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FACULTY OF DESIGN
DEPARTMENT OF INDUSTRIAL DESIGN

TITLE:

**An Analysis of Craft and Industrial Production Methods in
Chair Design, with Reference to the work of Marcel
Breuer, Tom Dixon and Frank O. Gehry.**

BY:

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Studies in Candidacy for the Degree of Bachelor of Design.

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Introduction:

A chair is a stool with a back-rest, and a stool is a board elevated from the ground by its supports - Christopher Dresser, 1873 (Fiell, 1993, p. 9).

This definition of the chair seems rudimentary in today's terms, for over the last hundred years the chair has been subjected to a succession of revolutionary transformations. The chair's image though subject to continual stylistic revision, cannot be split into internal mechanism and external form, they are one, and as such a chair is more sharply defined than most industrial products.

Chair design can be described as an exercise in symbolism. Symbolising such diverse values as the expression of mass production and technological advancements to the more benevolent and enriching such as, cultural expression through a more sympathetic or craft orientated aesthetic. The chair has emerged as an eloquent symbol of our highly complex society. This century the chair has been dominated by these two prevalent expressions of form. The enduring success of a chair design can be evaluated by how successful its creator has synthesised aesthetics and function while addressing a special need. A correct balance should be found between the chairs sculptural content and the required necessities of the manufacturing process, costs and quality control and its intended market place, i.e. a good understanding of the design process. These aspects of chair design should be interwoven and to ignore one in pursuit of the other is to miss the point of designing.

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To design a chair should however be more than to consider the form and manufacture of the chair itself, it should also involve a consideration of how it will be used and occupied and the symbolism it needs to express.

Designing a chair is a crafted and cultural activity, as well as one defined by the need to work within the economic realities of mass industrial production. In that sense chair design can genuinely be related to the creative process of architecture which is very much an exercise in realisation. At the same time, chair design can be equated to fashion design. It is in a sense part of the fashion system and is subject to the same variety of influences, from cinema to art and, while some designs develop an authority which gives them a degree of longevity, the process can be strictly an momentary or ephemeral. Design in terms of styling is and always will be ephemeral, however it is possible to speak in terms of 'classics'. Classic chair design is more forward looking because it represents a harmonic balancing of the objectives that characterise good design and style, it possesses an enduring aesthetic, quality and obvious functionality.

The two prevalent movements examined in this thesis, Modernism and Post-Modernism, can be traced back to the Arts and Crafts movement in Britain and William Morris (1834-1896) who advocated an idealistic return to 'honest' construction, design and traditional hand-crafted techniques, to the beginnings of Modernism with Michael Thonet (1796-1871) who was the first to administer mass produced furniture and perfect bentwood chair construction in Austria and mainland Europe. Throughout this century chair design seems to be governed by these two sets of long established

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theoretical rules. Also the fundamentals, such as stability, the need to keep the occupant at a requested height off the floor, comfort and so on. The precise definitions of all these factors have changed gradually over the years. The twentieth century has seen the chair develop to become the focus of remarkable creative energy beyond its simple utilitarian role. The chair can and should encapsulate the entire spectrum of styling and design, from the emotional to the rational. Chair design provides scope for all forms of aesthetic and technological developments.

This thesis is primarily an examination of chair design during the late 1920s late 1980s and early 1990s. Notably the work of Frank O. Gehry (born 1929) with reference to his diversification through relating and interweaving craft to industrial production and his understanding of the design process. Gehry cannot be attached to any particular design language, however his style is distinctively his own. The 'Gehry Collection' for the Knoll International furniture manufactures designed in 1991 provides a focus for the thesis. Some of his previous collections leading up to the 'Gehry Collection' will also be examined.

Tom Dixon (born 1959) with reference to craft, 'one-off' furniture and Neo-Modern spontaneity. The consequences of this approach for providing, what was described as a successful chair design will be examined. The S Chairs designed in 1988 will be examined in chapter two, also some of his earlier work guiding to the S Chairs.

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For a contrasting and historical context the work of Ludwig Mies Van Der Rohe (1886-1969) and Marcel Breuer (1902-1981) will be discussed with reference to their Modernist theories on furniture production and design. Their approach to design has formulated a set of rules by which design has been governed over the last century. Breuer's 'Wassily' tubular steel chair designed in 1925 and Mies's 'Weissenhof' cantilever chair designed for the Deutscher Werkbund's exhibition at Weissenhof in 1927 will be analysed. Their approach, which has been followed by many, such as Rodney Kinsman who graduated in 1965, will be questioned regarding individual identity, symbolic content and tradition.

The variety of their approaches to chair design is made apparent in each section with regard to their own theoretical reasoning and design language. Breuer and Mies Van Der Rohe regarding Modernist principles. Tom Dixon and Neo-Modernism and Frank O. Gehry and his unique individual diversification. Each different approach is valid in a particular context. However, few of them are singly all encompassing in terms of salient aesthetics, functionality and ease of production, i.e. what was previously described as an enduring successful chair design.

Through the examination of the selected chair designs, which represent a diverse spread from the Modernist execution of design for production to craft design to Gehry's successful combination of the two, this thesis will attempt to establish a more meaningful approach to chair design through diversification, and in particular, relating and interweaving the craft process within industrial production.

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Chapter one is concerned with rational chair design in its historical context. In particular the work of Marcel Breuer and his tubular steel 'Wassily' armchair designed in 1925 for Kandinsky will be examined. Tubular steel, the predominant material used for expressing the machine aesthetic will be analysed to establish whether its use was appropriate. A connection will be drawn between the development of Breuer's work to his contemporary, Mies Van Der Rohe, and his influential design of the tubular steel cantilever 'Weissenhof' chair designed in 1927. Their use of material, source of inspiration, production techniques used/developed and their design objectives will be examined and whether these objectives were realised or fulfilling enough. Their theoretical approach to design will be questioned in relation to whether it is an appropriate address in today's context. Reference will be made to Charlotte and Peter Fiell's writings on modern chair design throughout the thesis. Modern Chairs (1993) and Modern Furniture Classics Since 1945 (1991) provide an objective historical and theoretical view point which encircles all aspects of chair design from early Modernism and its development to Post - Modernism. However both books are primarily visual in their contents.

Chapter two on 'anti-rational' 1980s chair design, in particular Tom Dixon's influential craft element and his 'S Chairs'. Reference will be made to his unusual approach to design, e.g. his use of materials and working of them and his sources of inspiration. The recent adapted production techniques by such manufactures as Cappellini to Dixon's 'S Chairs' will be commented upon. Also his objectives will be questioned. Reference will be

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made to a publication by the Institute of Contemporary Arts on modern chair design: The Modern Chair (1988). This collection of writings accompanied an international exhibition held in 1988. It provides a viewpoint on all aspects of modern chair design, from the Modern Movement and mass production to the impact of technology to craft design. Also Claire Downey's book, Neo- Furniture (1992) will be referred to. This book focuses on new wave avant-garde furniture throughout the 1980s and 1990s but is more of a visual rather than written reference.

Chapter three analyses the importance of diversification in design, i.e. not repeating well known formulas. Frank O. Gehry's diverse and complex yet 'rational' approach to chair design will be examined. His bentwood 'Gehry Collection' for Knoll International will be examined along with some of his earlier furniture projects such as the 'Easy and Experimental Edges.'

Gehry's close working knowledge of industrial production techniques and continual relation with artists and craftsmen throughout his work. will be made apparent. He understands the manufacturing and design process from material use to production. He is therefore in a position to exploit them, he does so with great authority and doesn't therefore limit the results of the design process. His use of material, sources of inspiration and design objectives will be examined. The diversity of his work will be questioned and whether it is appropriate enough for today's diverse society. Reference will be made to Charles Jencks's recent polemic on design and architecture: The Architecture of the Jumping Universe (1995). Charles Jencks has always been at the forefront of recent modern movements, such as Post-Modernism. This recent book provides an interesting perspective on how

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design and the contemporary arts are changing today. Jencks is fastidiously anti-Modernist in his writings and criticises the movement throughout the book. In this regard his writings are none objective and controversial. "The Modernist view of life ultimately led to the killing fields of mechanized warfare..." (Jencks, 1995, p.31).

The final chapter, the conclusion to this thesis, is concerned with a design approach based on the findings of this thesis and its suggested relevance to diversification regarding craft and industrial production methods.

The term 'design' is used to describe a variety of components that have been subjected to the creative process. Charles Eames described design as "a plan for arranging elements in such a way as to best accomplish a particular purpose." (Neuhart, 1989, p. 14). This is a classical definition of design and is necessarily rational. The rationalist design principles promoted by the Modern Movement represent the basis from which twentieth century design has evolved. The inclusion of the early Modernists for examination in this thesis is important because of their enduring influence on designers today and to compare their objectives to the Neo-Moderns, such as Tom Dixon. An approach to design that is rational in one period may be unbalanced in another. Design needs to change and adapt by interweaving itself in a rational and anti-rational convergence. For this reason the chairs chosen for discussion in chapters one and two represent this opposing view of rational and anti-rationalism, Frank O Gehry's work represents the convergence.

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Marcel Breuer was one of the youngest masters at the Bauhaus. His 'Wassily Chair' encapsulates functionalism and rationalism in the Modernist terms of industrial production and is purposefully restricted in terms of ornamentation and aesthetic styling. Tom Dixon's range of 'S Chairs' are craft orientated, and are therefore ornamental and aesthetically salient and anti-rational. By in large they are impractical with regards to large scale industrial production and manufacture. Frank O. Gehry's 'Gehry Collection' discussed in chapter three however does represent a more acceptable diversification in terms of salient aesthetics and industrial practicality regarding production techniques and manufacture.

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Chapter 1: The Machine Aesthetic

Marcel Breuer and the 'Wassily' arm chair

The 'Staatliches Bauhaus' in Weimer was founded in 1919 by Walter Gropius from the amalgamation of two former schools, The School of Arts and Crafts, and the Academy of Fine Arts. Gropius's aim was to create a new guild of craftsmen without class or distinctions who could conceive of a building as a collective effort in which each artist, craftsman would contribute his part with the full awareness of its purpose in relation to the whole. In 1925 Gropius said "the Bauhaus aims to serve the development of contemporary housing, from the most basic household equipment to the complete house." (Fiell, 1991, p.10). He was convinced that the house and its furnishings must have a meaningful relation to each other through the use of materials, construction methods and production techniques. One such material which represented the very ideas of the Modern Movement and the Bauhaus was tubular steel with its structural strength and convincing machine aesthetic.

Most prominent at the time with the early experimentation of tubular steel as a potential material for furniture production was Hungarian born Marcel Lajos Breuer. He joined the Bauhaus as a student in 1920 and became master of the furniture workshop in 1925, at the time of the Bauhaus's move from Weimer to Dessau. He had a profound influence on the evolution of modern design. He was among the first to address the task of designing unflinchingly in an idiom for the

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industrial age, both in form, and in his choice of materials and techniques (ICA, 1988, p.19).

During the spring and early summer of 1925 Breuer worked on his first tubular steel armchair using the newly adapted material. There was an undoubted charm for a convinced modernist in applying what was seen as an industrial material, tubular steel, to the new task of creating furniture suitable for a machine age interior. It seemed, in a sense to be a deliberate propaganda exercise.

The first convincing result was the 'Wassily' armchair, the early prototypes dated from 1925 (fig. 1.1). The chair was designed specifically for Wassily Kandinsky's staff accommodation at the Dessau Bauhaus. It was chromium-nickel plated, tubular steel frame with leather or canvas sling back seat and arms. The chair also went on to become the centre piece in an exhibition of Breuer's work in January 1926. The club chair or the 'Wassily' armchair as it had come to be known held many of the de Stijl aesthetic seen in his wooden chairs of 1922 and 1923. The design makes one conscious of the interaction of the planes in space. The angling of the seat and back is also similar to Reitveld's Red-Blue chair (fig1.2) (Christopher, 1981, p.37).

Breuer's design however went further than that. The steel frame seems to give the seat and back the sense of being suspended in air above the ground, enforced with his use of canvas or leather. The body never actually has to come in contact with the steel frame. Like many of his contemporaries Breuer believed in a mode of design that was impersonal, purely functional, and made up of simple straight lines. The appearance of the new design would not, according to Breuer, "be dictated by the everlasting and arbitrary changes in form, colour and style, but by the functional

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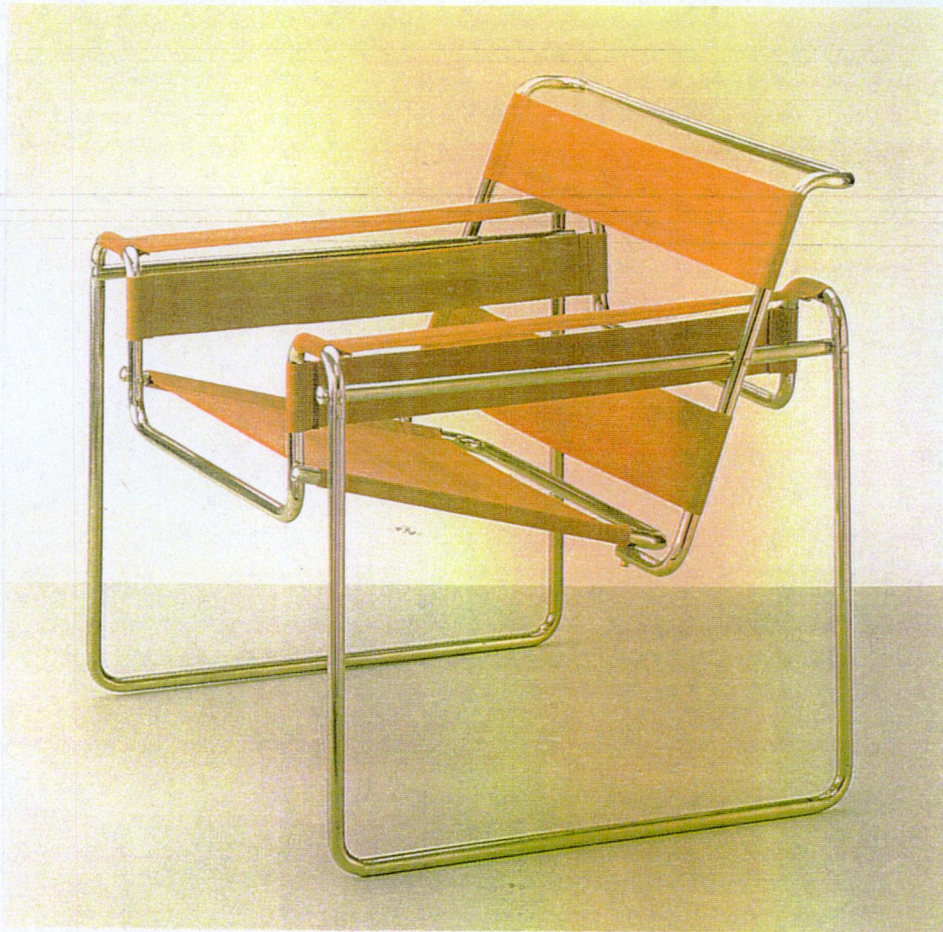


Fig 1.1 Marcel Breuer's 'Wassily' tubular steel arm chair, 1925



Fig 1.2. Gerrit Reitveld's Red Blue chair, 1920

requirements of the objects and the necessities of modern furniture production."

Prior to the 'Wassily' chair, metal furniture had been reserved strictly for commercial buildings. The acceptance of this design by Breuer's contemporaries in architectural circles and more importantly by Thonet AG, meant that the 'Wassily' chair began to change the public's conception of what a residential interior might include (Fiell, 1988, p.11).

Ironically this chair and much of the furniture designed at the Bauhaus was not particularly practical or comfortable but was conceived for mass production. The reason for this has much to do with the socialist roots of the school. It was believed by its members that a better society could be achieved through the application of good design. The school attempted to provide functional and aesthetically pleasing design for the masses through large scale production. However, ideology was yet again in advance of technological progress. The 'machine' look was effected by handcrafting representations of the industrial process which expressed the machine aesthetic and not through truly mechanised means of production. The furniture was consciously designed to look machine made, but was labor intensive and therefore too costly to produce. Although Thonet AG did accept Breuer's design they did not actually put the chair into large scale production because of the costs involved. The material used, tubular steel, was far more expensive than Thonet's traditional beech rods. These aspects ran counter to the Bauhaus's philosophy of providing affordable industrial products for the masses (Fiell, 1993, p.23).

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Prior to the Wassily chair, metal furniture had been reserved strictly for commercial buildings. The acceptance of this design by Breuer's contemporaries in architectural circles and more importantly by Thonet AG, meant that the Wassily chair began to change the public's conception of what a residential interior might include (Hill, 1988, p. 1).

Ironically this chair and much of the furniture designed at the Bauhaus was not particularly practical or comfortable but was conceived for mass production. The reason for this has much to do with the socialist roots of the school. It was believed by its members that a better society could be achieved through the application of good design. The school attempted to provide functional and aesthetically pleasing designs for the masses through large scale production. However, ideology was yet again in advance of technological progress. The machine look was effected by handcrafting representations of the industrial process which expressed the machine aesthetic and not through truly mechanised means of production. The furniture was consciously designed to look machine-made, but was labor intensive and therefore too costly to produce. Although Thonet AG did accept Breuer's design they did not actually put the chair into large scale production because of the costs involved. The material used, tubular steel, was far more expensive than Thonet's traditional beech rods. These aspects ran counter to the Bauhaus's philosophy of providing affordable industrial products for the masses (Hill, 1993, p. 23).

The Cantilevered Chair

The 'Wassily' was followed by what has become the most potent symbol of modern chair design, the cantilever steel chair. Mart Stam, an architect who was also associated with the Bauhaus, was the first to design such a chair in 1926, after having seen Breuer's work (fig 1.3). The cantilever chair, with its allotment with two of the conventional chair's legs and its simplified structure, based on a single tube of metal, it was a powerful assertion of the modern world and its furniture. Visually simpler while structurally and materially more unified than those with four legs, Stam's chair was the first of its kind. The use of steel tubing for furniture manufacture, however at the time, could not be mass produced economically. This novel approach or method of construction, allowed a minimalism in design, encouraged by the Bauhaus, and potentially gave it inherent springiness and more comfort to the sitter (ICA, 1988, p.21).



Fig 1.3. Mart Stam's side chair S33, 1926.

In its original form he used cast non-resilient steel, and depended on solid steel rods inside the tubes. This gave the chair a rigid feel and as a consequence it felt uncomfortable. The cantilevered chair also utilises more raw materials in its production than standard four legged support chairs and was therefore again more expensive to produce. Later in the same year Stam attended a meeting held in Stuttgart for all the architects taking part in the Deutsche Werkbund exhibition at the Weissenhofsiedlung. At this conference, Stam presented drawings of the prototype to, among others, Ludwig Mies van der Rohe, who, inspired by Stam's novel concept, designed his own versions of the cantilevered chair. At the Weissenhof exhibition, Stam first displayed his cantilever side chair. Controversially, Ludwig Mies van der Rohe also exhibited a cantilevered chair, the Model no. MR10, a redefined version of Stam's precedent which later became known as the 'Weissenhof Chair' (fig 1.4). The more elegant MR10 was constructed of resilient bent tubular steel which allowed a greater degree of flexibility, affording the sitter greater comfort without the need of springing or upholstery (Fiell, 1993, p.23).

Mies van der Rohe was perhaps the most sophisticated of the austere Bauhaus style. He was probably the most uncompromising purist of Modernism and acknowledged by the majority of critics as the most important and influential architect, not only of the Bauhaus but of the entire Modern Movement. He also ranks as one of the most important twentieth century chair designers.

Mies van der Rohe's first chair design was the MR10, the cantilevered tubular steel chair with leather back and seat inspired by Mart Stam's original cantilevered chair. Where Stam and Breuer had used rigid curves in the design of the cantilever Mies

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drew his chair frame in an elegant sweep which exploited the intrinsic flexibility of the material. Several variations of the MR10 were produced, including a model with arm supports and canework back and seat, model number MR20 (fig 1.5) (Fiell, 1993, p.23).



Fig 1.4. Mies Van Der Rohe's Weissenhof Model No. MR10, 1927.



Fig 1.5. Mies Van Der Rohe's 'Weissenhof Chair' Model No. MR20, 1927.

Breuer, Stam and Mies's designs had become icons of the Modern Movement, symbolising the use of the new material to create a new light furniture which made a clean break from the conventions of furniture design that went before. Tubular steel

satisfied the protagonists of the Modern Movement but was unsuccessful in capturing its desired market place, the home. It had a strong lack of consumer appeal, except to a very exclusive, and sophisticated market which understood the aims of the Modern Movement. Tubular steel failed to be produced in mass quantities at the time, as was the desire. It proved to be far more expensive and austere compared to conventional furniture. Even if cost efficient industrial mechanisms had been in place to facilitate the high volume manufacture of Modernists furniture, it is highly debatable whether the masses it was produced or intended for would have embraced them with enthusiasm. Tubular metal was still associated with industry and not the home. The Modern designs of the Bauhaus were not only too avant-garde for industrial production, but also too unacceptable and aesthetically challenging for widespread public acceptance. They were too stringent a form and too geometrically rational to be adopted. Even today tubular steel furniture has not succeeded in integrating within the domestic interior. For the most part their chairs have become an institutional item associated with hospitals, schools and the lobbies of modern hotels. Tubular steel has taken up residence in the public arena and not its intended market, the domestic interior. Their chairs proved far too impractical and uncomfortable for domestic use. As Stephen Pheasant cites in his book Bodyspace (1986):

When we consider such modern classics as Marcel Breuer's 'Wassily' chair and Mies van der Rohe's 'MR10' chair we find very little relationship between the form of these seats and that of the human body which it is (presumably) their function to support. The fact that such pieces are commonly referred to as 'occasional chairs' implies that they are without particular function-except to be used 'occasionally': (Pheasant, 1986, p.9).

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...the protagonists of the Modern Movement but was unsuccessful in capturing its desired market place. The home, it had a strong lack of consumer appeal, except to a very exclusive and sophisticated market which understood the aims of the Modern Movement. Tubular steel failed to be produced in mass quantities at the time, as was the desire. It proved to be far more expensive and inferior compared to conventional furniture. Given its cost, the industrial mechanism had been in place to facilitate the high volume manufacture of Modernist furniture. It is highly debatable whether the masses it was produced or intended for would have embraced them with enthusiasm. Tubular metal was still associated with industry and not the home. The Modern designs of the 1920s were not only too avant-garde for industrial production, but also too unacceptable and aesthetically challenging for widespread public acceptance. They were too structural a form and too geometrically rational to be adopted. Even today, tubular steel furniture has not succeeded in penetrating within the domestic interior. For the most part, their chairs have become an institutional form associated with hospitals, schools and the lobbies of modern hotels. Tubular steel has taken up residence in the public arena and not its intended market, the domestic interior. Their chairs proved far too monumental and uncomfortable for domestic use. As Stephen Persson notes in his book *BodySpace* (1986):

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functional requirements of the objects... (Fiell, 1988, p.11) and practicality was misdirected with their enthusiasm of developing the austere industrial material tubular steel for furniture applications. As Reyner Banham observes:

Emotion had played a much larger part than logic in the creation of the style; inexpensive buildings had been clothed in it, but it was no more an inherently economical style than any other. The true aim of the style had clearly been about the Bauhaus and its relation to the world of the machine age... to invent and create forms symbolising that world and not the realistic irrational human world (Dormer, 1987, p. 11).

These aspects ran counter to the Bauhaus's and Walter Gropius's original philosophy of providing affordable and acceptable products for the domestic settings of the new and smaller flats and homes being built, such as the Weissenhof development.

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Chapter 2

Anti-Rational Chair Design

In a reaction against the perceived austerity of Modernism, Post-Modernism emerged during the 1980s. It was a response to the demand for a new mainstream international style. Smaller movements and groups with wildly different outlooks found common cause, and were drawn together, for the moment by their shared anti-Modernist ideals. Mies van der Rohe was no longer the father of design. Instead designers had to make their own rules. Once again, designers could embrace meaning and symbolism in form, elaboration of detail, surface finish and ornament. Design was being separated from the industrial process and relating it more to fine art. Post-Modernism drew its inspiration from art and architecture rather than from functionalism and consumerism. Post-Modern designers viewed styling rather than functionalism as paramount in importance.

Most of the avant-garde chair designers of the 1980s were not interested in searching for definite design solutions that required huge investment and long term commitment of the manufacturer simply because they couldn't. This form of design existed because it was difficult for young furniture designers trained within a tradition that assumes that they will work on an industrial scale, to produce chairs that will be made on production lines. But there simply weren't enough jobs for these graduates to follow the role they had been educated for. Many were forced into a position in which they could only survive by making things with their own hands, or in small batches. They could only afford the simplest of techniques. The

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injection molding machines¹ the dies² and the presses³ and other forms of productive visual perfection were beyond their reach. Rather than try to achieve the perfection of the machine, as the Modernists did, some designers abandoned the whole idea of producing useful objects. They made a point of emphasising raw imperfection in their work, and in producing objects with no more than a symbolic relationship to utility.

At the time when I trained, I would perhaps have liked to end up working as a staff designer for a large scale furniture manufacturer. But the problem, then as now, is that there are so few firms that actually employ furniture designers. One has to make things oneself, if one is going to see them produced at all. My work has always speculated on the possibilities of batch production, but it has never emphasised the quality of making. (Floris van der Broecke, ICA, 1988, p.51).

In the absence of the support of industrial production and in a reaction to the austerity of Modernism, these Neo-Modern designers created furniture that could be produced by themselves or have manufactured in limited quantities by specialised workshops. They used simple labor intensive techniques such as wood-carving, metal bending and welding, these small scale enterprises offered greater specialisation thereby allowing the designers more scope for personal creativity (Fiell, 1991, p.146). As Charlotte Perrinard stated in 1984 -

I think we can anticipate a return to a more primitive form of craftsmanship - not in the sense of going back to the techniques of the past, but a return to smaller scales of operation, making use of all potential offered by present and

¹ A process where granules of raw plastic are fed by gravity into a pressure chamber ahead of a plunger. The plunger advances and forces the granules into a heating chamber where they are melted. The fluid plastic is then injected under pressure through a nozzle into a closed cavity and left to cool and form (DeGarmo, 1984, p.496)

² A die is a mould made from nonferrous metals or alloys where molten metal is forced by pressure into the mould and held under pressure during solidification (DeGarmo, 1984, p.359)

³ Press forging is where a sheet of metal is pressed or hammered into shape through mechanical or hydraulic means.(DeGarmo, 1984, p.426)

injection molding machines, the dies, and the presses, and other forms of productive visual perfection were beyond their reach. Rather than try to achieve the perfection of the machine, as the Modernists did, some designers abandoned the whole idea of producing useful objects. They made a point of emphasizing imperfection in their work, and in products or objects with no more than a symbolic relationship to utility.

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This 'Craft Revival', which had gained momentum from its beginnings in the 1970s, continued through the 1980s with designers such as Dixon and Ron Arad in Britain. This re-establishment of the artisan tradition of furniture making rather like the manner in the nineteenth century Arts and Crafts Movement. Designers associated with this craft revival frequently used traditional forms or utilised Post-Modern themes to execute their work (Fiell, 1991, p.148).

Because one-off and limited edition furniture is not subject to the constraints of mass production, designers working in this area are able to express themselves more freely through designs that employ a wide variety of forms and materials. Since the latter of this decade, the market for this exclusive furniture has begun to grow with the work of such designers as Arad, Dixon and Danny Lane. Their work appeals to our emotions through their use of tactile and visual qualities of their material use. Such independent designers as these produce limited furniture designs which purposely appear, and are handmade. It conveys a sense of spontaneous creativity and reflects the personality of the creator. These designers have not transformed furniture to art, but aim to represent aesthetic characteristics similar to those of sculpture.(fig. 2.1).

This form of design became increasingly in demand, for it symbolised the spirit of the times and expressed individualism. A wide variety of this new furniture, diverse in its styling was mainly created outside the industrial process. Tom Dixon incorporates both studio and workshop in one facility. Not only does studio production guarantee attaining ones wants, but also the possibility of developing

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new simple materials and techniques to a certain degree. This small scale studio workshop infrastructure can only exist if a market place prevails. Inevitably, the larger factories have directed their products at lower and lower income groups in order to expand their markets and to develop production, while the craft-based workshops have continued to aim their goods at a higher income bracket, emphasising uniqueness rather than competitive prices. It is true that the produce of these smaller workshops rarely gets used in the homes of the majority of people. But these designs play an important role in establishing major breakthroughs in furniture design through their innovative experimentation regarding construction techniques and process. The new designers and smaller companies exists to experiment with new ideas, new materials and forms, bringing design into line with cultural changes. Since the 1980s these smaller, more flexible workshops have flourished, proving that there is a market for the more one-of-a-kind object. In an increasingly synthetic and de-naturalised world, there is a need for products which are more sympathetic to our emotional and sensual needs.

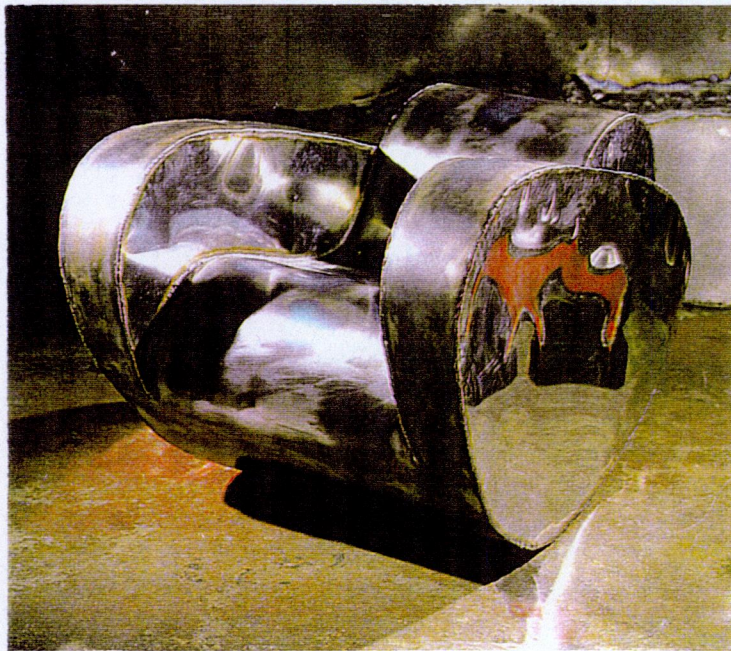


Fig 2.1. Ron Arad's 'Big Easy Volume' chair, 1988.

But the value of this craft revival can only be put into real use if the craftsmen are sympathetic to and have an understanding of the industrial process. All too often they don't. Furniture design cannot once again turn into a cottage industry if this new found spontaneity and cultural understanding is to be put to any real long term use. If commissions are to arise from large scale manufactures the designer maker should be aware of the process involved. An important aspect to any designers work lies in the solution of its manufacture, the quality needed, the size of its intended market and the relative costs involved. These attributes are in every way as important as the original spontaneity involved at the conceptual stage and cannot be cast aside. As Jasper Morrison states -

The balance of the final design variables, e.g. the manufacturing process, costs and quality control, is every bit as important to the art of design as its sculptural content. Indeed, the two aspects are interwoven, and to ignore either in pursuit of the other is to miss the point of designing (ICA, 1988 p.51).

If the designer cannot finish the process all their chairs will remain at the provisional stage. All their chairs will be prototypes, made to be on route to where? They may be successful on their own terms but they have the same relationship to the final chair design as the foam or plaster mock ups of product designs. The other difficulty is that these designers often lack the discipline and rigor that accompanies designing in a vacuum. Without the constraints of a defined brief, there is an unreality to their design.

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any real manufacturer in sight but fully expecting that they would be produced. But the difference now, is that designs are often made without any intention of full or even partial scale production, a change that is allowed to subvert structural and production logic, and which eventually feeds into the kind of imagery that has an impact on production chairs (ICA, 1988, p.53).

Tom Dixon

One such designer who has changed his initial outlook on craft design is Tom Dixon. In his earlier career attention to detail lacked. His work, although spontaneous, brilliant and inspiring was unfinished and impossible to adapt for manufacture in any real manner. Although his work, like countless others in Britain was extremely versatile and emotional was however less impressive in its quality and finish. His ideas were crudely represented at an exhibition of his work entitled Ideal Home, in London during February of 1987. The exhibition consisted of 54 pieces of his work. One critic remarked:

His Aluminium Chair that was shown, whilst witty, had a cast base that was poorly secured to the seat with crooked screws. The rich blue leather of the seat was split even before being put to use. In a corner stood an illuminated fish tank, its inhabitants swimming anxiously, perhaps because the damp rag at its base indicated that all was not quite ship-shape (Allen, 1987, p. 54).

This neglect for finish and structure was evident in several other pieces, as was the lack of attention to fine detail. As a consequence of this exhibition Dixon's work received a lot of both negative and positive criticism. But his wonderful creations were obscured by a multitude of tiny failings. Quality in all stages of the creative process has to be beyond criticism (fig. 2.2).

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This Aluminium Chair that was shown, whilst witty, had a cast base that was poorly secured to the seat with crossed screws. The rich blue leather of the seat was split even before being put to use. In a corner stood an illuminated fish tank its inhabitants swimming anxiously, perhaps because the damp rays of its base indicated that it was not quite ship-shape (Allen, 1987, p. 24).

This neglect for finish and structure was evident in several other pieces, as was the lack of attention to fine detail. As a consequence of this exhibition Dixon's work received a lot of both negative and positive criticism. But the wonderful creations were obscured by a multitude of tiny failings. Quality in all stages of the creative process has to be beyond criticism (fig. 2.2).



Fig. 2.2. Tom Dixon's Salvaged - metal chair from the 'Ideal Home' exhibition

The S Chairs

Interest from such well known furniture manufactures as the Milanese based company Zanotta wanted to use and adapt one of his particular models, the S Chair for production but couldn't because it proved there would be far too many alterations and seemed too difficult and expensive. This interest spurred Dixon on to the next level, from anti-rational to rational craft design. He worked extensively on the design of his S Chair in order to make it acceptable for production purposes. Later

he was approached by Zanotta's rival company, Cappellini to work further and adapt his chair for manufacture.

Dixon was lucky with the firm's interest in his chair. Dixon wanted his work to be available to the broader public, and also wanted to make money. These two factors lead him to Italy, where there is a history of aggressive manufacturers willing to take risks. Yet even with Cappellini, it was Dixon who decided that he had to make the extra effort to find solutions for more economical production to save labor expenses. Dixon traveled to India to find the craftsmen to work on the rushes necessary for his S Chairs. The chairs were finally ready for production in 1988. (Downey, 1992, p.128).

Currently there are a whole range of S Chairs using intriguing and tactile coverings. They proved to be a success and the turning point in Dixon's career as a craft orientated furniture designer (fig. 2.2). The S Chairs are reasonably comfortable and quite resilient. Dixon has also developed a chaise-lounge and leather version (fig 2.3) and one covered in latex rubber (Fiell, 1991, p.174).

The S Chairs seems sensuous and anthropomorphic in form. The chair resembles a female in its proportion. The aggressive curves define what could be described as the narrow waist and full hips of the chair. A woven spine runs down the back of the original chair. The entire chair is woven in either wicker or rush and express a strong craft aesthetic even when manufactured.

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Fig 2.2. Tom Dixon's woven wicker, raffia and latex rubber S Chairs, 1988. Fig 2.3. Leather S Chair, 1989.



'Rational' Craft Design.

The success of the S Chairs prompted Dixon to change his approach. He dropped elements of his old repertoire but retained its sculptural inventive feel that earned him a reputation as a talent to watch during the 1980s when he made his name welding together fragments of scrap, scavenged from rusty heaps of old iron. He recycled pieces of kitchen ware to make chandeliers, welded pots, pans and Chinese ladles into chairs and fabricated industrial piping into swiveling office chairs. He made objects from any odd mix of welded materials. In 1990 Dixon teamed up with the industrial designer Sebastian Conran to tame some of his designs enough for them to be made up industrially. His pieces were certainly becoming furniture rather than sculpture. Dixon compares the new company, Dixon PID, to a couture house's diffusion line where a fashion designer produces a range that is more affordable than the head turning top of the line collection. He still maintains the character of his work (Stead, 1991, p.12)

I'm going to make things myself. It keeps me interested, but some of the ideas that come out are going to be handed over to be 'productionised'. - Tom Dixon, 1990 (Sudjic, 1990, p.37).

The PID workshop has smoothed the rough edges of Dixon's original one-off work versions and rethought the best way to assemble its various components. Dixon now incorporates a much wider pallet of materials than before and experiments with the latest technologies and materials, such as the latest alloys and carbon fibers but still retains his need for a more human approach. Designs like his batch produced 'Nickel Chair' sells at a reasonable cost of £280 (Sorrell, 1992, p. 35)

'Rational' Craft Design

The success of the S C chairs prompted Dixon to change his approach. He dropped elements of his old repertoire but retained its sculptural inventive feel that earned him a reputation as a talent to watch during the 1980s when he made his name welding together fragments of scrap, scavenged from rusty heaps of old iron. He recycled pieces of kitchen waste to make chandeliers, welded pots, pans and Chinese ladders into chairs and fabricated industrial piping into swivelling office chairs. He made objects from any odd mix of welded materials. In 1990 Dixon teamed up with the industrial designer Sebastian Conran to make some of his designs enough for them to be made up industrially. His pieces were certainly becoming furniture rather than sculpture. Dixon compares the new company, Dixon PID, to a couture house's diffusion line where a fashion designer produces a range that is more affordable than the head turning top of the line collection. He still maintains the character of his work (Stead, 1991, p. 12).

Tom Dixon, 1990 (Stable, 1990, p. 37).
I'm going to make things myself. It keeps me interested, but some of the ideas that come out are going to be handed over to be 'produced'.

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We are convinced that the way ahead does not lie in expensive, anonymous, high tech products, but more in a decorative human approach to industrial and interior design (Stead, 1991, p.12).

Since Dixon started working as a 'rational' designer, he opened a showroom underneath his flat on the All Saints Rd. Notting Hill, London. Currently he hopes for more work designing and combining with others. His work has grown and diversified through his collaborations with a variety of people from all segments of the creative community, from Mick Jagger for whom he designed background sets, to architect Nigel Coates and Phillip Starck (Downey, 1992, p.126).

His most recent pieces are still predominantly metal. He has played with various surface finishes such as galvanisation. This work looks clean sharp and convincing. The roughness of the workshop is still part of Dixon's work but is considerable tamed. Precision and care are now Dixon's new attributes to craftsmanship in all fields.

Now 36 Dixon pays a full time staff and designs for a market as well as for himself. He is more matured than the man in the 1980s. He has become one of Europe's most creative furniture designers (Sorrell, 1990, p.40).

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Chapter 3

Diversification.

Most designers repeat themselves stylistically out of conformity. They use the same design language project after project, repeating a well known formula. Design should adapt, change and diversify with each new project. Picking up on new ideas, grasping everything from art to technology. One design language should not prevail over another in our society. To do so would favour one section of society over another. As Modernism developed it secularised itself from Walter Gropius's original inclusive theories on design. The tubular steel furniture designed by Mies van der Rohe for the Weissenhof flat developments eventually failed because of its austerity in design and complicated theories which favored the middle class as status quo. Design should be inclusive and one that acknowledges social difference (Jencks, 1995, p.64). We have seen the inadequacy of the development of the Modern Movement through its narrow approach to design. Also the Neo-Modern neglect of practicality and functionality as a reaction against the austerity and sterility of Modernism. Design today should be constantly reinvented as does new technologies, materials and processes while retaining a traditional if not fundamental outlook. One language is as good as the next if executed in a diverse, artistic, professional and rational manner. It is the fulfillment of the design process which is important for the development of chair design.

One such contemporary prominent designer who changes and adapts constantly with each new project is Frank O. Gehry

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One such contemporary prominent designer who changes and adapts constantly with each new project is Frank O. Gehry.

Frank O. Gehry

Gehry studied art, then architecture in Los Angeles during the 1950s. Since then he has followed a clear development while jumping from one idea and style to the next. He believes in no obvious party. Gehry first found recognition with his innovative cardboard furniture during the 1970's. It was this furniture, not his buildings that grasped public attention.

'Easy Edges'

He realised that an inordinate portion of building budgets was usurped by the fixtures and fittings. Gehry began by studying so called 'throwaway' or cheap materials, such as corrugated iron, wire meshing and cardboard. He detected cardboard's versatility as a potential inexpensive alternative material for furniture design. The material was cheap, fabrication simple and developed products were strong, durable and lightweight. In 1972 his seventeen cardboard pieces in the 'Easy Edges' line appeared in most major newspapers and furniture departments across America. These were the first of many interesting designs to follow.

'Easy Edges' managed to retain the public's attention. The cardboard projected the wholesomeness of wood, and was stained, joined and generally worked as wood. Like plywood, which is laminated of thin sheets with the grain of each sheet at right angles with the next, Gehry's furniture was built up of cardboard sheets stacked so that the fluting inside each was ninety degrees off the sheets above and below. This gave the furniture the required structural rigidity. Gehry researched every aspect of cardboard, its strengths, sizes, feasibility, costs and availability. He then hired an

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artist and a craftsman to help work on the newly adapted material. He realised the material could be die cut inexpensively. The profiles of the chair were glued and stacked into a jig until they were deep enough to form the width of the piece of furniture. The pieces had an extruded look when finished (fig.3.1) (Giovannini, 1986, p.66).

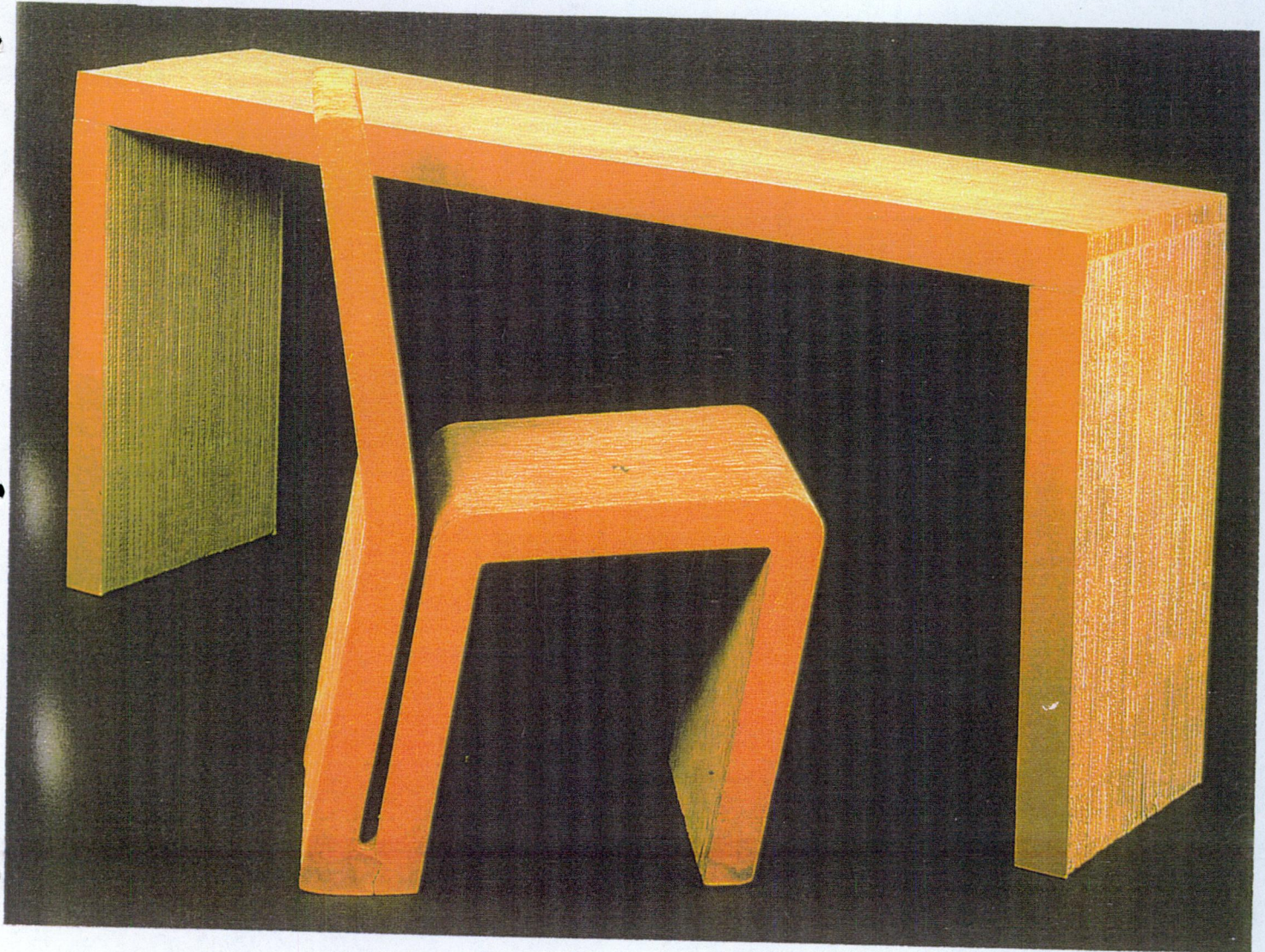


Fig 3.1. Table and chair from Frank O. Gehry's 'Easy Edges' collection, 1972.

He loved to work with the material. He could design a chair and build it the same day. Test it and refine it, and the next day do another. His intention was to design

the ultimate inexpensive chair, something that could be sold cheaply and that would be acceptable to the mass market (Hanks, 1993, p. 63).

This throwaway material was transformed and was a welcome alternative to plastics domination during the 1970s as a so called disposable material in a throwaway culture. The line of chairs promised to be the Volkswagen of furniture, bringing good design to the mass market. The dining chair, for example, which cost \$7 to manufacture in 1972, retailed at \$37. The pieces had wide appeal. They were used from domestic settings to institutions across America (Giovannini, 1986, p.62).

Three months after their introduction to the market however Gehry decided to withdraw the line from production.

I started to feel threatened, I locked myself into a room and questioned myself. I decided I'm an architect and not a furniture designer. I'm going to go that way. I called a halt - Gehry (Giovannini, 1986, p.63).

It seemed Gehry thought he had exhausted the potential of the material and wanted to try something else and prove himself as an architect. He held the patent to the furniture, collapsed the enterprise and recommitted himself to architecture. And within a decade established himself as one of America's leading architects. Despite his emphasis on architecture he has returned frequently to furniture. Similar to the early Moderns, Gehry's furniture captures the message of his architecture. He believes in using the cheapest of possible materials, and then transforms them in an artistic manner to produce good design. Gehry choose a difficult material to work with, one that has connotations of cheapness and rawness. He managed to transform this material into design. The designs were highly studied and refined yet the rawness remained intact, looking as if it had been worked on but not polished. This

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aspect of 'casualness' gave the pieces an air of craft and instilled a human element which lacked in the chairs of Breuer and Mies van der Rohe. 'Even though I often put as much detailed work into what I do, it always appears casual. That's the edge I'm after' - Gehry (Giovannini, 1986, p.63).

Yet to produce them no craft was involved but only the simplest of industrial, assembly line processes. The chairs proved their durability over time and seemed to improve with age. Gehry reinvented an everyday material, giving it a vastly new and different connotation.

'Experimental Edges'

Once Gehry had established a reputable name for himself in architecture, he returned to furniture, but this time as a side line. From 1979 to 1986 he resumed his experiments with cardboard, but taking a different approach. This time much more flamboyant than he had done with the earlier 'Easy Edges' and not unlike his new architectural aesthetic. He steered away from producing extremely cheap and marketable furniture to pieces that became more like gallery objects, still using the cheap material but sold more as craft furniture. These pieces were anti-commercial and sold through specialist art galleries. Where a piece from the 'Easy Edges' collection retailed at approximately \$37 in 1972, a chaise lounge from this collection sold for as much as \$4000 in the 1980's. The line was called 'Experimental Edges'. He began by hiring more craftsmen and artists to work with on the project. They started by exposing the cardboard more, using different kinds of fluting, cutting away at the earlier versions. He conducted more research on the material. Fire testing, different types of lamination, the various glues and stains and how they would effect the strength of the material. Gehry was always preoccupied with the

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Experimental Edges

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whole design process. He approaches and solves problems not only on paper but has to get 'hands on' with his work, not accepting it until its tried and tested. They experimented with endless kinds of shapes. He discovered the material became more resilient when a variety of fluting was combined and laminated together. The variety of fluting mixed together resulted in greater irregularities and ruffled edges. While structurally the pieces were sound they experimented with distinctively Post-Modern forms. They designed greatly exaggerated cartoon like shapes. Armchairs had large arms, backs were high, the laminations were offset and irregular. The pieces looked as if they were unraveling at their edges or in a state of decomposition. They looked lived in and used (fig. 3.2).

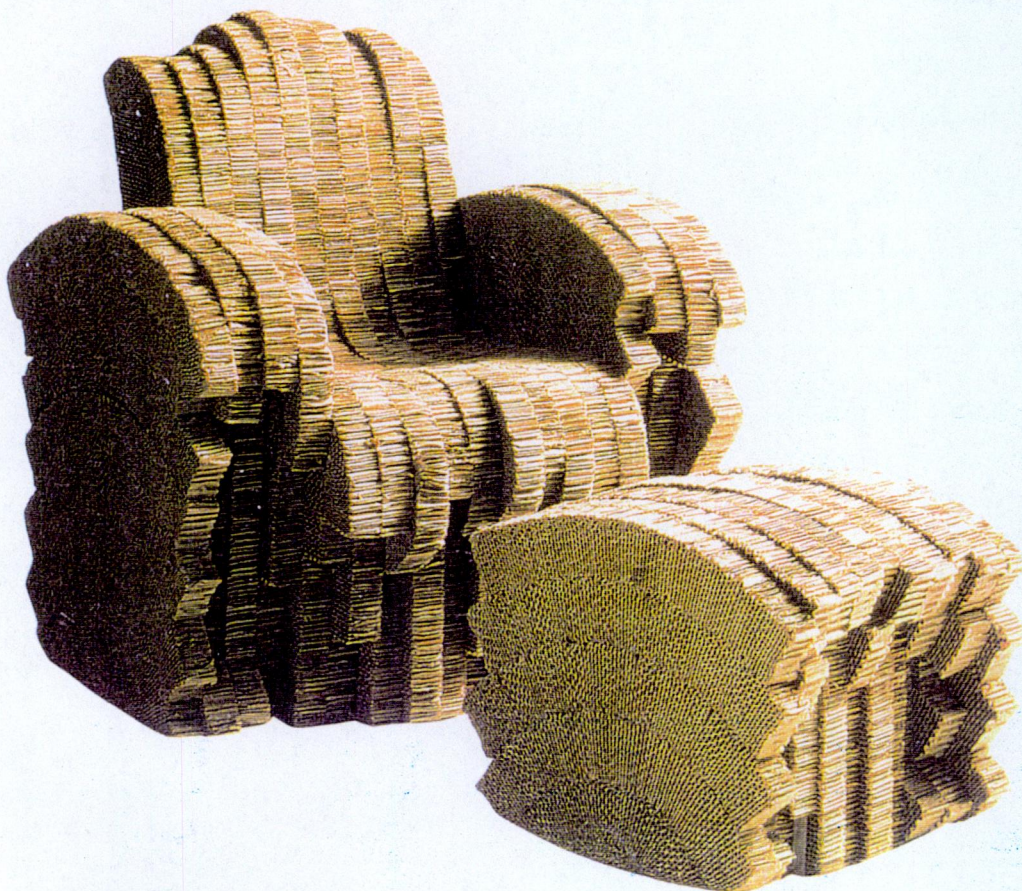


Fig. 3.2. Frank O. Gehry's 'Little Beaver' chair from the 'Experimental Edges' collection, 1987.

The Gehry Collection

Gehry's next experiments with furniture proved to be more in keeping with the early Modernist ideals. This most recent venture was prompted by his frustration while searching for appropriate furniture for an interior.

My experience as an architect selecting furniture for a client has always been very disappointing. You go into a market and always find the same thing: a Mies chair. It's especially difficult for low-budget projects. I wound up designing the furniture myself - Gehry (Davidson, 1992, p.42).

Gehry never lost his desire to develop low cost and well designed furniture. He now turned his attention toward wood and thin laminations interwoven like the traditional Shaker baskets. After some initial research and development he was approached by the Knoll international furniture manufactures to develop some of his concepts further. They wanted him to produce a range of versatile, inexpensive, and enduring chairs. It was the persisting standard of the sort that every manufacturer dreams of introducing.

Gehry applied his usual process of thoroughly researching the material, its costs, properties and availability. He wanted to use thin strips of laminated maple because of its inherent springiness and resilience. His main concern was to keep the structure as light as possible so as to make the finished products more economical. He hired a workshop close to his architectural practice in Los Angeles and took on a small team of craftsmen to help with the development.

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Gehry never lost his desire to develop low cost and well designed furniture. He now turned his attention toward wood and thin laminations instead of the traditional shaker baskets. After some initial research and development he was approached by the Knoll International furniture manufacturers to develop some of his concepts further. They wanted him to produce a range of versatile, inexpensive, and enduring chairs. It was the pressing standard of the sort that every manufacturer dreams of introducing.

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The earliest schemes they developed in their series used the laminated maple strips at right angles to one another. Although the results were quite pleasing he felt they

did not take full advantage of the material's flexible properties. They moved away from the perpendicular and began placing the elements diagonally. This off axis structure to form acute angles proved that the new configuration required fewer parts to achieve the same level of support. Furthermore, triangulation stabilised the chairs without sacrificing springiness, and as a result the final schemes are at once particularly strong and comfortable.

Gehry's belief in detailing and 'hands on' method of working through continuous manipulations and fine tuning are his key to the creative process. Gehry thinks about his work as much as another designer, but seems to do so in a non-intellectualised manner, closer to the intuitive and experimental.

For this project they produced some thirty different chair configurations before settling on the one introduced in this collection for Knoll. This indicates how much he relies on testing and developing his designs in three dimensions, rather than on paper. At no point during the two and a half year development phase would he accept anyone's claim that an idea would or would not work without first putting it to test. This pragmatic view led to the avoidance of screws and bolts or other extraneous hardware which would make the pieces heavier and more expensive and time consuming to produce. The use of glues and bonding agents allowed for this. It also had the effect of complete integration of structure throughout the chairs (fig. 3.3 and fig. 3.5) (Davidson, 1992, p.106).

The final pieces capture several qualities that mark them as good chair design. His knowledge of the production process allowed him to take full advantage of the woods characteristics and his creative mind allowed exploration and therefore the none acceptance of the materials limitations (fig. 3.4 and fig. 3.6).

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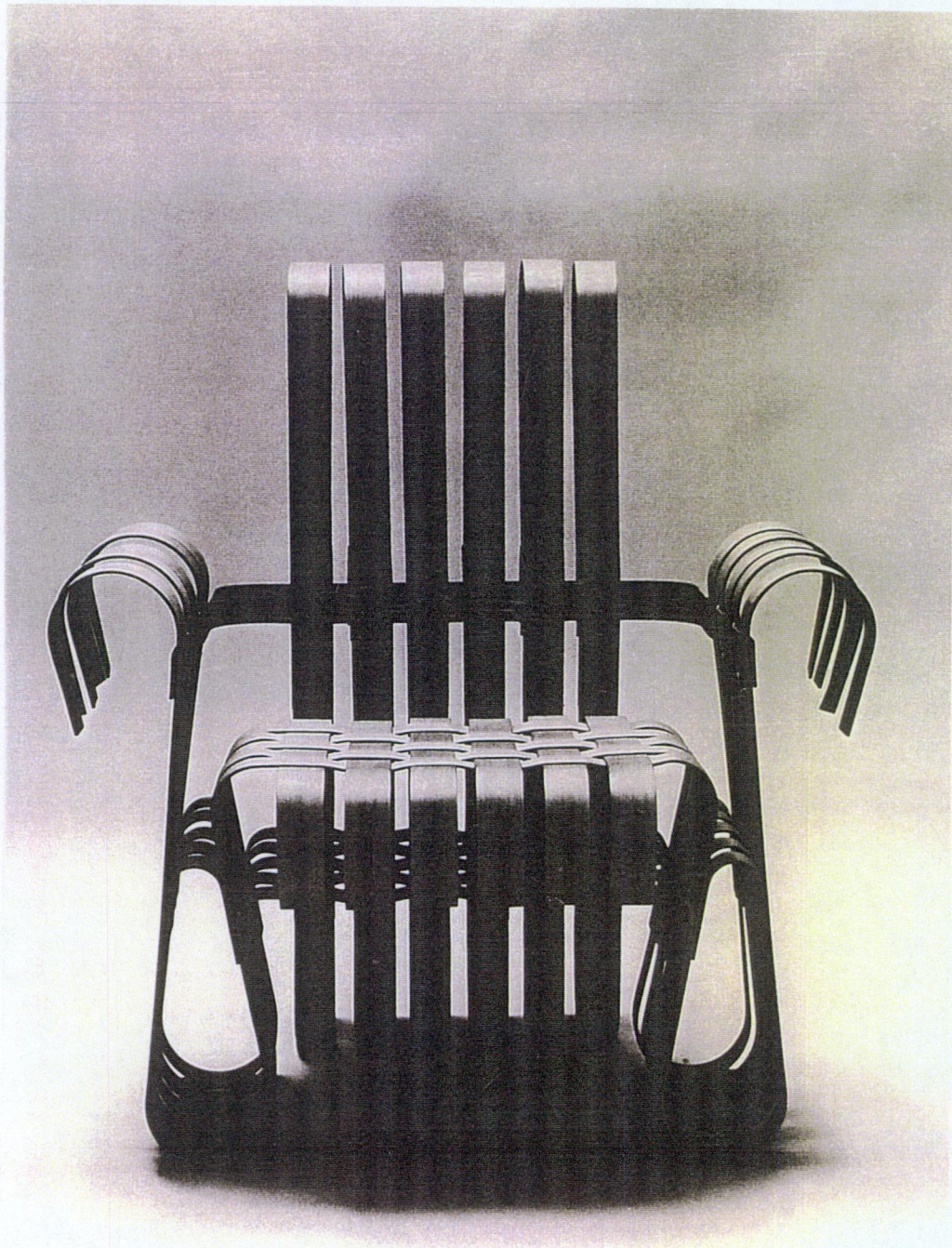


Fig. 3.3 One of Frank O Gehry's prototypes for the 'Power Play' armchair from the 'Gehry Collection', 1990.

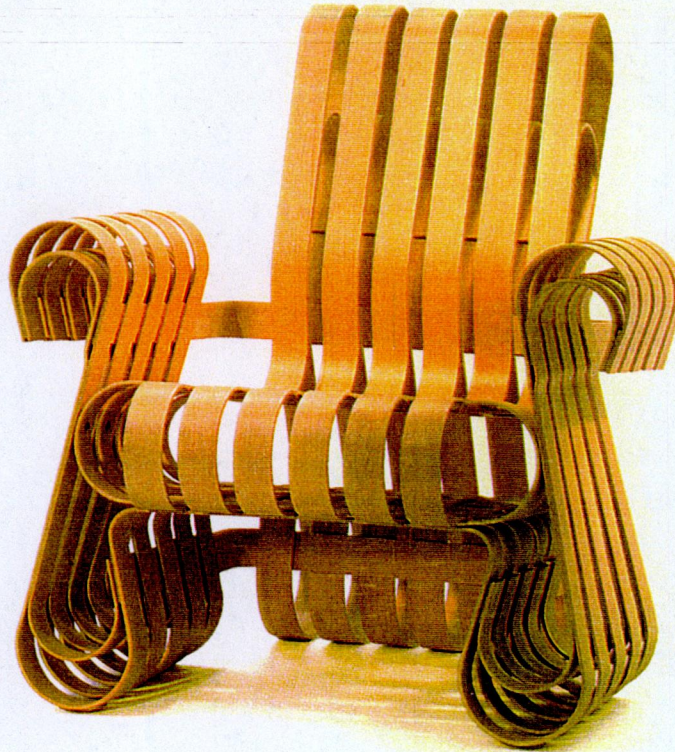


Fig. 3.4. Frank O Gehry's 'Power Play' arm chair, 1991.

The pieces were none elitist through their availability and quality unlike his earlier 'Experimental Edges' which were in a manner exclusive and therefore favored a section of society. His concern for the environment which was outlined in his previous collections by the simple material choice was also apparent here. For example, the economy of material and use of water based stains for the wood treatment. Although the designs summon up no particular time but their own, parallels can be drawn from earlier examples of modern furniture. For example Thonet's simplicity, inclusiveness and easy production techniques are not unlike Gehry's collection. The curves and interweaving of Gehry's Knoll pieces resemble

those of Thonet's beechwood rods also similarities can be drawn from Alvar Aalto's garden furniture for the Villa Mairea, 1939. If there is an aspect of return in Gehry's work it is more like a return to first principles that allowed him to respond with freshness and a lack of constraint to any given design problem.

It is some what ironic that such a range of furniture that might be a summation of one of the Modernists key themes was developed by such an unorthodox designer. The key difference between Gehry's pieces to that of Breuer's is in its use of structural ornamentation. Although the ornament grows from the structure and each curve has a purpose. Similar to that of nature's use of ornament with its organic growth. This was allowed and encouraged to develop along side the necessary practicality that requires attention for developing chairs for mass production. The pieces have a craft and organic aesthetic. Gehry's inclusion of the craftsman and artist to the design process echo Walter Gropius early writings for the Werkbund Yearbook of 1913 on the foundation of the Bauhaus.

The manufacturer must see to it that he adds the noble quality of handmade objects to the advantages of mechanical production. Only then will the original idea of industry - a substitute for handwork by mechanical means - find its complete realisation. The artist has the power to give the lifeless machine made product a soul. His collaboration is an indispensable part of the industrial process and must be regarded as such - Walter Gropius, 1913 (Christopher, 1981, p.17).

Equally the pieces examined and Gehry himself cannot be classified to a particular doctrine, either as a Modernist or Post-Modernist, here he has identified himself to the organic tradition that is more in keeping with social inclusion. This is because of his artistic method of working with artistic results, but which also have the rational that is so necessary if the chairs are to be mass produced.

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Fig. 3.5. One of Frank O. Gehry's prototypes for the 'Cross Check' arm chair from the 'Gehry Collection', 1991.

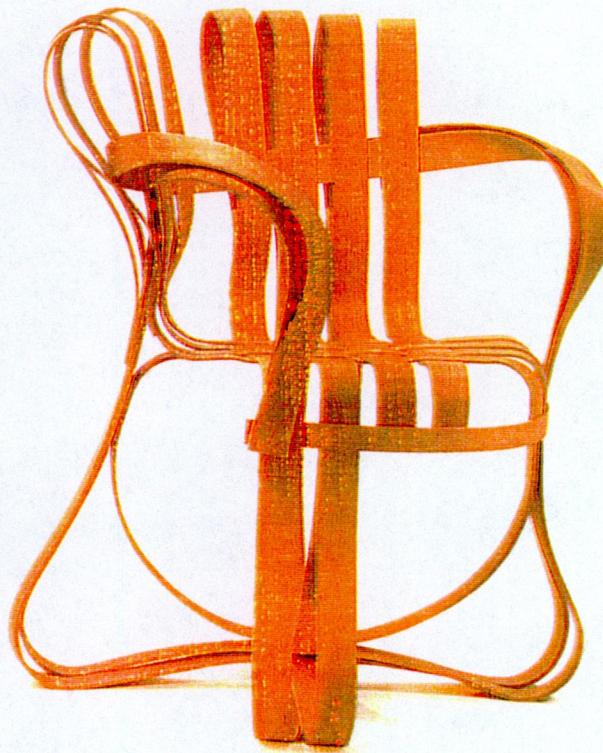


Fig. 3.6. Frank O. Gehry's 'Cross Check' arm chair from the 'Gehry Collection', 1991.

Conclusion

Modern furniture may be diagnosed as an intolerable tension between culture and technology. Pure technology would probably bring furniture to an end, or at least render it senseless - Reyner Banham, 1970 (Sparke, 1986, p.74).

This thesis has been an examination of furniture both 'rational' and 'anti-rational'. Banham's statement of 'intolerable tension between culture and technology' has been one of the main topics discussed through out this thesis. Rational being technology and the industrial process, and anti-rational being culture or the human aspect. This division between 'culture and technology' is not very clear cut, but the desire to emphasise one alternative over the other can be seen in chair designs chosen. The Moderns discussed, primarily Breuer and Mies van der Rohe were to some extent preoccupied with symbolising the machine aesthetic for the machine age and not the realistic irrational human world in which we live.

The mass produced steel and plywood furniture are all in theory perfectly logical, but in the home logic has always been at a discount, the vast majority crave their knickknacks and are perfectly willing to pay the price with broom and duster (Osbert, 1939, p.76).

On the other extreme much of the 1980s contemporary furniture, as seen with Tom Dixon's early work exemplifies the Neo-Modern response against the austerity of Modernism with their total rejection of the industrial process and to some extent the design process. It is clear that an inclusion of both is necessary. If pure industrialism followed its logical end Tom Dixon's S Chairs would never have been. The fact that so many furniture types and styles have remained with us for centuries

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bears witness to the fact that, in the end social, psychological and cultural forces determine what types of furniture most people live with.

Experiments with new materials and manufacturing techniques have produced some inspiring designs as Frank Gehry has shown with each of his discussed collections. The cheapness and efficiency of these designs (excluding 'Experimental Edges') have meant that advances in modern furniture is no longer a luxury, available to only but a few. These experiments, by Frank Gehry and his team contrast strongly with those of the Moderns. The Moderns discussed were determined on developing their new found material, tubular steel, and its various applications, so much so that they neglected their original fundamental philosophy of providing cheap efficient and comfortable furniture for the populace. Stephan Pheasant's quote on page seventeen describes the chairs current application. "The fact that such pieces are commonly referred to as 'occasional chairs' implies that they are without particular function- except to be used 'occasionally': (Pheasant, 1986, p.9).

Tom Dixon's work, both early and late, demonstrates the importance of symbol, ornament and decoration. His views are partially the opposite to those of Breuer and Mies van der Rohe's, his approach makes us question their propose of producing, as Le Corbusier stated in his polemic Towards A New Architecture 'A machine for sitting on.'

It is therefore important not to blindly follow any single philosophy, language, style or fashion. The hoards that followed Mies van der Rohe and Modernism secularised its original intention of, as was Gropius's aim to connect both art, craft and industry with full awareness towards the whole. They were, the followers of Modernism, responsible for the awkward monstrosities which led to the demise of Modernism.

bears witness to the fact that in the end social, psychological and cultural forces determine what types of furniture most people live with.

Experiments with new materials and manufacturing techniques have produced some inspiring designs as Frank Gehry has shown with each of his discussed collections. The sharpness and efficiency of these designs (excluding "Experimental Edge") have meant that advances in modern furniture is no longer a luxury, available to only a few. These experiments by Frank Gehry and his team contrast strongly with those of the Moderns. The Moderns discussed were determined on developing their new found material, tubular steel, and its various applications, so much so that they neglected their original fundamental philosophy of providing cheap efficient and comfortable furniture for the populace. Stephen Persson's quote on page seventeen describes the chairs current application. "The fact that such pieces are commonly referred to as 'occasional chairs' implies that they are without particular function except to be used 'occasionally'." (Persson, 1986, p. 9)

Tom Dixon's work, both early and late, demonstrates the importance of symbol, ornament and decoration. His views are partially the opposite to those of Jansen and Mies van der Rohe. His approach makes us question their prose of producing as Le Corbusier stated in his polemic *Towards A New Architecture*: "A machine for sitting on."

It is therefore important not to blindly follow any single philosophy, language, style or fashion. The boards that followed Mies van der Rohe and Modernism scrutinised its original intention of as was Gropius's aim to connect both art, craft and industry with full awareness towards the whole. They were the followers of Modernism responsible for the awkward monstrosities which led to the demise of Modernism.

This is not to say that Modernism was bad, every style is valid to a point when used in a creative, inclusive and relevant manner. However the Modernist chair examples described in chapter one did not fulfill these valid criteria.

With chair design many consumers persist in their enthusiasm for the man made or anything that appears hand-crafted. Both Dixon's and Gehry's work shows us that the craft aesthetic need not be limited to craft production but can be achieved through inventive and a knowledgeable manipulation of production techniques. Their chairs show us that a careful balance can be achieved between the craft aesthetic and the necessary knowledge of, and adaptation for, the industrial process. Gehry manages to use the industrial process to his advantage, his collections are all produced in a fresh and novel way using standard production techniques. Gehry is obviously not a blind follower of industry and the logic that a chair is a machine for sitting on. He uses the correct balance between the two, and the resulting aesthetic effect is inclusive. It is ironic that it is Gehry's work as opposed to the Moderns that encapsulates and symbolises the Bauhaus's original proclamation established by Walter Gropius in 1919. Gehry's work is a collective effort in which the artist, craftsman and designer all contribute towards the whole. The result therefore is far more inclusive, acceptable and expresses a salient aesthetic as opposed to the Modernist austerity and preoccupation with one particular material and its development regardless of its exclusivity.

The designer should acquire as much knowledge and awareness concerning culture, tradition, art, technology, industry and craft along side such diverse theories as Modernism to Post-Modernism as Gehry does, acting as a filter not accepting one over the other, or pursuing one aspect of the design process over another. The

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success of a chair design can be evaluated by how successful the designer has synthesised these aspects while addressing a special need.

Design is a planning activity whose aims, objectives and procedures should be dictated by the project at hand and not by some preconceived philosophy. As projects change so too should the inclusion and exclusion of various considerations. For example, Gehry's 'Gehry Collection' commissioned by Knoll International followed the required brief, which was to design and develop a range of chairs which were cheap to produce and accessible to the general public. Gehry did this in an intuitive manner which not only satisfied the brief but resulted in a more salient range of chairs. This saliency would not have been possible if only followed by one set of rules or design language. Chairs should express what they are, they should have a voice, the content of this voice should have some relevance to the particular chair and its desired effect unlike the Modernist belief that the chair should be an invisible object that neither takes nor adds to its environment.

Diversification is an important aspect in contemporary chair design. Today the diversity of the user and the diversity of the environment demands the versatility of the designer. For a more relevant and honest design approach designers should be aware of this. Where the Moderns 'strength' lay in their consistency towards the development of tubular steel and the cantilevered principle, which was in my opinion misdirected or secularised from the original Bauhaus philosophy, the strength of today's designers should lie in their diversity. Many styles and languages should and are used today in today's complex society.

The chair enhances most aspects of both work and rest. For these and many more reasons chairs are one of the richest elements in our material environment. It is both

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Design is a planning activity whose aims, objectives and procedures should be dictated by the project at hand and not by some preconceived philosophy. As projects change so too should the inclusion and exclusion of various considerations. For example, Gebrüder Gerny's 'Chairy Collection' commissioned by Knoll International followed the returned brief which was to design and develop a range of chairs which were cheap to produce and accessible to the general public. Gerny did this in an intuitive manner which not only satisfied the brief but resulted in a more salient range of chairs. This saliency would not have been possible if only followed by one set of rules or design language. Chairs should express what they are, they should have a voice, the content of this voice should have some relevance to the particular chair and its desired effect unlike the Modernist belief that the chair should be an invisible object that neither takes nor adds to its environment.

Diversity is an important aspect in contemporary chair design. Today the diversity of the user and the diversity of the environment demands the versatility of the designer. For a more relevant and honest design approach designers should be aware of this. While the Modernists' lay in their conservatism towards the development of tubular steel and the cantilevered principle, which was in my opinion misdirected or secularised from the original Bauhaus philosophy, the strength of today's designers should lie in their diversity. Many styles and languages should and are used today in today's complex society.

The chair enhances most aspects of both work and rest. For these and many more reasons chairs are one of the richest elements in our material environment. It is both

part of our heritage and of our everyday surroundings, and it seems likely that it will continue to play an essential role in our society and culture.

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