, in developing the Organic Design Competition's prizewinning molded plywood chairs into a form suitable for mass production. At first Bertioia worked well with the Eameses, but after about three months of experimentation he expressed the opinion saying that "it was forcing plywood into a shape it did not want to take." [44, p. 34] On hearing this, Eames suggested that Bertioia go ahead and try out his own ideas. Bertioia then proceeded to work from the promise that a chair was not merely sculpture but must relate to the body and its skeletal behavior. He considered such issues as how long the chair would be occupied, reasoning that lengthy sitting would require more seating area to accommodate shifting body movements.

Eames preferred wood; Bertioia preferred metal. They have produced the first of the Eames® chairs together—a plywood seat and back on a three legged metal frame. The designs were initially intended to be the result of a group effort, with credit and

problems being equally shared. After a year of working together Eames and Bertioia had shown some artistic differences, and later in 1950, Bertioia began to work for The Knoll.

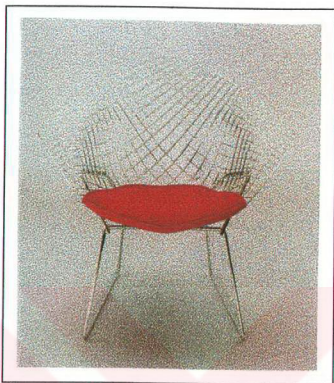


Figure 4.2.1-13 Harry Bertioia: 'Diamond' or Model 421, armchair, 1952. Knoll International.

Bertioia's wire chairs (Figure 4.2.1-13 and Figure 4.2.1-14) had become a reality by the late 1952, and produced by The Knoll. Of his work Bertioia said:

In sculpture, I am concerned primarily with space, form, and the characteristics of metal. In the chairs, many functional problems have to be satisfied first, but when you get right down to it, the chairs are studies in space, form, and metal too. My sculpture is made up of a lot of little units, and these rectangles or hexagonal or triangles are added together and produce one large rectangular or hexagonal sculpture. The same with the chair. The chair has a lot of little diamond shapes in its wire cage and they all add up to one very large diamond shape and this is the shape of the whole chair. It is really an organic principle like cellular structure. [44, p. 35]

Bertioia, like his contemporaries Eames and Saarinen, created timeless design that appear as contemporary now as they did when they were conceptualized in the era of organic design.



Figure 4.2.1- 14 Harry Bertoia: 'High Back', 1952.
Knoll International.

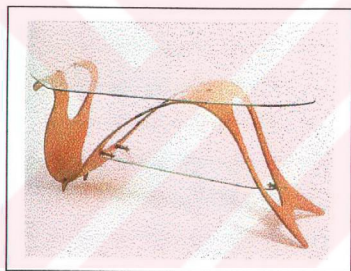


Figure 4.2.1-15 Carlo Mollino: 'Arabesque'
table, 1949.

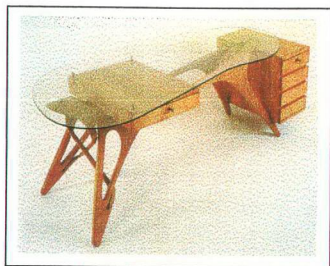


Figure 4.2.1-16 Carlo Mollino: Desk with
wooden compartments, 1950. For Singer's Office.

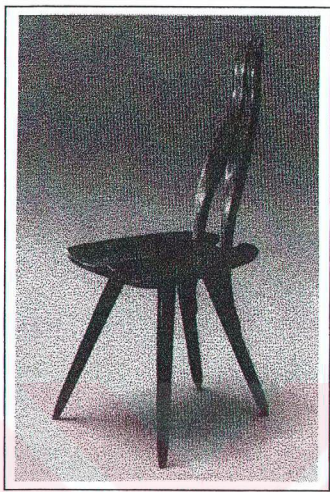


Figure 4.2.1-17 Carlo Mollino: Fenis, 1959. Zanotta.

The organic look varied from country to country. In Italy, the architect and designer Carlo Mollino had genius for creating bentwood and metal furniture that was erotic. That is to say, Mollino's interest in erotic art fed through into his designs which, though not obviously figurative, are unambiguously related to organic forms such as genitalia. [15, p. 125]

In the early forties, Carlo Mollino designed opulent interiors for a small circle of friends, which shows his obsessions particularly clearly. Almost all his furniture was erotically stimulated, 'lecherous', as he himself described it. [45, p. 175] He withdrew to get his inspiration to his 'Garconnières', bachelor flats, which he furnished for himself. His imagination covered a very wide range. It went from voluptuous armchairs to skeleton-like table frames, on which he placed naked sheets of glass (Figure 4.2.1-15). As Sembach claims that these bare pieces were a late return to Art Nouveau à la Gaudí, whom Mollino greatly admired. [45, p. 176] But unlike the Spaniard's carved structures, Mollino's shaped wooden furniture (Figure 4.2.1-17) was ideally suited to industrial mass production, in spite of its artistic character.

4.2.2 Organic Industrial Design in the Late 20th. Century

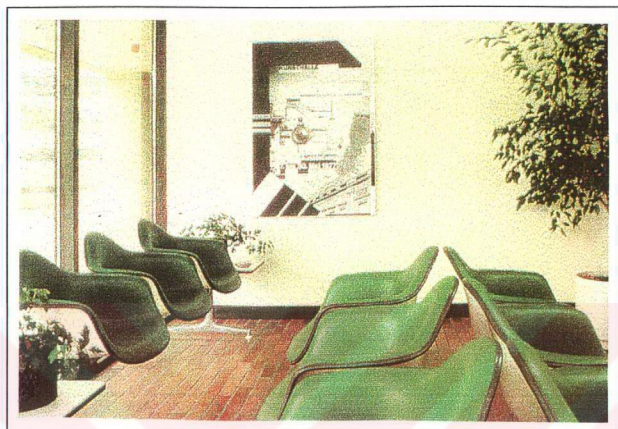


Figure 4.2.2- 1 Charles Eames: Tandem Shell Seating, 1963. Herman Miller.

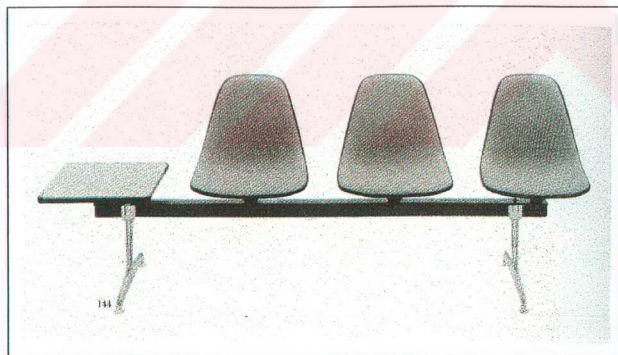


Figure 4.2.2- 2 Eames Office: Tandem Shell Seating without armrest, 1963. Herman Miller.

A rapid extension in the international trade in furniture occurred after the war, manufacturers looked beyond their home markets in all but upholstered furniture. As 1950s progressed, the leading edge in contemporary furniture design began to move from the USA to Europe, with the danes in particularly recycling the Eames/Saarenen

'vessel look' with great flair. [15, p. 127] Notably Arne Jacobsen created for manufacturer Fritz Hansen a plywood and chromed-steel stacking chair of 1951, followed in 1957 by both the Swan upholstered armchair (Figure 4.2.2-6) and the Egg (Figure 4.2.2-5) chair and ottoman. This leather-upholstered, foam-rubber-covered fiberglass shell took the serious organic forms.

Following the war, eyes turned to the United States for inspiration. Fehman claims that Frank Lloyd Wright exercised a strong influence on Danish postwar architecture, his concept of organic unity manifesting itself in the detached house of the Danish upper class. According to Fehman's claim, Jacobsen was influenced by Wright and to greater extent by Mies van der Rohe. [44, p. 53] Like Wright, Jacobsen preferred to design in the vein of conceptual holism, creating not only the architecture itself but the landscaping, interior furnishings, and lighting fixtures, so that all parts would be in harmony. [44, p. 53] As a result he worked in different areas of design, creating furniture, textiles, lighting fixtures, stainless steel flatware, wallpaper, bathroom fixtures, and even package design for his own products.

Around 1950s, after the climax with Aalto's design by 1930s, Danish furniture production lost its emphasis on craftsmanship. New manufacturing processes and materials such as steel and synthetics destroyed the supremacy of wood, which is dominated in Aalto's designs. The architect Arne Jacobsen became particularly famous for his mastery of industrial techniques. He had created a lightweight, three-legged chair, known as the "Ant" with thin tubular steel legs and moulded plywood seat. Later, Jacobsen designed chairs, similar to the "Ant", under the name of Series 7. The four-legged type (Figure 4.2.2-4) of the "Ant" represents the decisive step towards the modernization of Scandinavian furniture. [45, p. 187] As it is clearly seen in all of his designs, Jacobsen had been influenced by Eames. But here, he conserved the private character of Scandinavian furniture.

The Model 3107 (Figure 4.2.2-3) with four legs was, and still is, produced in millions with numerous variations (Figure 4.2.2-4), with or without armrest, in different colors, with removable covers, padded with foam rubber and upholstered in leather or wool. Model 3107 is the derivation of Model 3100, with three legs,

designed three years before by Jacobsen and was the decisive step towards the modernization of Scandinavian furniture. As Luciano Rubino wrote:

"We can describe it as a minimum for sitting: there are three legs, of metal tubing with the precisely calculated minimum section required to support the load ... the seat-back is made of rolled metal section and wood, so that it has a physiological shape and at the same time an enduring elasticity. While the seat and back grow wider in order to embrace the variability of the human frame, the link between the two elements is narrow, for it merely has to ensure the mutual elasticity of the two parts ..." [51, p. 345]

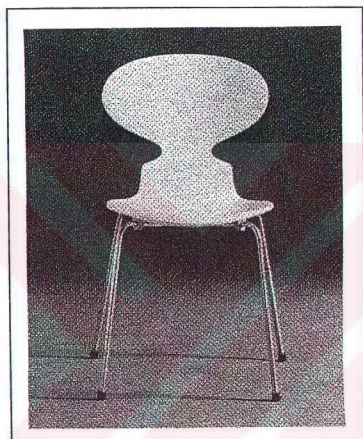


Figure 4.2.2- 3 Arne Jacobsen: Chair, Model 3107, 1952.

When Arne Jacobsen presented his model of a stackable chair the "Ant" with seat and back in one piece of moulded plywood to the firm, Fritz Hansen, they were not much enthusiastic. Fritz Hansen Furniture Factory had already experimented with steam-bent plywood for many years. In the beginning, Jacobsen had ordered 200 copies of the Ant chair for the new canteen he was designing for Novo. Since then, Fritz Hansen has produced five millions of them. [52, p. 8]

While designing his chair the Ant, in order to mold double-curved seat shell in one piece, Jacobsen saw the necessity to narrow it at the joint between seat and back. This was the technical argument for the characteristic waist profile which was to give the chair its name: The Ant. But this narrowing and the three legs of the tubular steel

frame are also expressions of the need to minimize the use of material which become a characteristic of Arne Jacobsen's works from that period. [52, p. 9] The Ant, marks a turning point in Arne Jacobsen's career as designer. With this chair he distances himself from Danish furniture tradition and furniture craft, as well as from excessive modernism.

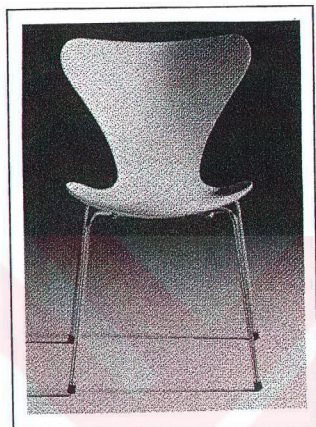


Figure 4.2.2- 4 Arne Jacobsen: Series 7, Chair, 1955. Fritz Hansen.

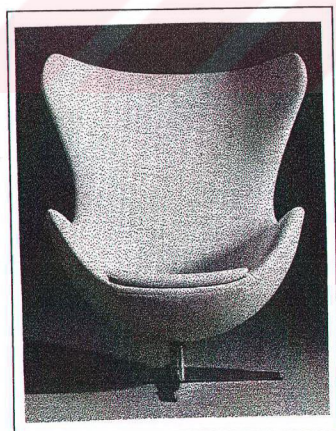


Figure 4.2.2- 5 Arne Jacobsen: 'The Egg', armchair, 1959. Fritz Hansen.

Tøjner describes Jacobsen's the Ant and Series 7 as "timeless", because of the features in their design such as; unconstrained lines or organic forms combined with minimalization of material, constructive rationality and the demands of industrial production. [52, p. 10]

Jacobsen's best known chairs The Egg (Figure 4.2.2-5) and The Swan (Figure 4.2.2-6) also realize an idea, connected to the concept of organic form, by which seat, back and armrest are in one continuous shell shape. According to Tøjner, The Egg is constructed like The Swan and must be regarded as its armchair parallel. [52, p. 78] One of the intentions with The Egg was that the rather tall shell should constitute a shelter against the surroundings. The chair rotates, so the person sitting in it could easily adjust it to any desired direction.

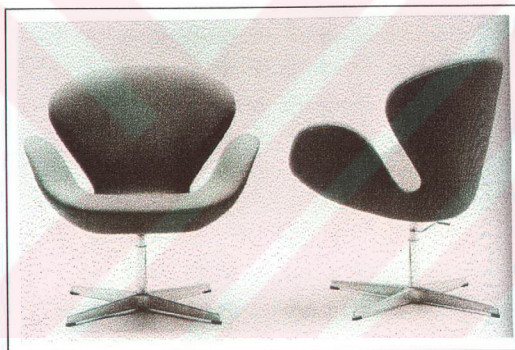


Figure 4.2.2- 6 Arne Jacobsen: 'The Swan', armchair, 1959.
Fritz Hansen.

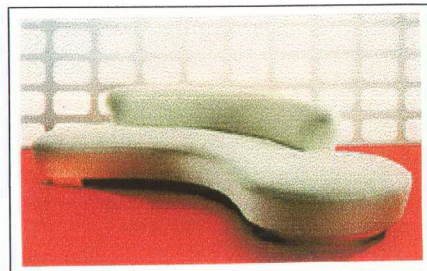


Figure 4.2.2- 7 Vladimir Kagan: Serpentine sofa, 1949.

Vladimir Kagan, whose early focus was on painting and sculpture, is one of the 20th century's pre-eminent modern furniture designers. "I've been modern for 50 years," says Vladimir Kagan, whose organic furniture shapes (Figure 4.2.2-7 and Figure 4.2.2-8) have been collected since the 1940's by celebrities such as Marilyn Monroe, Donna Karan and many design museums. [65, p.1]



Figure 4.2.2-8 Vladimir Kagan: Sculpture table, 1953.

Panton's stackable chair (Figure 4.2.2-9) is the first single form plastic chair, and is still one of the most satisfying and sensible. Panton's chair is resembling to Gerrit Rietveld's Zig-zag, designed in 1934, in terms of load and stress distribution through one cohesive form. Few designers have achieved such a logical shape, in terms of comfort and strength of structure, as Meadmore emphasizes and continues:

Like all Panton's designs it has, in spite of great fluidity of line, a tightness of form rarely found in any plastic or glas-fibre structure. There is trace of the formal vocabulary of the Art Nouveau style, in the slightly disconcerting way in which the chair seems to grow out of the floor. In this design the freedom allowed by advances in plastics and mould-forming technology has been exploited to maximum advantage, but with a fine degree of restraint. The form is generous, but strictly functional. [48, p. 111]

The Chair 20 (Figure 4.2.2-10), designed by Poul Kjaerholm in 1968 is another example of curvilinear aesthetic. In this model, as Meadmore implies, visually the chair shares the same elegant gracefulness as all Kjaerholm's recent designs. The side frames of the seat and back, and the cantilever leg units are all connected to a single steel yoke, which is slightly bent, this springs the side frames outward. [48, p. 145] The ingenious use of material and an ability to simplify the elements were expressively defining their function.

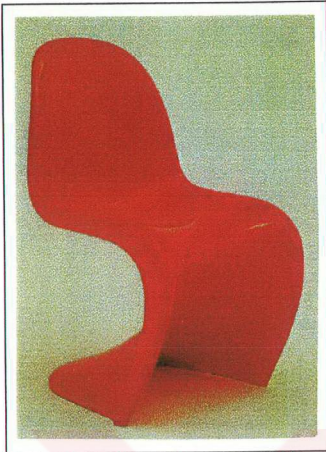


Figure 4.2.2- 9 Verner Panton: Stackable Chair, designed in 1960. Produced in 1968. Herman Miller.

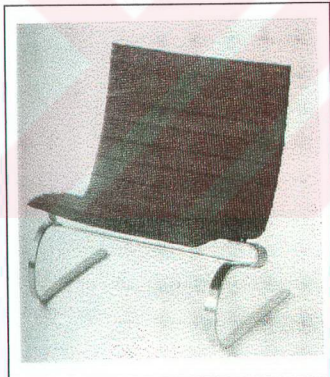


Figure 4.2.2- 10 Poul Kjaerholm: Chair PK 20, 1967. Fritz Hansen.

Aarnio's 'Gyro' chair (Figure 4.2.2-11), also called 'Pastilli', is a two-part glass-fibre casting, seamed around the perimeter of the form. It is made in a selection of bright colors, and intended to be enjoyed as much as possible by its owner and his children. As Meadmore defines, it is organic in form similar to his other designs, and surprisingly comfortable for ordinary sitting purposes, and it rocks and gyrates freely on its rounded, unprotected bottom. [48, p. 148]

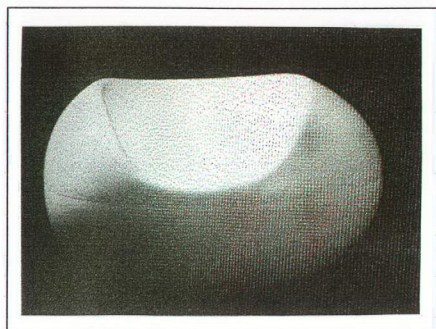


Figure 4.2.2- 11 Eero Aarnio: 'Gyro', 1968. Asko.

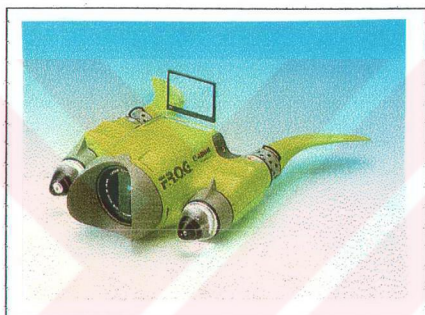


Figure 4.2.2- 12 Luigi Colani: 'Frog' experimental underwater camera. Model for Canon, 1983.

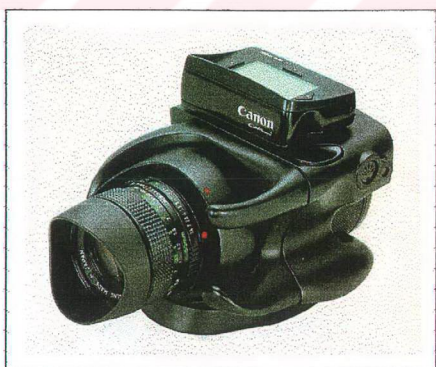


Figure 4.2.2- 13 Luigi Colani: Camera with electronic viewfinder, 1984. Prototype for Canon.

In November 1985 *Design* magazine, images with a single title of 'Frog Points' were published. As Jones implies that these biomorphically designed cameras (Figure 4.2.2-12 and Figure 4.2.2-13), modelled on the shapes of the human body, fish animals and trees did not even merit a page to themselves. Yet just a half decade later Luigi Colani's designs had come to represent the earliest evolutionary stage in a new family product development—one which is taking Canon and a few companies like it into new consumer obsessed millennium—organic design. [49, p. 283]

Even in the mid-eighties, after Ettore Sottsass, after architecture had gone resolutely Post-Modern, and long after Saarinen, Eames and Mollino had used organic forms in their work, Canon's prototypes seemed shockingly revolutionary, fantastical. According to Jones, the sculptural forms of Colani's biomorphically designed objects and his obsessively extreme, aerodynamically styled vehicles (Figure 4.2.2-16) were a straight forward reaction against the strict, functionalist determinism of German design. [49, p. 284]

In 1983, recognizing a certain empathy between Colani's dictum that 'machines should conform to human beings' and its own corporate mission statement that 'Canon cameras are more and more approaching the shape of the human hand.' [49, p. 285] Although Colani presented five full-size models, illustrating proposal for different types of camera, and Canon let him progress these projects, Canon never put them into production. The obvious references in their styling was the natural world, they look more like a series of strange aquatic life forms in other words organic forms, definitely far from the classical geometry of cylinders, cubes and pyramids which are mostly used in Canon's production at that time. It is really possible to say that Colani made the cameras taken on these biomorphic clothes.

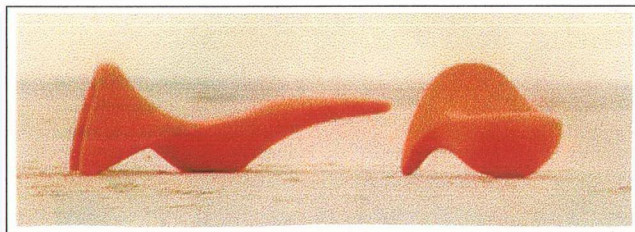


Figure 4.2.2- 14 Luigi Colani: Seat, Chase Lounge, integral foam body, 1965.

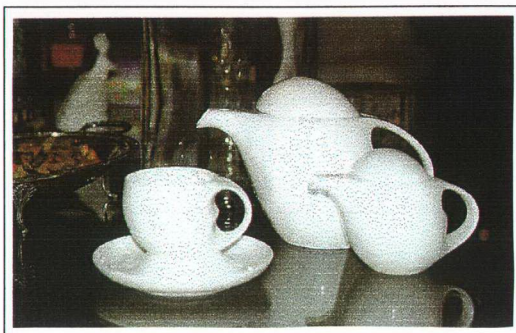


Figure 4.2.2- 15 Luigi Colani: 'Ovo' tea set, 1971. Tachikichi.



Figure 4.2.2- 16 Luigi Colani: Model of aerodynamic helicopter, 1977.

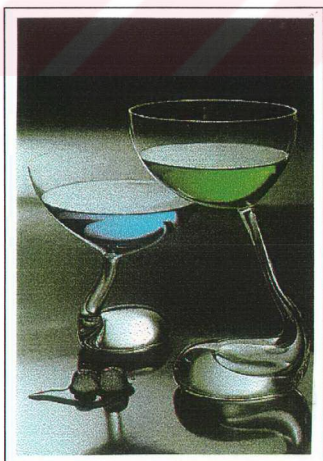


Figure 4.2.2- 17 Luigi Colani: 'Kiwi 4577' Glasses, 1980. Ritzenhoff-Cristal.



Figure 4.2.2- 18 Luigi Colani: Sicos Computer Mouse, 1993. Sicos.

In spite of his international reputation, only a few of Colani's designs (Figure 4.2.2-15; Figure 4.2.2-17; Figure 4.2.2-18) have been industrially produced. His planes, trains and cars just remained as a shells waiting for functions for which they were designed. When considering this, Colani's work has to be seen as a failure. "Organic design is extremely Japan oriented design" confirms Wataru Nagasaka and continues "organic design is based on the ideology of harmonizing with nature, which is a typical characteristic of Japanese culture." [49, p. 291]



Figure 4.2.2- 16 Oscar Tusquets: Four-piece tea service, 1983. Tea pot, sugar bowl, milk jug, tray. Silver 925/1000. Alessi.

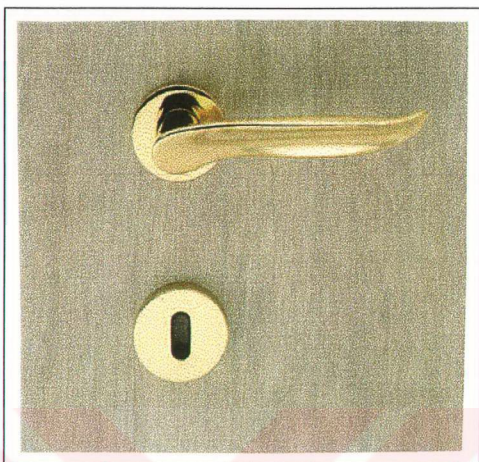


Figure 4.2.2- 20 Oscar Tusquets: Carmen door handle, 1998. Olivari

Trained as an architect, Oscar Tusquets has got painter's inclination and designing vocation. He can be considered as the kind of integral artist that nowadays' threatens to make disappear. [71, p.2] This four-piece tea service (Figure 4.2.2-19) is made of silver and gold plated brass and the tray in silverplated stainless steel; the teapot handle is made of applewood and the lids for the teapot and sugar bowl are in crystal. This tea service was part of a total range of eleven tea and coffee services designed by several designers. The program began in 1979 and the production of these tea and coffee services began in 1983. [71, p.1]

Karim Rashid, who is half-English, half-Egyptian and raised mostly in Canada, is one of the contemporary industrial designers. His award-winning 'Umbra's Oh Chair' (Figure 4.2.2-21) is made from injection molded polypropylene, and is ideal for either indoor and outdoor use. Rashid says that he designs furniture to be "light, flexible, reconfigurable and comfortable." [66, p. 1] The 'Oh Chair—the curvy, funky-colored plastic chair so prevalent in every fresh meeting room in America. Rashid introduced "blobject", "sensual minimalism" and "orgonomics"—union of organic and ergonomic— to design vocabulary. [68, p. 1]

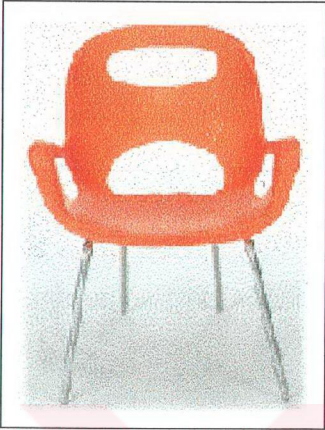


Figure 4.2.2- 21 Karim Rashid: 'Umbra's Oh Chair', 2000.



Figure 4.2.2- 22 Karim Rashid: Glass.

Karim Rashid has designed more than 200 objects in the past five years, so this proves Charles Eames' theorem that good design creates its own market. His designs have been described as the art of changing world. According to Rashid "Design is everything we interface. These things shape our life. Design is rooted to everyday life, every tap you turn, every doorknob you touch." [68, p. 1] In a very short time Rashid has become one of the most vendible designers. The so-called "sensual minimalism" that characterizes his style—the feminine curve—is as evident in his polypropylene Umbra waste and chair (Figure 4.2.2-21). "Form is much more seductive when the product's aesthetics are experiential, and not just visual," Rashid

says, declaring the importance of engaging the senses. Objects have to blur experience with form so that they are inseparable, it means retooling the stuff we live with to suit the way we really live. It means that if we slouch in chairs, we make chairs that let us. [67, p. 1]



Figure 4.2.2- 23 Kosta Boda: Carmen

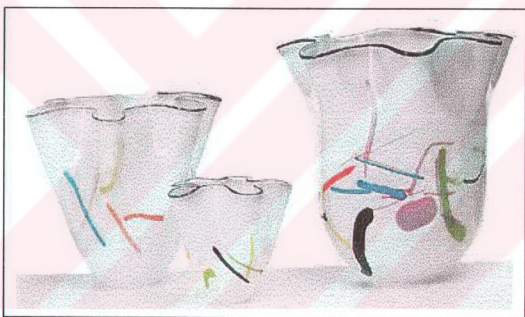


Figure 4.2.2- 24 Kosta Boda: Carmenzita, 2000.

There can be seen the similarity between Aalto's vases (Figure 4.1-7 and Figure 4.1-8) and the Carmen (Figure 4.2.2-22) and Carmenzitta (Figure 4.2.2-23) produced by Kosta Boda. The essence of both Aalto's vases and Kosta Boda's vases are based on twisted seaweed rhythms abstracted from nature. This organic look can be determined as a family resemblance of Danish design.

Marc Newson, a native Australian, spent much of his childhood traveling throughout Europe and Asia, where he was exposed to the cultural riches the world had to offer. Setting out to study jewelry design at Sydney College of Art, Newson quickly realized his future lay in the world of furniture design. After three years graduating in

1984, in 1987 the Japanese design giant Idee put Newson's Orgone Lounge (Figure 4.2.2-25) and Felt Chair (Figure 4.2.2-28) into production. Newson's designs reflect the changing aesthetics in today's pre-millennial world. Using high-tech materials and state of the art manufacturing techniques, Newson's furniture and objects possess a languid sensuality of form held in check by the rigid geometry of structure. These seemingly conflicting elements blend together to create objects that are luxurious to the eye yet maintain an air of high-tech sophistication. [69, p. 1]

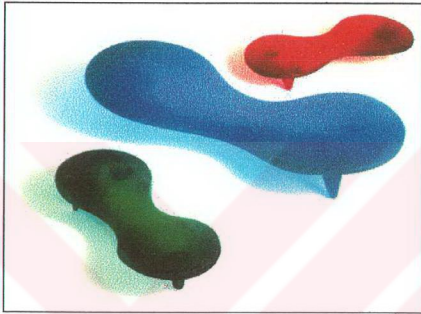


Figure 4.2.2- 25 Marc Newson: Orgone Lounge, 1987. Idee.

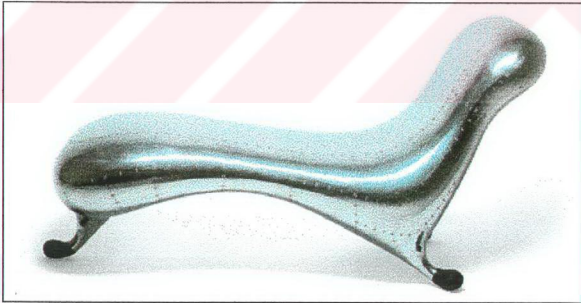


Figure 4.2.2- 26 Marc Newson: Lockheed Lounge, 1986-88. Pod

As it is implied in the referring web page Newson's designs are renowned for innovation and creativity. His designs are unique and create their own label for clients. [70, p. 1] Besides their organic look his designs represent their owner with their sculptural quality.

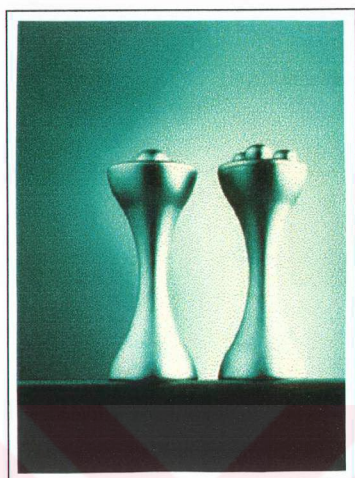


Figure 4.2.2- 27 Marc Newson: 'Owo' Salt & Pepper, 1991. Owo.

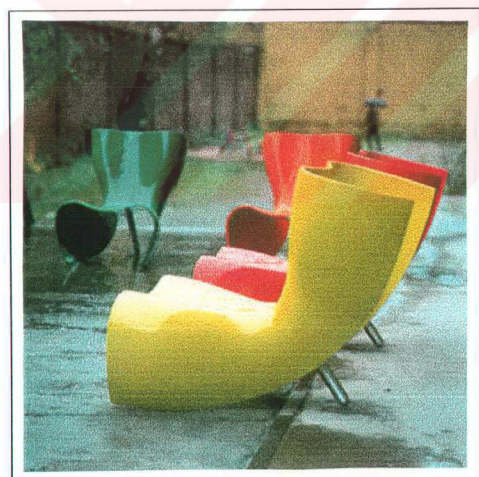


Figure 4.2.2- 28 Marc Newson: Fiberglass Felt Chair, 1999. Cappellini.

CONCLUSION

Throughout the study while evaluating architecture and industrial design, the meanings of both organic and expressionistic introduce themselves as the major themes of this thesis. When the concern is architecture, the term 'organic' firstly declared by an American architect, Frank Lloyd Wright. In the context of industrial design, the term 'organic' was firstly introduced in the exhibition catalog by Eliot Noyes who was the director of Department of Industrial Design in the Museum of Modern Art, in New York. As it is mentioned in part 4.2.1, a design may be called organic when there is an harmonious organization of the parts within the whole, according to structure, material, and purpose.

Certainly, it is not much reasonable to connect the roots of organic design to the definitions of these two persons. There were already some buildings and industrial products which had been designed organically both in Europe and the United States before their declarations. The emergence of the term and concept of organic in the history of both architecture and industrial design is very much related to Art Nouveau in general. Organic is a vast concept in the 20th century whereas in the 19th century in Art Nouveau movement, it was simply understood as an organic unity in design in order to invent new forms to stimulate the aesthetic sensibilities beyond the bounds of accepted formulae. This organic unity has been also understood as the 'total work of art' which was the aim of Art Nouveau architects and designers, in which every detail, down to the last fixture would bear the same aesthetic character as the overall building. This organic unity was also aimed and applied in expressionistic architecture in the 20th century. In the 19th century the concept of organic also was reduced to the curvilinear motifs, the twisted, twining plant forms which was basically abstracted, reformed and restyled from nature. However this limited use did not last and the content of organic gradually has been enriched.

Organic and expressionistic both conceptually followed different pattern in the history of architecture. Organic was recognized in the field of architecture as the major definition of Wright's architecture. In this thesis, organic and expressionistic

have been studied within the context of their relationship with architecture and industrial design. In this respect probably the most crucial intersection between organic and expressionistic occurred in the in the mid of the 20th century as a rising concept in industrial design.

It becomes clear that the concepts of organic and expressionistic subject to alterations in the course of architecture. Organic was a broad concept that it has been used by Frank Lloyd Wright in the field of architecture. However, his understanding of organic architecture has substantial features and principles that cannot be applied to organic industrial design without difficulty. Actually this seems nearly impossible.

In the context of architecture, today, there are three distinct architectural disciplines which go by the name of 'organic', each have been discussed in chapter 3.1. The first one is organic by 'nature', the second one organic by 'composition', and the third one is organic by 'design'. Their common origin is based on the 'Primary Architecture' which is founded in the basic survival need for shelter. Although Wright was the first architect who specifically introduced the term 'organic' to describe his architecture, his organic architecture has been recognized by some of the contemporary critics as an organic architecture by nature. However, the meaning of organic architecture in the architectural circles has been mostly understood as the organic architecture of Frank Lloyd Wright.

From beginning to end when we evaluate all the work of Frank Lloyd Wright, there can be seen one important element remaining constant. This major element is the human values. In his organic architecture, architecture itself is a necessary interpretation of such human life with individuality and beauty. When considering Wright's organic architecture from the points of form, the appearance of his buildings doubtlessly rectangular, except his Guggenheim Museum (Figure 3.1-13) there were nearly no fluidity, no curvilinear form in his buildings.

As it is mentioned above the two terms organic and expressionistic followed different patterns in architecture. In general, for expressionistic architecture, the period is defined shortly before and after the first World War. It can also be determined in short as rejecting right angle as a necessary condition for architectural

form and rejecting various dogmatism. Chapter 3.2 takes the development of the expressionistic architecture as starting point from the beginning of the 20th century to nowadays examples. The 'total work of art' referred to the total environment in expressionist architecture. This can be clearly seen in Saarinen's TWA Terminal Building (Figure 4.2.3-8), in a total environment where each part was the consequence of another and all belonged to the same form world. The meaning of 'total work of art' in expressionistic architecture is nearly the same thing with the 'organic unity' of Art Nouveau. Irrational, arbitrary plastic, unique, symbolic, even utopic are some adjectives in order to define expressionistic architecture.

Having examined organic architecture in Chapter 3.1. and expressionistic architecture in Chapter 3.2, it can be easily said that Wright's organic architecture is completely different from what we call expressionistic architecture. On the contrary expressionistic architecture is closer to Art Nouveau with the use of fluid forms stimulating the aesthetic sensibilities, to encourage the conception and realization of organic unity.

Organic industrial design as a term appeared in literature in the mid of 20th century in America. The concept was developed gradually within the body of industrial design and transformed into the term: biomorphic design. Organic industrial design became popular in the mid of 1940s of America. The effects and increase of organic industrial design in Europe especially in Scandinavian and Danish design can be clearly seen in around 1950s and 1960s. Very recently, it was noticed that the excessive use of the term biomorphic instead of organic is nothing than the term expressionistic in the context of industrial design. Soon, it will not be difficult for anybody to identify any organically and/or biomorphically designed industrial product as an expressionistic object. In a biomorphic design the idea is that the thing gathered itself up into a whole shape and then presented the control to the user. This means that the product expresses itself to the user through its organic form. Thus, a biomorphically designed product is not only organic but also expressionistic.

The term 'organic design' can be sufficient to represent the movement in industrial design in the period of postwar era. This period is full of refinement what has been done in industrial design up to that time. That is to say that without the work on

aluminum forming pioneered by Hans Coray (Figure 4.1-10) and without Luckhardt's (Figure 4.1-9) and also Aalto's (Figure 4.1-3 and Figure 4.1-4) plywood chairs, Eames dining chair (Figure 4.2.1-5) or plastic shell designs (Figure 4.2.2-1) could not have been made.

In 1950s the concept of 'organic design' arrived at a gestural quality of abstract sculptural shell designed chairs in which one might sit possibly quite comfortably. Thus the chair should not only look well as a piece of sculpture in the room, it could not be thought without the user in it. So, one can understand that this approach was quite different from that of Frank Lloyd Wright or Rietveld or even Alvar Aalto, whose main concern was the way chair would relate to the architecture rather than to the sitter. Thus, it can be easily said that the human and the human factors have been becoming more important rather than mere aesthetic criteria.

The reason of the developments of organic forms towards 1935 can be the result of the Surrealist influence, because the new forms began to appear which are impossible with geometric forms and primary colors favored by the Post-Cubist avant-garde. Another reason might be the examples of respectable avant-garde sculptors from 1914 onwards, such as Constantin Brancusi, Jean Arp, Henry Moore. It seems to be indispensable to catch the round aesthetic of these sculptures. Thus, industrial designers experimenting with biomorphic styling could point to these sculptors with the advanced technology of the time just before the 2nd World War.

When we look at the exhibition catalog of the Organic Design in Home Furnishing Exhibit, organized by the Museum of Modern Art, one can also perceive the Wright's concept of wholeness. The pioneering work of several modern designers in this catalog were focusing on the concept of totality instead of focusing on the harmony of separate parts. This approach can be also termed 'holistic design' which precludes the possibility of interchangeable parts because removing any part of a whole destroys the whole and harmony. A Scandinavian designer Arne Jacobsen, who also influenced by Wright, preferred to design in the vein of conceptual holism. The concept of 'organic design' stems from living organism which is a single harmonious unit of one-piece construction. In order to design a truly organic product, Saarinen was aiming at blending the construction and the material in a unity of design.

Although the organic look varied from country to country and also from time to time, inspiration of industrial designers have not changed. Their interest is mostly in organic forms of the nature itself. This could be the reason why organic industrial designs were described 'timeless'. They are also 'timeless' because of their unconstrained lines or organic forms, often combined with minimalization of material, constructive rationality and the demands of industrial productions.

Even in the mid-eighties, after Post-Modern designs, and long after Saarinen, Eames and Mollino had used organic forms in their work, Luigi Colani with his biomorphically designed sculptural forms came to arena. Shockingly in mid-nineties Marc Newson's designs which are renowned for innovation and creativity and reflect the changing aesthetics in pre-millennial world. Karim Rashid who is one of the nowadays designers, emphasizes the importance of engaging the senses. In Rashid's designs (Figure 4.2.2-21 and Figure 4.2.2-22), objects nearly have been blurred with form so that while experiencing the objects one cannot separate the form from object. In the field of industrial design this inseparable integral unity of form and object might be acknowledged as the proof of the synonymity of two terms: organic and expressionistic. These biomorphically designed objects of organic industrial designers in the last two decades of the 20th century can be determined as a straight forward reaction against the strict, functionalist determinism of the design doctrines in the second half of the 20th century.

The appearance of biomorphic and user-friendly forms in the eighties and its continued, perhaps unexpected, presence in the nineties has deeper roots than the stylistic preconceptions of a single designer. Today, the technology to make organic designs in natural, hand-crafted materials like ceramics, glass and wood had always been available. It is simply molding the outer position of hands or any other parts of the human being and adopting this shape into the product to be designed. In the late seventies, organic products began to use the technology of CAD/CAM (computer aided design, computer aided manufacture) and also knowledge of human factors engineering. Indeed, distinctively biomorphic products, were being designed and marketed for some time before Colani's designs. Most of them were aimed at babies' bottoms and disabled or geriatric fingers. Charles and Ray Eames' experiments on

plywood leg splints were also some biomorphic apparatus (Figure 4.2.1-1) for somehow disabled persons of the US Navy.

Most of the products which have adopted to biomorphism developed the combination of rounded forms and highly 'touchable' controls to maintain the easy operational, practical grip. When we examine the later examples of Canon designed by Colani and other Japanese industrial products it can be easily seen that they have already represented the influence of Japan's own culture on the products. Organic design seems to be Japan oriented design because 'organic design' is based on the ideology of harmonizing with nature, which is a typical characteristic of Japanese culture. This seems nothing than what Frank Lloyd Wright insisted in his description of 'organic architecture'. There was also strong influence of Japanese design in the initial stage of both Arts and Crafts, and Art Nouveau Movements, even in the Bauhaus. Wright had never rejected the Japanese influence on his architecture and he also had been inspired from the declaration of an oriental thinker, Lao Tze.

In this study, organic architecture has been taken hand as Wright's organic architecture. Once organic architecture has been examined from the point's of Wright's understanding, it has been compared to the expressionistic architecture starting from the late 19th century. Although there were some organic forms mentioned in Art Nouveau and in its successor expressionistic architecture, what is implied by 'organic architecture' of Frank Lloyd Wright is completely different than what is implied by expressionistic architecture. The same comparison has done for industrial design. Since the industrial products were in close relation with the human beings, the form is adopted to the curvilinear form of the human body. These fluidity and formal plasticity of organic industrial design is nearly the same thing with expressionistic industrial design. The first one aims to create user friendly designs, and the second one aims to create fantastic bizarre shapes in design. Although they differ in the initial stage of industrial design process or actually in their goals, in the final stage both arrive at such plastic forms.

Besides the other differences relating to both theoretical and practical processes of architecture and industrial design, some attitudes or some trends or in other words some "isms" within the historical perspective seem to be understood differently. As

it is easily understood that the period of the organic trend in architecture is not synchronous with the organic trend in industrial design. Also expressionistic architecture is definitely different from Wright's organic architecture. Naturally, the meaning of organic in architecture differs from the meaning in industrial design. On the other hand, expressionism falls nearly in the same period in both areas and in the end we see that the meaning of organic industrial design has the same meaning with expressionistic industrial design.



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AUTOBIOGRAPHY

Reyhan Varlı G rk was born in Marmaris in 1967. She had also graduated primary education in Marmaris. She had been awarded by the second degree while finishing Marmaris High School in 1984 and at this date she had registered to the Department of Mathematics at the METU. After studying English Preparatory school and being a freshman student in the Department of Mathematics, she decided to change her study area. Uninterruptedly she had been a registered student in the Department of Industrial Design at the METU. In June 1991, she had a degree of Bachelor's of Industrial Design. She had worked for the  ankaya Municipality in the Recycling Project Group from 1992 to 1996.

In the 1997-1998 Fall semester she had an entry to the İTU under the post-graduate program of History of Architecture in the Department of Architecture. During the 1998-1999 Fall and Spring semesters she had to take a leave for one year in order to rest because of some special health problem. In May 1999 she got the success prize of "the İlknur G rcan Ulusal Proje Yarışması" (İlknur G rcan National Project Competition) which was organized by the İTU and the METU and had a theme of 'Safe Seas, Secure Cities, Healthy Buildings and Civilized Society'. Reyhan Varlı G rk has been married since 1993 and has got one daughter. She is still planning further academic study.

ÖZGEÇMİŞ

Reyhan Varlı Görk 1967 yılında Marmaris'de dünyaya geldi. İlk ve orta eğitimimi Marmaris'de tamamladı. 1984 yılında Marmaris Lisesi'nden ikincilikle mezun olduktan sonra, aynı yıl ODTÜ Fen Edebiyat Fakültesi, Matematik Bölümü'nü kazanarak İngilizce Hazırlık Okuluna başladı. 1985-1986 Eğitim Öğretim yılında bir yıl Matematik Bölümü'nde eğitim gördükten sonra, 1986-1987 Eğitim Öğretim yılında bölüm değiştirerek Endüstri Ürünleri Tasarımı Bölümü'ne kayıt yaptırdı. 1990-1991 Öğretim yılı Haziran ayında ODTÜ Endüstri Ürünleri Tasarımı Bölümü'nden mezun oldu. 1992-1996 yılları arasında Çankaya Belediyesi, İmar Müdürlüğü'nde KAYK (Katı Atıkların Yeniden Kazanımı) Projesi kapsamında çalıştı.

1997-1998 Eğitim Öğretim Yılı Güz Döneminde İTÜ Fen Bilimleri Enstitüsü'nde, Mimarlık Ana Bilim Dalı'na bağlı Mimarlık Tarihi Programı'nda Yüksek Lisans Eğitimine başladı. 1998-1999 Eğitim Öğretim Yılı boyunca; sağlık sorunları nedeniyle Yüksek Lisans Eğitimine süreden sayılmayan bir yıl ara verdi. 1999 yılı Mayıs ayında, ODTÜ ve İTÜ Mimarlık Fakülteleri işbirliğince düzenlenen 'Emin Denizler, Güvenli Kentler, Sağlıklı Binalar, Uygar Toplum' konu başlıklı 'İlknur Gürcan Ulusal Proje Yarışması'na katılarak başarı ödülüne layık görüldü. Evli ve bir kız çocuk annesi olan Reyhan Varlı Görk akademik kariyerine devam etmeyi planlamaktadır.