

THE INFLUENCE OF SCANDINAVIAN DESIGNERS
ON CONTEMPORARY AMERICAN FURNITURE

by

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THE INFLUENCE OF SCANDINAVIAN DESIGNERS ON CONTEMPORARY AMERICAN FURNITURE

INTRODUCTION

Have Scandinavian designers had an influence on contemporary American furniture? The general consensus of opinion is that much American design is modeled after the Scandinavian. The purpose of this study was to find out if there has been a great deal of influence, and if so, are all the designers affected? Is the influence noticeable in all price ranges?

To determine the degree of influence it was necessary to acquire a background by reviewing the history of the modern movement, determine the philosophies of design for each of the Scandinavian countries as well as for America. Several of the designers who have contributed either to the development of design in his own country or has influenced the acceptance of a philosophy outside his country is considered in relation to his individual contribution. To understand and illustrate the similarities and differences the author visited many furniture stores examining furniture for design, workmanship, and aesthetic values. To show some of the results photographs were taken and will be used to explain the results of the study.

The modern movement has been developing since the Industrial Revolution. The first real breaks with tradition came when a Frenchman, Thonet, first used bent wood in furniture construction; and William Morris designed the "Morris" chair. Since then many organized artistic movements have had a real influence on contemporary design. Not only have these organized movements influenced design but the changing social and economic conditions have had their effect. In addition a new style of architecture, a new kind of user, and above all technology have been contributing factors.

In this study an attempt is made to review the sociological factors and technological advancements that have contributed to the type of design we call contemporary. As most people believe Scandinavian designers have had an influence on American furniture designs some similarities and differences will be discussed. The study was necessarily limited to one piece of furniture, the chair. Due to the changes in style of architecture during the twentieth century the chair has assumed added importance as a piece of furniture. Almost every designer and architect has contributed one or more designs for chairs. (In selecting the designers the ones who seemingly have had the greatest influence on the industry were selected.

HISTORY OF THE CONTEMPORARY MOVEMENT

Since the colonization of America furniture design has progressed sporadically to the period we now refer to as Contemporary. During the early colonial days furniture was largely made in the home. It was of simple design. It was designed to meet the needs of that period. Often the back and wings of a chair or settle were high so as to prevent drafts and keep the occupant more comfortable. The designs were an honest expression of the age, reflected the technology and living conditions of seventeenth century America. In the eighteenth and early nineteenth centuries craftsmen were able to produce furniture comparable to that produced in Europe. In some instances it was an exact copy of an English version, but often had a distinctly American flair. This quality of workmanship continued until the Civil War. Industrialization just prior to and following the Civil War created many changed conditions, new money, new market, and a new way of manufacture. This resulted in a division into the man who designed, the one who manufactured, and the one who marketed. The craftsman began to disappear. American furniture does not really have any outstanding design period between the Colonial and Contemporary.

Contemporary as we know it today is the outcome of the "function dictates form" school of thought; however, during

the last few years the consumer has been demanding aesthetic characteristics as well as functional.

Contemporary or twentieth century design did not just happen. It has been the outgrowth of the development of many new techniques as well as schools of thought regarding design. In 1865 Thonet, a Frenchman, perfected a process by which lengths of beechwood could be steamed and bent to form a long curved rod. Before this, furniture depended on more or less sculptured joints for the intersection of separate pieces of wood. Bentwood made it possible to eliminate the intricate hand carved joints and contours, and led to the first mass production of standardized furniture. A few of Thonet's designs achieved a simplification that makes them particularly appealing to twentieth century designers. The most notable of these was his bentwood armchair. (15, p.10)

From 1893 to 1910 was the period when Art Nouveau flourished. This was the first attempt, or movement, to break with the idea of copying the past. A sinuous whip-lash curve was the typical contour of this period. It was used on everything from posters to architecture. The forms were not derived from structural necessity, but were decorative ideas imposed on a variety of materials. Art Nouveau was short lived but designers experienced a stimulating freedom from tradition. (15, p.15)

At almost the same time, another group was advocating the reinstatement of classical form--Frank Lloyd Wright was developing his open plans and horizontal massing in architecture; Sullivan and Wright were emphasizing the inter-relationship of form and function. Some other architects were predicting the machine as a potential unifier of the arts. In 1894 a Viennese architect, Otto Wagner said "All modern forms must be in harmony with....the new requirements of our time, and that a future style would emphasize horizontal lines....great simplicity and energetic exhibition of construction and materials." (15, p.28) Adolph Loos, another Viennese architect, maintained that "the lower the standard of the people the more lavish are its ornaments. To find beauty in form instead of finding it in ornament is the goal toward which humanity is aspiring." (15, p.28)

The de Stijl concept existed as an organized movement from 1917 to 1928. The best known exponents were Piet Mondrian, Theo van Doesburg, Gerrit Rietveld, and George Vantongerloo. Art Nouveau was dependent on organic form but de Stijl dispensed with recognizable subject matter. It reduced the elements of a composition to independent rectangles and circles, replaced traditional symmetry with freely asymmetrical balance and used clean flat primary colors. The theories advanced by the de Stijl artists

still provide the basic formal aesthetic tone of much modern architecture. (15, p.29)

The Bauhaus School was active in Germany from 1919 to 1933. The school was the focal point in the integration of design with the machine age. The philosophy and teaching methods of Walter Gropius and his staff are now basic procedures in training designers and architects. Both Walter Gropius and Meis van der Rohe had vision, inventiveness, and courage. They are truly milestones in twentieth century architecture and design. "Bauhaus" is still popularly used, if often incorrectly, to describe what seems "functional" or "modern".

The Bauhaus curriculum embraced architecture, fine arts, and practically all creative expressions. For the first time the designer was related to the Industrial Revolution. The Bauhaus designers approached a problem with a rational simplicity, employed straight lines and used materials with inventiveness. These men were more pre-occupied with function than the de Stijl artists. The functional solutions were expressed in geometric forms which were influenced by de Stijl artists. Some of the developments from this period that broke with precedent were:

1. Metal tube furniture.
2. Stacking furniture, for ease of storage.

Meis van der Rhoe was the second director of the Bauhaus School. His furniture achieved a classic serenity of line and unparalleled elegance. The curving contours of his chairs are general and calm. The "Barcelona" is the most beautiful he has designed, and is large enough for two people.

The single curve of the back crossing the reverse curve of the seat expresses 'chair' better than any other construction model. As always Meis's impeccable craftsmanship plays an important part in his furniture design. Everything is calculated to the last millimeter: the width and thickness of the strap metal and the radius of the curves at the joints; the width and spacing of the leather strapping, the size of the upholstery button, the fineness of the welting and the proportion of the leather rectangles on the cushions. (32, p.49)

His "Barcelona" chair is regarded as the classic chair of the twentieth century. All of Meis van der Rhoe's designs require impeccable hand craftsmanship in order to provide the machine made appearance which we associate with them.

The most changes in design have taken place in the past 25 years. Prior to World War II the design centers of the world were located in England, France, and Germany. Following the war these centers shifted to the United States, Italy, Finland, and Denmark. Another noticeable change is that before World War II the designs were impersonal and slick, which marked the machine style with a streamlining tendency. Since 1945 the designs have shifted

to warm individual expression, and variety in forms, colors, and textures. Earlier it seemed desirable to dramatize the industrial revolution; whereas now, it seems more urgent to express man's control of his tools. "The machine at the service of man" Frank Lloyd Wright had said 50 years before. (37, p.24)

Yet, 'the machine' no longer can serve as the symbol now that radiant energy is taking over. Speed, the alternative symbol, has become as inexpressible as light, its fastest measure. Sculptural masses that once looked powerful (as if they housed engines) are often dropped in favor of linear networks charged with energy; thin-edged spatially-warped shells replace heavy slabs: focal points rather than frames or mouldings mark visual entities.... The flow of space has become the imagery of design; space curves around the thin shells; it slips along the slender rods and lines, it gathers at the focal points--it can be calm, turbulent, swift, or modulated between these extremes. The channeling of space, the inflection of its flow, is the symbol of energy. Older habits of design persist, but here lies the direction of development. Transparency, linearity, 'negative' spaces, emphatic textures, all contribute to this one end. (37, p.25)

If one were asked what makes an object look modern he would probably receive such answers as "simple", "cold", "bare", and "functional". The shapes that most nearly suggest the twentieth century are geometric, precisely finished and without elaboration or detail. The Western World generally has held to the concept that geometric shapes have superior beauty. We need to keep in mind that the present

century has not necessarily developed a new idea. Plato in Philibus declared:

I do not mean by beauty of form that of animals or pictures, but....straight lines and circles, and the plane or solid figures which are formed out of them, by turning lathes, rulers, and compasses; for these I affirm to be not only relatively beautiful, like other things, but they are eternally and absolutely beautiful. (15, p.48)

In our present way of life we require an object to do something and do it well. Not only should it be truly functional, but also must be beautiful. This doctrine of functionalism has swept away much of the clutter of previous centuries. To set limits on functional performance of even so simple an object as a chair is almost impossible, as no two people have quite the same shape or will be using it for the same purposes. Functionalism was influenced greatly by architecture. Each of the major innovations in furniture was the work of an architect.

DEVELOPMENT OF CONTEMPORARY DESIGN IN FURNITURE

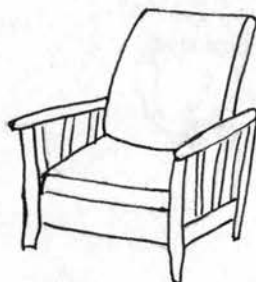
What is contemporary design in furniture? Why have we had this change in our philosophy of design? The designer and the manufacturer have come to realize that comfort, aesthetic pleasures, and the desire to enjoy living to the fullest are the wish of the present generation. They have designed and built furniture with this in mind. The result is contemporary.

Today the output of contemporary design is staggering. Some of it is excellent, of sound design, intent, and good craftsmanship, but much has only surface values, is designed for showmanship, and in its bid for attention is doomed for an early death. How then can we tell good design from poor design? "All good design is an honest reflection of the social, economic, and emotional changes of its times," is the real key to evaluation. (25, p.4) One should ask himself--does this article meet these qualifications?

Modern design started when mass production elbowed out the crafts; in other words, it is a result of the industrial revolution. Immediately following the industrial revolution of the nineteenth century few people could see the possibilities of the new materials and new tools. Lewis F. Allen, a farmer, said in 1852, "Good taste depended on fitness of purpose for which it was intended, and the harmony

of its various parts." (25, p.5) He also said "No architecture could really be bad if utility is duly complied with." (25, p.5) These two statements are the basis for practically all contemporary design today.

Some say modern art is a revolution against the chaos following the industrial revolution, and some say it is an expression of the fundamental nature of this new industrial development. In the period following the industrial revolution machines were trying to produce articles that looked handcrafted instead of using the machine as it was intended to be used. If we were to go back to the very beginning we would probably say that William Morris was the first important figure in the modern movement. William Morris and John Ruskin rebelled against the poor quality and tastelessness of industrialism and sought to revive handicrafts. They won artistic victories but their articles were too expensive for the general market. The "Morris" chair could be called the first modern chair.



It contained the elements of true idealism and honest use of materials which are the basic elements of contemporary design.

From Morris' time until today the designers have come to terms with the machine and its implications. As early as 1830 Thonet first used wood bending; however, the Thonet chair, familiar to most people was not designed until 1900. Thonet's first attempts at wood bending were very decorative, but now wood bending is used extensively in contemporary furniture.



(46, p.10)

During the past four decades designers have learned the limitations and expectations of the machine and have developed designs to take full advantage of its potential. Following are some of the achievements in technologically inventive furniture:

1. In 1925 Marcel Breuer developed the first cantilevered metal tubing chair. This was the first example of tubular steel in terms of the material. The public was not ready for this radical

a change, and consequently the chair was not readily accepted for home use. Imitators found a ready market in beauty parlors, offices, and for garden use.



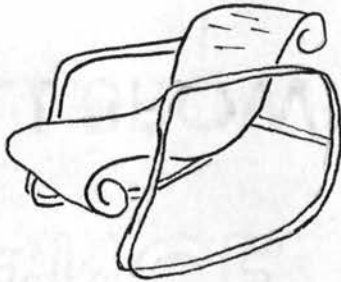
(38, p.55)

About the same time Meis van der Rhee developed a tubular cantilevered chair with a semi-circular support which was an immediate success. This chair has been copied all over the world.



(38, p.55)

2. In 1934 Alvar Aalto, a Finnish architect, developed the process of laminating wood. His first chair used bent plywood on steel legs, but shortly thereafter he designed a chair using the cantilever construction. This demonstrated the possibilities of plywood. Aalto's arm chair uses a single sheet of plywood to form the seat and back. It varies in thickness according to the structural requirements.



(38, p.55)

3. In 1945 Charles Eames introduced a chair that was made of molded plywood, steel tubing, and mounted on rubber shocks. This was the first use of molded plywood for interior use. To many people the Eames chair is "modern furniture".



(26, p.4)

4. In 1946 Eero Saarinen produced a chair composed of a frame of molded plastic with steel tubing legs. The chair was designed to meet a new concept of sitting comfort; designed to support any part, or every part, of the body in every conceivable relaxed position. It is large and deep, the sides and back are spread out to support head, neck, and arms. It is not as thick as conventional upholstered pieces. The sitter can cuddle, draw feet up, or fling arms out and head back and always be supported. The structure of this chair is as revolutionary as the postural accommodations. The plastic shell is held up on

legs and within a framework of bent steel tubing. The plastic shell is padded with latex foam and covered with fabric--two round separate cushions are fitted in the cradle.



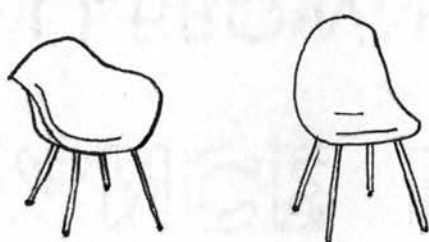
(39, p.43)

5. In 1951 Charles Eames produced the wire framed shell which is light and airy in appearance but very strong. This was not really a new technique, but a new use for it. The chair is made in much the same way as wire displays, being laid up and welded and then formed. Snap-on upholstery of either leather or fabric has been designed in either an economy version, for part of the chair, or one that covers the entire chair. This is another step in the attempt to produce high quality mass production furniture at low cost.



(26, p.4)

6. In 1952 Charles Eames made a chair of all molded plastic. In the beginning the plastic was exposed giving chairs a translucency for the first time. Later snap-on covers were added as well as changeable legs--for lounge, rocking, or dining.



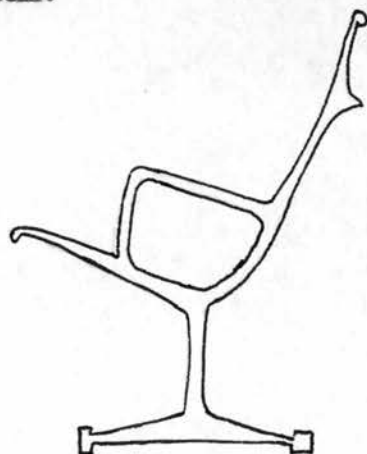
(26, p.4)

7. In 1957 Saarinen designed the pedestal chair. He tried to avoid so many legs in contemporary rooms. This chair is made of a molded plastic with a padded seat.



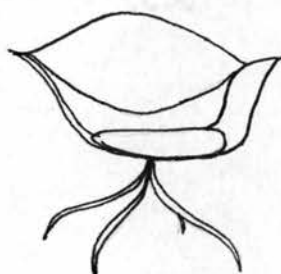
(38, p.55)

8. In 1957 Charles Eames stretched fabric to cover cast aluminum.



(26, p.4)

9. In 1958 George Nelson, in collaboration with his staff, designed a swag-leg group.



(26, p.4)

Another way one might describe the development of the modern movement is to say that it has had three phases.

'Modernistic'--During the 20's there was a rather clumsy attempt to get away from aping the past. They designed bulbous chairs and sofas, precariously slender tables and chairs, textiles and wallpapers with nervous, aggressive designs.

'Machine Modern'--In the 30's there was an attempt to take full advantage of machine production and to simplify homes and furnishings. Many of the products were beautiful, but cold and mechanistic.

'Naturalism'--probably best expresses the present trend. The tendency is to use wood for homes and furniture, textiles with nature-like colors, and textures are favored for beauty and ease of care. The houses and gardens are integrated. The rigid prescriptions are avoided and individualism flourishes.
(16, preface)

Modern design does not follow any set pattern. It represents the individual and personal techniques of the designer or craftsman. However, each individual treats material honestly and intelligently, allowing function to

dictate the form. All designers realize now, more than ever before, the importance of better integration between the house and its component parts. We do not have walls to place furniture against. He must consider the glass wall, or the free standing storage wall, so common to present day architecture. One of the biggest problems today in selection and use of furniture is avoiding a formula. So much of the furniture is so very much alike. Copying is nothing new, but during the last two decades has probably reached an all time high. As there is so little variety offered by ornament, the individuality is provided by line, proportion, and a feeling for materials. If any motifs are used they can be anything from naturalistic to the most abstract. The colors are usually fresh--never muddy or dingy.

Some contemporary furniture is getting to look more and more traditional in the sense that fine craftsmanship, molded and sculptured lines, lightness and sophisticated elegance are the standards. The manufacturers are developing a handcrafted look though usually the furniture is made wholly or partially by machine. The most typical of the handcrafted look is coming from Denmark and Italy. Many are entirely made by hand, but most of the designers are developing styles that can be made partially by machine techniques. Danish factory workers are so skilled in wood

that none of the design's subtle nuances of thick and thin are lost.

Prior to the outbreak of World War I there was a gradual change in the thinking about design and even some actual changes. During and following the war the Scandinavian countries were beginning to experiment. Most of these experiments were through their cooperatives. The results continue to inspire contemporary thinking.

1. Light appearance and weight.
2. Direct use of materials.
3. Lack of ornament.

Before we go into a discussion of a specific area of furniture it is well to list the characteristics common to all contemporary design:

1. Every piece is low and light in appearance.
2. Each is completely devoid of extraneous decoration allowing material and joinery to exploit their natural and functional beauty.
3. Finishes and fabrics are resistant to dirt and are easy to maintain.
4. Metals, when used, are thin and clean of line.
5. Lightness--whether wood or metal has a spacious, airy appearance.
6. Light in weight for mobility of arrangement.
7. Designed for flexible arrangement--some may have architectural qualities and be used in place of a rigid wall.

A few trends that we can anticipate now and in the near future will be:

1. Elimination of case furniture--more built-ins.
2. Furniture to be seen from all sides.

3. Furniture that is smaller and lighter. It will have almost a floating look by separating the upholstery as much as possible from the supporting wood framework. The case pieces will be on thinner or metal legs.
4. Hardware will be non-existent, or else very exquisitely fashioned.
5. Multi-purpose furniture that will fit into more than one room.
6. Finish will be varied and generally warmer in color.

The application of contemporary design in the area of furniture is best illustrated by the chair.

CHAIRS

During different periods of history artists have often selected one object upon which to concentrate their decorative efforts. A few of these are:

Grave sculptures and funerary urns--by the Etruscans
 Coins, hand mirrors, painted
 vases and oil lamps-----by the Greeks
 Stone sides of temples-----by the Balinese
 Of course, it is anyone's guess
 but, right now, it would seem
 that the chair would be high on
 the list-----for the twentieth
 century

For the last 50 years there has been extraordinary interest in something to sit on. Architects have shown extreme interest in seating pieces. Some of the internationally famous ones who have designed chairs include:

Alvar Aalto-----3 legged stool and laminated
 wood chair.
 LeCorbusier-----Steel, leather, and canvas
 chairs.
 Meis van der Rhoe---Classic "Barcelona" chair.
 Marcel Breuer-----Steel chair designer even before
 he became an architect.
 Frank Lloyd Wright--Many seating pieces especially
 for his houses.

In order to discuss a chair effectively we need to establish it in an environment of some kind, most frequently this is a room, and the room exists because of the house. A house in its advanced form has changed astonishingly in the past 50 years. It has emerged from a tight shuttered box to a construction of alarming delicacy and fragility. The walls are just glass between posts, the

partitions are dissolving into featherweight screens, and the rooms are spaces that are hard to define. In addition, the interior and exterior are difficult to disentangle. Many of our old ideas have to be discarded, for one, furniture against the wall. Now we must have pieces out in the open so we get a feeling of their silhouette. The interior of the modern house is slowly being emptied of its familiar contents.

At least one of the exterior walls is made of plate glass, and disappears. Many portable lamps are being replaced by "architectural"--i.e. invisible--lighting. Storage cabinets have been swallowed up by the remaining walls. Sofas tend to become built-in seating. In this disappearing landscape the chair remains as one of the unassimilable objects and as a consequence it becomes very conspicuous. (46, p.7)

The chair, a once humble object, becomes a thoroughly glamorous object. With storage elements simplified and often absorbed by architecture, the chair has offered twentieth century furniture designers their most interesting and challenging project.

In any analysis and discussion of chairs the subject can be approached from several different points. In this analysis the choice has been to give the requirements of a chair, a little about construction and materials used, and lastly what one should look for in good chair design.

As sitting is the most universal occupation we should be experts. Until recently no serious study of sitting was

made. Now we know comfort results when weight and pressure are spread and tension is eased by having:

1. The height of the seat somewhat less than the length of the sitter's lower legs, so that the feet rest on the floor and the legs can be relaxed.
2. The depth of the seat somewhat less than the length of the upper leg so that there is no pressure point under the knee.
3. The width of the seat ample to permit some movement.
4. The seat shaped, as in a Windsor chair or an Eames chair, or resilient so that the pressure is not concentrated on the small weight-bearing edge of the pelvis.
5. Both seat and back tilted backward to buttress the weight.
6. The angle between seat and back of 95° or more.
7. The chair back to support the small of the sitter's back.
8. The position of the seat and back adjustable for different persons (as a typist's chair) or for different ways of relaxing.

Comfort is further increased if the chair offers a place to rest the head and relax the neck and has arms to support a person's arms. (16, p.364)

We need chairs for several purposes and here again form follows function. Most people need chairs for:

1. Relaxation and reading.
Upholstered chairs and sofas.
2. Conversation and T.V. viewing.
Upholstered chairs and sofas.
Pull-up chairs.
Easy to handle.
Light weight to lift.
Strong enough to stand frequent moving.
3. Eating, working and games.
Sturdy.
Easily moved.
Easy to clean.
Comfortable.

Of all the kinds of furniture the chair probably represents the most interesting problem. To the designer it presents a task that stirs thought and imagination. The functions of a chair, as listed above, may seem simple but the chair is more closely connected to the person using it than any other piece of furniture. Its exposure to varied and unstatic application by the user will influence the design. The use of chairs varies with what is often referred to as "sitting jargon". We have left the sitting attitudes of the Victorian era and today sitting attitudes and movements are much more informal. Artists and psychologists describe people's sitting attitudes, in drawings and words, as a characterization and an expression of their personality and social environment. Consequently the chair is also a sociological expression for certain sitting habits of special classes and different age groups. At one time the chair was a symbol of power and dignity, but today we live more informally and try to create a balance of the art between the man in tweeds and the chair to frame him. The chair has been removed from an architectural feature and today is a sculptural value in the room. It is an individual piece of furniture.

Many are asking why this new style or modern came into existence. Briefly we can say it is due to:

1. Technology--the designers are trying new materials. They found for instance that they could not use a molded plastic and come up with a traditional design.
2. Nature of the market--the buyer today wants a light weight piece, one that can be lifted and moved from bedroom to dining room. It also must be impervious to dogs, cats, teenagers, cocktails, and still be economical.
3. Style of architecture--as was stated earlier, traditionally chairs were backed up against a wall. In a modern setting there is not much in the way of a wall, or if so it possibly is a storage wall. Exteriors are often glass so a chair must be seen in the round.

One answer then to the rapid acceptance of modern could be technology, a new kind of user, a new type of interior, and a new idea of what constitutes good looks. The result is the "sculptured" look. (47, p.137)

Chairs show another response to their new environment. Today there are many times as many types of chairs as were available a century ago. In addition to those we associate with daily living we find chairs for many specialized purposes such as:

Built-in--featherweight, portable.
 Business--executive, conference, secretarial.
 For deep sea fishing.
 Pack in a suitcase with picnic table.
 Outdoor.
 Outdoor-indoor.
 Dinette.
 Many others.

The modern chair is inspired by the curves and quirks of the human figure, but it must also have an original pleasing form of its own. A chair today in our wall

scarce, glass enclosed houses must stand like a naked sculpture. It must be an interesting object from every angle since it will be viewed from every side.

The modern chair belongs to a modern way of life. New principles of construction, new methods of joining, new techniques and materials have contributed to the advancement in chair design. The materials used for the structure of a chair have many new offerings. In a country where seasonal markets make such heavy demands on a designer there is apt to be many designs submitted each year that are not readily accepted by the consuming public. However, this semi-annual challenge has encouraged the development of many new processes and the use of new materials.

To summarize some of the advancements in the chair industry the basis for discussion will be materials used, and in some instances processes of construction where the two overlap.

1. WOOD. As a structural material wood still dominates the field. It is put together virtually the same as it has been for centuries. There is still no substitute for mortise, tenons, glued joints or doweled joints to support heavy weight. Where attempts to deviate from traditional construction have been tried an inferior product has

been the result. Due to technological advances in shaping an unyielding material, the solid wood has become more comfortable in contact with the human body. A marked resemblance can be observed in an antique Windsor and a modern Nakashima chair.

2. METAL. Metal as structural material for chairs was introduced by Marcel Breuer. He demonstrated that tubular steel could be comfortable, resilient, and produced at low cost. The idea was soon applied to other metals; later, new principles were employed as suspension in the Hardoy chair.
3. LAMINATION. The process for laminating wood can be traced back to the Civil War days, but its use in the furniture industry was introduced by Alvar Aalto. At present practically every designer and company makes some pieces of laminated wood. It is strong, doesn't warp, more economical of material, and can be produced at a lower cost.
4. BENTWOOD. This is a relatively old process. It was first used by the Thonet Brothers about a century ago. Today it is employed by many designers. Among those who use it extensively are Ilmari Tapiovaari, Pascoe, Edward Wornley, Allan Gould, Hans Wegner, and Vittoreano Vigano.
5. PLASTICS. With the rapid development in the area

of plastics it was inevitable that designers would turn to a molded shell. At first a mild steel coated with neoprene was used, and then a fiber-glass reinforced polyester was developed. Now a press can mold a chair every eight minutes. The pieces are lightweight, flame, water, and stain resistant and can be produced at a nominal cost.

6. WIRE SHELLS. In the continuing effort to produce high quality mass produced furniture at low cost the wire shell was developed. In an attempt to design furniture to fit into the twentieth century architecture, of glass walls and open plans, chairs are forced out into the open, thus a need for pieces molded in the round. The wire shell chairs do not have a sharply defined front and back so take on the character of sculpture.

7. Other materials used to a lesser degree include:
- a. Bamboo.
 - b. Saddle leather.
 - c. Wicker.
 - d. Woven cord.
 - e. Woven steel mesh. (46)

Upholstered furniture is notoriously more difficult to handle in an interesting way than the lighter seating units. Even so, upholstered pieces have shown a tendency to parallel some of the design tendencies of other seating units. Sheer bulk is not synonymous with comfort even though some people seem to think so. Comfortable furniture

can be achieved without being overstuffed. The most conspicuous development perhaps is the articulation of seat and frame. In some cases this separation is for knock-down construction, but in most instances is probably a desire to achieve a lighter appearance.

Upholstered chair construction has a tendency to become lighter. There is a continual trend to make the pieces more economical, and at the same time be more imaginative in the use of material and still maintain comfort and strength. Construction can be divided into five groups:

1. Overstuffed.
 - a. Wooden frame.
 - b. Webbing to support springs.
 - c. Springs--average chair has 10 seat
9 back
2 helical springs.
 - d. Burlap to cover spring and support filling.
 - e. Fiber pad.
 - f. Load of hair.
 - g. Cotton padding.
 - h. Upholstery fabric.
2. Simplified and lightened.
 - a. Rigid wood frame.
 - b. No-sag spring.
 - c. Filling.
 - d. Fabric.
3. More advanced and lighter.
 - a. Laminated shell of wood veneers. This is constructed to take the thrust of springs and seat. It has a wooden strip where the springs are attached.
 - b. Springs--no-sag type.
 - c. Foam rubber instead of filling.

4.
 - a. Wooden frame.
 - b. Steel or rubber straps.
 - c. Foam cushions.
5. Eames and Saarinen types.
 - a. Shell--strips of veneer and glue.
 - b. Thin rubber pad for softness. (51, p.28)

HISTORY OF SCANDINAVIAN DESIGN

"Vackrare Vardagavara" the Swedish slogan which means "More beautiful things for everyday life" is a phrase which summarizes the Scandinavian philosophy of design. Scandinavians--Danes, Swedes, Norwegians, and Finns spend a lot of time snowed in. The long winters helped to develop and preserve the culture so unique to these Norse countries. The philosophy of Scandinavian design is based on an intricate use of tools, respect for materials--wood, clay, textiles, glass, or steel--and a love for the brilliant colors of summer. It was not until after 1930 that the United States discovered the practical beauty of anything Scandinavian, and it was after World War II that the new Scandinavian look really took a hold here in the United States. Now there are few U.S. furniture manufacturers without a "Danish line"; some are imported and some inspired by Scandinavian design. It is all accepted for its sculptured look, natural wood finish and economy of material.

What is Scandinavian design? Where did it come from and where is it going? Each of the Scandinavian countries has an organization to promote the applied arts. These organizations have the unique characteristic of enjoying the trust of consumer, designer, producer, and even the authorities, such as government inspectors. It is safe to say that almost all important happenings in the field of

applied arts can be traced back, in one way or another, to these organizations. They haven't only endeavored to raise the level of taste, but also have encouraged and criticized manufacturers, arranged contacts between designers and industry, published magazines and books, and organized exhibits, lectures and courses. These organizations are primarily responsible for the representation of Scandinavian applied arts abroad.

The production which the Arts and Crafts Societies are trying to foster can be divided into three categories:

1. Home Craft.

When handicrafts were being threatened by industrialization the organizations were formed for the purpose of preserving patterns and promoting production of traditional wares wherever and whenever possible. Curators of museums and local experts worked to collect and systematize the information necessary to preserve the arts. In recent years a growing interest in handmade things has become a natural counterbalance to the excellent but impersonal factory produced article.

2. Art Handicraft.

The production of exclusive articles is carried on by individual artists in small workshops or studios. A prerequisite of such work is an interested and culturally well-informed public with sufficient economic resources.

3. Industrial Arts.

Quantitatively this is the most important production, but even in this area one cannot speak of mass production since both the industry and market is so small. Instead many designs are partially mass produced and then possibly one or more steps hand done. (63, p.15-17)

The Arts and Crafts Societies in Scandinavia have survived through periods of industrialization and as a result design has been conveyed in a warmer and a more human style. The so called "Swedish Modern" became popular in the United States after the World's Fair of 1939. Finland contributed bent plywood at about the same time. The post war Scandinavian look is mostly Danish.

This Danish look combines fitness of purpose with unique elegance. In its ideal form each piece is as strong as it should be, without waste; each piece as handsome as it should be without decoration. It has a notable respect for the honest use of materials. Its soft-finished silverware welcomes patina; its natural oil-finished woods invite everyday use. Sturdy fabrics are brightened with primary colors. (8, p.61)

It is not surprising that Scandinavian design appeals to Americans as it has many of the same characteristics as our own Colonial. Perhaps even a more important reason is that the United States is rapidly becoming what Scandinavia already is, a home centered society without extremes of wealth or poverty. We do not need furnishings as a symbol of status. More emphasis is being placed on solid comfort,

easy maintenance, and good looks.

Such popularity may also be the clue to great changes that are happening in America: Our growing awareness of quality as opposed to quantity; our increased appreciation of form, color, and proportion; our tendency to give added attention not only to work places like the kitchen but also to living areas of the house. For these changing concepts and standards of living, Danish modern is more than a fad, it is a reflection of a new attitude toward living. (8, p.61)

The Scandinavian "style" in furniture is the result of a unique collaboration. It has its roots in Denmark. Architects and designers work together applying fresh creative ideas to the centuries old tradition of impeccable craftsmanship. They work side by side from drawing board to the finished piece whether it is in a factory or a workshop. The designer's eye guides the craftsman's hand and as a result gets the craftsman's instinct for the rightness of a piece.

In this equation of excellence, skilled craftsmanship is the essential complement of top-flight design. Most of the pieces emanate from small workshops where a high degree of skill in planning and shaping each part, meticulous attention to detail, and above all complete integrity in workmanship are factors which set Scandinavian craftsmen in a class by themselves.

Of major importance to the distinction of Scandinavian furniture is the blending of beautiful form with practical

function. Clean, compact, and easy to care for furniture is designed for use as well as for its aesthetic quality. Each piece is based on a common human need, comfortable seating, convenient storage, adequate dining, and efficient working space. The broader concept would be to fulfill a need for an informal way of life, the contraction of living space, and the need for pieces that serve multiple purposes.

SWEDISH DESIGN AND ITS INFLUENCE

What is "Swedish Modern"? During the past several decades there has been a determined effort to raise the standards of the Swedish home and improve the quality of its home furnishings. The aesthetic considerations of design have been tempered by economic and social conditions, and as a result have developed a rather unique character. Outside of Sweden this style is referred to as "Swedish Modern". Style implies something stationary and final and the present Swedish development is very dynamic. The Swedes prefer to think of it as a movement rather than a style, which can be defined as:

Swedish Modern means high quality merchandise for every-day use, available for all by the utilization of modern technical resources.

Swedish Modern means natural form and honest treatment of material.

Swedish Modern means aesthetically sound goods resulting from close cooperation of artists and manufacturers. (66, p.13)

Swedish Modern is a term that has in the last two decades taken on a generic aura for a type of clean-lined, light wood furniture that, pace setting as it has been, far from states the case for Swedish design today. The past war, call of the American market, and the transition from handicraft to industrial techniques in furniture production have given a cosmopolitan complexion to Swedish design. (65, p.118)

Probably no other country in the world provides its customers with such a good choice of modern standard furniture as Sweden. This has been due to an intensive consumer education program. Swedish design is marked by two influences, the folkart which allows uninhibited decoration of joyous design and color; and industrialism, plus a democratic society, which laid the foundation for modern industrial art. About the end of the nineteenth century Art Nouveau developed possibilities for escape from the past. Shortly after the Bauhaus School introduced the idea of mass produced articles of good quality and design at popular prices. About the same time, or as early as 1915, one group in Sweden was developing a similar effort toward "More Beautiful Everyday Things". Another group was collecting and preserving the patterns and designs from the old to promote home craft. The concept that "Swedish Modern" was created during the 30's is really false as functionalism appeared in Swedish design before 1930.

The Swedish Society of Industrial Design was created in 1845. For many years it has carried on investigations of function in the furniture field. They have concentrated on practical function, measurements, durability, and construction of furniture. The results of the research have been published, and the importance attached to this investigation is illustrated by the fact that some Swedish

manufacturers have altered their furniture styles almost 100 per cent in accordance with the recommendations. The research is directed toward data that will simplify the designer and manufacturer's work.

[This intensive consumer education program has other facets as well as industrial. There is a Homecraft Association which supervises and guides the home crafts. It has become so effective that Swedish home craft is synonymous with quality. There is also a Home Research Institute which analyzes the products on the market and makes suggestions to the manufacturer for new items as well as gives advice to the consumer on which articles meet the requirements of utility and quality. The consumer is putting a steadily increasing influence on the manufacturer to produce the kind of product that will meet his needs. The consumer gets his knowledge through education, exhibits, radio, study groups and special courses.

Furniture is generally in a scale suitable for small and contemporary homes. It is visually and physically relaxing. Each piece is designed with function as the prime consideration. Master craftsmanship is apparent in each piece. The frames are of a suitable wood with a hand rubbed finish and the fabrics have the hand woven look. Material and technique are two of the designer and craftsman's basic sources of inspiration. Factory organization

in Sweden is very different from the United States. Most of the factories are very small with only about 10 of them employing more than 100 people. There is usually a studio in connection with the factory. The work is organized industrially but executed largely by hand. The men will work on a batch production for awhile and then on an individual project. The artists' intentions can only be realized through a skillful worker with artistic sensitivity.

Carl Malmsten, now 74 years old, led the revolt in Sweden against imitation of the past and encouraged designers to follow the "form follows function" principle. He has played, and continues to play, a remarkable role as pedagogue and reformer. One of his aims has been to make some form of creative manual work a central objective of all education. He has always been associated with the schools and has labored indefatigably to spread awareness of form to children and adults alike. He feels there is something wrong with a school when it requires a child to make the typical project a key rack; this is a waste of material, of life, of curiosity, and of imagination.

Carl Malmsten has created several furniture designs and all of his pieces have names. They all belong in the classification of handmades; their dimension, construction, choice of material, style, and character are all deeply rooted in Swedish tradition. He often uses pine and a

standing instruction on all pine wood is "all edges to be thoroughly rounded." The actual material is the living pre-requisite for the design and function of a piece of furniture.

"It takes a master to make a chair" is Carl Malmsten's own words. He expresses the responsibility in the following quotation:

Executive and secretary, prime donna and hoyden, slender maid and strapping matron, clubman and athlete, grandmother reading aloud, mother sewing as she listens, father waiting his dinner, son learning his lessons--they all want to sit differently and in their own particular way when they are working, writing, reading, eating, talking, and resting. They make a sizeable range of types, all the way from those that are alert and straight of back to those that are indolently sprawled and draped. Then recollect that space and environment, material--pine wood, oak, birch, walnut, etc.--as well as price and spirit of the age come into the matter, and it becomes easy to see why the problem of how to make a chair has been solved and can still be solved in a thousand different ways, creating unique rhythmical constellations for the benefit and pleasure of man. (41, p.68)

Bruno Matheson is another Swedish designer who has had considerable influence on the industry. He started to design as early as the 20's. He was one of the first to use bent plywood effectively. As early as 1939 the Museum of Modern Art purchased one of his chairs. After three decades of designing he is one of the most remarkable and consistent designers. He does not produce as profusely as

some designers as he has designed only about 10 easy chairs, a half dozen tables and a few odd pieces. He has never abandoned bentwood, but has just refined it technically and artistically. One of his newest designs uses bent glued veneer instead of a solid wood. The advantages of glued veneer are: 1. more complicated forms and smaller radius possible, 2. manufacturers can obtain faultless raw materials.

Each designer has his own philosophy of sitting and chair design for the twentieth century. Following is a quotation from Bruno Matheson:

The business of sitting never ceases to fascinate me enormously. Active rest, of course, plays a much greater part in our century than formerly. In those days they might have run to sitting and conversing demurely; in our time we need both a variety of sitting furniture and a constant combination, a flexibility between the chair we sit on and our own activity, whether we are talking over the phone, leaning back and listening to the radio, or watching a T.V. program. But we must never let technology get the upper hand, it must subordinate itself like a good servant. (41, p.70)

Furniture for years of service is the expressed goal of Folke Ohlsson. Folke Ohlsson is a Swede by birth and an American by choice. His professional training began at Stockholm's Norens Art and Design School, was furthered by work in a furniture factory and association with a doctor. Much of Ohlsson's work has been in research into the

requirements of good seating units, to satisfy both posture and comfort.

The qualities of fine Swedish design and the needs of Americans are blended in Ohlsson's furniture. He feels a universal understanding between the two countries, and as a result his furniture has equal acceptance in both countries.

In 1951 Dux Incorporated⁹ was started with Folke Ohlsson as president. The business was started on a rather small scale and has grown until recently an entirely new factory was opened in Burlingame, California. This is a cooperative venture; the furniture is designed and partially finished in Sweden, shipped to the United States in a knocked-down form. The frames are put together here and the upholstering is completed; however, many of the fabrics are made in Sweden. Dux's new factory in Burlingame is as contemporary as most of the furniture designs.

Other Swedish designers have come under the gifted leadership of Folke Ohlsson. He employs the services of many other designers in the Dux Corporation. The research department of his company consists of designers and production experts who work together to combine quantity production with the values of traditional craftsmanship.

Folke Ohlsson designs have won awards at the Museum of Modern Art Good Design Show, Milan Triennale, and California Design Exhibit.

Ohlsson has been a leader in the designing of furniture which can be shipped knocked down. A chair is separated in four parts--arms, seat, and back. These can be fitted into a small carton, resulting in economical packing space and lower cost of production and shipping. Since 1950 Ohlsson has made his home in California and operates his business from Sweden and the United States.

Folke Ohlsson has done much to help promote the wide acceptance of Scandinavian design.

DANISH DESIGN AND ITS INFLUENCE

"The secret of Danish design, Danish style, and Danish taste is---the art of living." (50, p.7) The art of living is the problem of finding a balance between opposites. Finding a balance between these opposites is the challenge of the designers.

Old and new-----combining old materials and new designs. Ancient tradition and ultra modernism.
 Art and utility--combined to produce beauty and usefulness. This is probably the hardest test of Danish design.

Danish design is not free from internal struggle, fanatics, and one sided critics. Both the consumer and the critic ask:

"Is the furniture usable?"
 "Is it comfortable?"
 "Is it serviceable?"
 "Is it reasonably priced?"

There are not enough wealthy patrons in Denmark to sustain the output of unusable furniture. Borge Mogensen, a noted Danish designer, is one who works for both large retailers and has designed furniture for highest international destinations. His designs still meet the everyday needs of the Danish people. His pieces are within the means of the ordinary income, and are still serviceable, hard wearing, and adaptable. He has attained a balance between aristocratic fastidiousness and democratic utility at its handsomest.

A striking feature of Danish design is the affection for material. This affection for material is a law and a principle of every Danish designer. Between the producer's imagination and the consumer's common sense is produced a happy medium we call Danish design. It is based on a study of material just as the art of painting is based on a study of color.

Danish design as we know it today is the outgrowth of many years of concentrated effort. In surveying Danish design from pre-historic times to present time we find that the developments during the eighteenth and nineteenth centuries had a great deal of influence on the present philosophy of design. In 1754 The Royal Academy of Fine Arts was established. The cabinetmakers gained a great deal of benefit from its teachings. In 1777 The Royal Furniture Store was opened. This brought the English influence on Danish cabinetmakers. In 1907 The Danish Society of Arts and Crafts was founded. Its objectives are basically the same as those of the other Scandinavian countries. At the present the primary functions include information programs, legislation, publish a magazine, and is responsible for exhibits at home and abroad. (4, p.16)

The aim of the functionalistic movement of the 20's and 30's was to bring design into line with the social and technological development. This period almost brought

chaos. By releasing design from the grip of the formal styles of the past, by making it dependent on social and technological development, design was plunged into a crisis. Functionalism gave it ethical standards, but swept away the aesthetic. It became necessary to develop new standards on the basis of industrial development. Here we find the Bauhaus School has had a real influence. The speed of technological and social development makes the formulation of new theory very difficult due to the fact that the basis is forever changing. Denmark has been able to transfer sound traditions of handicrafts as regards treatment of material, good constructive design, and careful attention to detail to a more industrialized production. How this has been accomplished is most clearly revealed in the manufacture of furniture. The basic work for design of light, modern types of furniture and the way it fits into modern decor was really developed and carried out in the 30's. This was accomplished by a collaboration of architects and cabinetmakers. A group of cabinetmakers joined together and enlisted the help of the architects to combat an unemployment crisis in this craft. At a later stage the idea was conceived of organizing an annual furniture design competition and then having an exhibition of the entries. This procedure has been repeated year after year since that time. The experimental work of designers

and cabinetmakers stimulated interest in modern furniture in wide circles. The manufacturers began making modern as a side line, but in recent years those whose machinery is something between manual and the manufacturing have changed almost exclusively to modern. This stable home market paved the way for production for export. Originally the manufacturers closely followed the handcrafted products, but recently they have abandoned the craftsman's use of form and are creating models based entirely on new techniques.

Kaare Klint, a teacher at the Royal Academy of Fine Arts, was one of the guiding lights in modern furniture design. He led the revolt against the imitations of past forms; he preached that honest materials, honestly used, solve human needs with directness and beauty. He was the first Danish designer who founded his design on a purely rational basis. He made a systematic study of functional demands on a piece of furniture and developed his design from the information he collected. This meant that the main criteria of the new trend in Danish furniture designs were function and appropriateness while form acquired a puritan and ascetic stamp. He made the Royal Academy more than a school, it was a laboratory in which the functional basis of furniture was investigated and registered. Some of the Danish designers to come under the influence of

Kaare Klint are Professor Mogens Koch, Ejnar Larsen and A. Bender Madsen, Finn Juhl, Count Sigvard Bernadotte, Peter Hvidt and O. Molgaard Nielsen, Borge Mogensen, and Jacob Kjaer.

In 1930 the Cabinetmakers Guild instituted a competition for new types of furniture. These have become models on which practically the entire Danish furniture industry is based. Finn Juhl's armchair today has many variants. Wegner's 'the chair' is a basic model for numerous variants reproduced by industrial methods. The pre-war factories in Denmark produced upholstered furniture so the pioneer work in modern was carried out by the cabinetmakers. Thus, mass produced furniture in Denmark is, on the whole, based on handicraft traditions and it is undoubtedly this essential characteristic that has made Danish furniture popular in foreign countries, particularly in countries where handicrafts are dying out.

It may seem inconsistent for industry to carry on the form and aesthetic standards of handicrafts. Functionalism's program, after all, was to create a new school of design based entirely on the methods and requirement of mass production. Here, however, it is necessary to take into account the fact that Danish industrial art is preponderantly based on production in small factories and that the borderline between hand work and industrial methods of production is very fluid. Even in the large industrial establishments a great part of the working process is carried out by hand. Only a few designers use purely industrial manufacturing techniques--Peter Hvidt and O. Molgaard Nielsen, Arne Jacobsen, and Paul Kjaerholm. Here, we touch on another characteristic trait of the best Danish design: the well calculated employment of materials. To select a suitable material and use it in a way that is not contrary to its nature is an elementary rule of modern design and was part of functionalism's program in

the 1930's. A quite different matter, on the other hand, is to create a balance between form and material: This demands not only artistic discipline but also good traditions regarding the right treatment of materials. (4, p.108)

Even in Denmark the gap between handmade and factory made furniture is getting smaller. Many Danish designers are designing so that all or part of an article can be produced by machine methods.

"A piece of furniture is a tool; it is made to be used" is Hans Wegner, Danish furniture designer's own definition. He believes that a tool must be perfectly constructed to function properly, and its function must be considered in its design. He does not believe in the severity and sparseness of twentieth century machine design, so he has substituted curves and softness with an appealing sensuousness, warmth and refinement of texture. Wegner's chairs are his most distinctive and widely recognized pieces. In 1949 he created a chair which has since become known as "the chair". Hans Wegner is probably both the most and least known by the United States of the Danish designers. He is most known as a name and least known as a person. His name has been attached to "the chair". It is safe to say that his chair captivates everyone who sees it regardless of taste, background, or artistic convictions. "The chair" is probably the most copied design in

the world. From every angle its lyrical, fluid lines seem to take on the dimensions of sculpture. The curves of a Wegner chair are never arbitrary, they are dictated by function and the material from which it is made. He is not influenced by fashion, fad, or rushed to meet a market date. Not until he is satisfied with the design of a piece does it go on the market. Wegner's honesty as a designer probably stems from the fact that he is a master craftsman. This is possibly why he believes that sound construction is the first requirement of good furniture. He understands the tangibles of construction as well as the intangibles of design. Each piece is of prime wood executed by master craftsmen. Durability is insured by dovetail, dowel, and tongue and groove joints throughout. The finish is such that handling and use gives it patina, richness and depth, rather than just a dirty appearance.

Hans Wegner is a mystery even to his Danish associates. He is a member of the Architectural Academy but he does not design buildings. He is what the Danes call an interior architect and what the Americans call an interior designer. He has been a cabinetmaker, as he was apprenticed at 14 years of age. At first he was content to make furniture designed by others. He then studied at the Architectural Academy in Copenhagen to emerge a full-fledged furniture designer. Among his honors are the 1951

Lunning prize and the Grand Prize at the 9th Triennale at Milan.

Wegner is more than a craftsman and his steel tubing chair proves that he is capable of expressing himself in more than one material. His meticulous adherence to the natural qualities of the material used and careful workmanship holds true for the wide range of price in his models. The chief characteristic of a Wegner design is that he combines the quality of fine workmanship with the precision of machinery. Many of his designs are for factory production by machinery.

Wegner's handmade models are by Johannes Hansen
machine models are by Fritz Hansen
Karl Hansen & Son
Andrea Tuck
Ry Mobler
A.P. Stolen
Getama

Wegner's furniture falls into several classifications according to technique used, cost, and lines. There is never any doubt about the classification. It may be a classic elegance (as in his Good Design Chair), or mechanistic rhythm (as in his steel and string chair). This expressiveness is the result of an unusually long development process: from drawing board, to miniature clay, to miniature model, to full sized model. The resulting design appears natural and effortless. It looks as well balanced and comfortable as it is.

Hans Wegner says, "Teak is the most beautiful when cut out, pressed into shape, and polished by machinery." Accordingly he designs for factory production with the result that the whole market comes under the influence of fine artistic use of material.

Kaare Klint, instructor at the Academy of Art, based all his designs on fundamental functional studies. Earlier architects had created furniture as pieces of sculpture, but Klint shaped them as equipment. Finn Juhl, who had been a student of Klint, began to design furniture that was more free and sculptural, as a reaction to Klint's puritanical style. Juhl's fundamental principle was that furniture should not only express new construction and new methods, but also be beautiful. He directed his talents to creating furniture that was both functional and expressive in form. This expressive sculptured style was pioneered by Finn Juhl. In addition to the sculptured wood effects he has individualized his pieces by separating the seat and supporting wood frame which gives a floating appearance to the seat. In practically all of his designs the boldly carved shapes are in evidence. The articulation of the separate parts can hardly be carried much farther. Even though the cabinet work in Juhl's furniture is its most recognizable feature he says:

I was never trained to design anything but houses, which seems to have influenced me, so that I look at any piece of furniture as a construction based on the natural character of the material, more than as a collection of cabinetmaker's joints, as many furniture designers are apt to do.
(46, p.100)

The structural character of his furniture is very evident, however his considerations go well beyond construction. In comparing Juhl's chair with an Eames chair there is a significant difference in both approach and cost. Eames also designs with structural characteristics very evident. Juhl's approach is that of the craftsman.

Danish designers have expressed their philosophy of design in various ways. Following are quotations from a few:

Ib Kofold-Larsen.

Danish designers seek harmony between construction and appearance. Each piece is exactly as heavy as its structure requires.
(8, p.61)

Hans Wegner.

I try to design in a way that will best fulfill the function of furniture as a tool for living. (8, p.61)

Nanna and Jorgen Ditzel.

We hope to attain a natural simplicity and avoid exaggerations in everyday articles which should form a friendly background for human beings. (8, p.61)

Finn Juhl.

We are influenced by our terrain. Denmark is a neat nation full of low, gentle curves.
(8, p.61)

Finn Juhl.

We think that training in architecture is basic for any type of design. It gives an ethical background, a respect for function, and an understanding of the necessity of cooperation with other experts. The architect has a feeling for the way an object is to be used. (12, p.113)

Danish modern design reflects what its creators like to think of as a sound balance between:

Tradition and innovation.

Form and material.

Means of production and price.

The native talent of present day designers coupled with 400 years of fine cabinetmaking have been largely responsible for the appeal of the modern Danish furniture. The softly sculptured contours and meticulous craftsmanship of this furniture qualifies it as one of the most satisfying of contemporary design. (71, p.33)

FINNISH DESIGN AND ITS INFLUENCE

To what do the Finns owe their success? Maybe it is their individualism or possibly it is just that they believe beauty is an essential utilitarian element of life. Gio Ponti said about Finnish Arts and Crafts, "The crafts of finland reveal a grace and lively fantasy, a natural inspiration--sometimes primitive and instinctive, but always poetic, felicitous, and human." (21, p.26) Finnish artists represent extreme variations in personality, temperament, and technique, but they are all alike in one respect, that of familiarity with and a feeling for materials. This is typical of all Finnish art. Where then does the stringency and whimsicality come from? It is possible it stems from the fusion of Scandinavian and Eastern cultures. From the Scandinavians they get cleanliness of line and form and an enduring honesty and awareness of quality. The Eastern or Asiatic may explain the expression of personal idiosyncrasy, his natural love of beauty and his innate sense of the usefulness of the seemingly useless.

Finnish design has suffered somewhat from the company it keeps. It has been lumped together with the other Scandinavian countries but, as was mentioned earlier, it has a personality all its own. The culture of Finland has little relationship to that of Norway, Sweden, or Denmark.

Finnish culture has a virility all its own and like the people is boldly individual and nationalistic.

Possibly the most important influence on the creative mind is geography. Due to isolation they have developed a profound responsiveness to nature. Another important influence is the education the designers receive. There is only one school, Taideteollinen Oppilaitos--"Finnish School of Industrial Arts". A student goes there for three years. The Finnish designer has a somewhat more individualistic viewpoint than many of the other Scandinavian designers. He considers himself an aesthetic designer, and with few exceptions is not interested in adapting his design for American taste, nor is he particularly interested in the challenge of mass production.

Some feel that modern Finland has little tradition in her design and craft while others feel the contemporary designers have a wholesome respect for the traditions of the country, rya rugs as one illustration. Of the furniture designers of the present day probably the late Eero Saarinen, Alvar Aalto, and Ilmari Tapiovaara are the best known, and have had the most influence outside of Finland.

Many of the greatest names in architecture are found attached to chairs. Alvar Aalto is among them. He was one of the first architects to demonstrate convincingly the validity of the contemporary approach to large scale

structures. His tuberculosis sanitarium in Paimio, Finland, has been internationally admired for at least three decades. His first chair design was in 1932. He followed the lead of German designers but within a short time developed his own approach using the native material, Finnish Birch, and the technique of laminating and molding thin layers of veneer. Many of his designs have shown no need for change in about 30 years. They stand out as major technical and aesthetic achievements.

The late Eero Saarinen is of Finnish origin and American by adoption. His accomplishments are shared by the United States and Finland. His contributions to furniture design will be discussed with contemporary American designers.

Ilmari Tapiovaara who is known in the United States only as a designer of a famous stacking chair is really also an interior decorator and teacher. He was born in Pampere, Finland, in 1914, and is one of a large family of artistically gifted children. Like all Scandinavians he makes use of natural woods, but he also likes painted wood for accent.

George Nelson once said:

'The chair is the signature of the designer' and the case of Ilmari Tapiovaara is no exception. On the contrary, his reputation in the United States has rested almost entirely on one stacking chair which is the

sole product of a factory Tapiovaara founded in 1941. There is much more to him than this, however. Tapiovaara has maintained a furious creative pace since graduating (1937) from the interior design department of the Helsinki Institute of Design. He has worked as a common laborer in eight different furniture factories, served a brief apprenticeship with LeCorbusier, and staged several films in collaboration with his brother, Nyrki, who was killed in World War II. He has taught at the Institute of Design in Chicago, taken prizes for glass, toys, lighting fixtures, and ceramic designs; and has designed innumerable interiors ranging from Finnish University dormitories to the Helsinki Olivatti. His wife Annikki has been his collaborator since 1930. (48, p.60)

AMERICAN DESIGN AND ITS INFLUENCE

What has American designers contributed? Possibly the most dynamic tradition of American designers and industry alike has been to produce furniture to fit every purse. During the early periods of American history few furniture designers received credit for their work as much of the furniture was produced under home conditions. During the eighteenth century such names as Duncan Phyfe, Lambert Hitchcock, and the Shakers were prominent in the furniture industry. America has had her creators of tradition starting as far back as Benjamin Franklin who designed the first rocking chair. Thomas Jefferson added a candleholder, writing arm and footrest to the design of a Windsor chair.

People associate the Windsor chair with Colonial America, but the origin of the chair is somewhat obscure. It is said that an early English monarch saw a chair of this type in the home of a peasant, and was so pleased with it that he had one sent to Windsor Castle. Other authorities claim the name was from the town of Windsor, England, where chairs of this type were first made. It is certain that the first Windsor chairs were brought to New England by the pilgrims in 1620. This style appealed particularly to the American colonist for its strength and lightness as well as simplicity of construction. The design attained

its most elegant graceful form in America. The crude primitive stool seat was given a saddle shape. The pattern was varied and improved upon until the familiar Colonial Windsor chair was evolved. The chair has a back shaped like an archer's "bow" extending around the back. There are supporting spindles (varying in number), outspread vase-shaped legs and a roomy shaped seat. Particularly handsome Windsor chairs were produced in Pennsylvania during the latter half of the eighteenth century. Today the name Windsor is often applied to a chair that has any of the identifying characteristics. One can observe a marked resemblance of many of the contemporary designs to the simple, elegant lines of the Windsor chair.

Probably America's greatest single contribution to modern home furnishings came from the Shakers. The Shaker design is an authentic native American expression, with no concession to any other country or influence. The design concept is functionalism. They rejected the established translation of beauty in favor of a pattern where "function dictated form". "Let it be plain and simple, of good and substantial quality, unembellished by any superfluities, which add nothing to its goodness or durability," read the Shaker injunction. (2, p.45) In the Shaker mind the best and strongest was also the plainest. Just as humility in conduct was a cardinal virtue so was simplicity in

controlling design. Superfluity of any kind was considered useless, a waste of time, distracted from form and was also amoral: suggesting pride, pretense, and dishonesty. It was wrong to strive for beauty. Any improvements in utility were welcomed. The list of inventions by this small sect is truly staggering. Anything to make work simpler was welcomed. One of the leaders of the Shaker movement was a woman, Mother Ann, and many of the truly monumental inventions were by women, such as the circular saw, cut nails, revolving oven, and many more. "The pure, clean-lined, completely achieved forms which are the essence of Shaker design can tell us how rare and precious is the legacy of this American folk." (2, p.49) This extreme purity of line, which is devoid of ornament has been an inspiration to contemporary designers. In attempting to eliminate beauty from their lives the Shakers created a new kind of furniture which was pure and clean in line, thoughtfully proportioned and unified in structure. Every piece was made to be useful--first and foremost. They welcomed the machine and used it wherever possible. Standards of excellence and uniformity were more highly prized than originality. The structure was undisguised and the finish was usually a light stain or varnish. The legs were often tapered instead of turned. Multi-purposes were common. This simple elegance and refinement takes Shaker

furniture out of the category of country furniture.

Until about 1925 almost all American furniture consisted of reproductions of historical periods. Inspired by the Art Moderne style of France designers began creating some truly modern pieces. They relied too much on geometric forms and exotic woods. As a result the furniture was not well received, often to the point of ridicule. However, it did pave the way for later efforts. Modern is still in a period of transition and hence has no characteristics that serve as identifying factors.

In general the lines are clean, simple, and restrained. Flat surfaces and straight lines are combined with simple, graceful curves. While it is no longer severely functional, yet the utility for each piece is clearly indicated and greatly influences its design and construction. Incidental details which do not contribute to usefulness or comfort have been largely eliminated. Designers and manufacturers depend on clean-lined contour, attractive proportions and restrained dignity to achieve unity of design. Comfort and eye appeal are major determining factors. Ornament for ornament's sake has been eliminated.---Legs are smooth and undecorated.---Virtually all types of cabinet woods are being used. Veneer is the chief method of decoration. Matched grains and wood patterns furnish ornamentation which is in the wood itself rather than on it. (62, p.54)

Some furniture retailers like to think of furniture as "contemporary" or as "functional". The contemporary classification, being simple and graceful of line, depending on beauty of wood, finish, and design. Functional,

the kind which employs molded plastic, molded plywood, metal legs, etc., and pieces many people consider a departure from past ideas of furniture design.

By pretty general consensus, the best design today is contemporary design. It is pretty hard to explain to some enthusiasts that not all contemporary design is good design. It is equally hard to explain that just because contemporary has taken over in the design of houses, furniture, accessories, and consumer products that this is not because it makes for easier living, less maintenance and so on. The same thing is true of all design whether modern or traditional, and for a very simple reason; people, rich or poor, old or young, will not put up with anything else. All of this goes back to the relationship of function and design. Today the requirements of function have to be met regardless of quality or type of design.

In America the work of the craftsman is greatly admired, and a furniture designer is better off for this knowledge.

Nevertheless, in our period, the tool that the designer must know and use is the tool of mass production for mass consumption. The machine that cuts, glues, marks, bends, extrudes, rolls, wraps, and ships the millions of articles for our home furnishings market is a peculiarly American tool.
(58, p.215)

The change in architectural style throughout most of the Western world has produced a need for a change in furniture style. If houses are going to have low ceilings there is a need for low furniture. It isn't any accident that most of the furniture designers are architects. They designed houses that could not be furnished with furniture that was available so had to design pieces to fit into the new style of architecture.

Since 1947 three schools of design have prevailed in the United States:

1. Those who produce the urbane, elegant, exquisitely made pieces.
2. Avant-garde experiments.
3. Scandinavian inspired.

The first group, or those who produce the urbane, elegant, exquisitely made group, include such designers as Edward Wormley, T.H. Robsjohn-Gibbings, and George Nakashima. The above named men are a few Americans who have exerted one kind of influence on furniture design.

Edward J. Wormley, both as a person and a designer, is approachable, likeable, and easy to understand. He knew in high school that he wanted to be a designer and went directly to the Chicago Art Institute. He worked for Marshall Field Company as an interior decorator for some time. Then on the recommendation of Marshall Field, in 1931, he went as a designer to one of the leading furniture companies, who was seeking someone with a modern approach.

He has been with this company ever since. For 30 years he has pioneered in the broad field of design.

Even when the structural and emotional concept of the home took the bold dive into shimmering space, kissing the dear family heritage good-bye, he emerged with his strongest statement for the elegant contemporary, touched with the nostalgia of intimacy, warmth, and detail. His vital force in American design is recorded in every room in the house.
(27, p.8)

Wormley designed furniture is invariably comfortable, well proportioned, elegant, and suitable. He has refused to cling to one dominant form: some are round or rectangular, bulky or light, woodsy or metallic, massive or miniscule, sculptural or architectural. This idea has probably cost Mr. Wormley a lot of prestige, but it has kept his company's catalogue fresh and useful longer than many other pretentiously designed collections. Edward Wormley has used many devices of other designers, but has never appropriated designs. Such designers as William Morris, Finn Juhl, and Alvar Aalto are all represented in one way or another, and in some cases credit is even given by name.

Edward Wormley has designed many chairs. He tries to anticipate every need in terms of comfort and architectural or visual function. His concept of furniture is that it should be part of a harmonious whole, rather than an end in itself.

As walls give way to glass, the chair becomes an island in the unprecedented open space of the house. It stands, silhouetted against the soft landscape and, at night, drawn curtains form a back drop. The flow of traffic passes around it, coming to rest from time to time. It is an idyll of comfort, a tower of strength, an escape into oneself. The chair is a swing in a tree against the limitless horizon. (27, p.40)

No single design expresses the essence of Wormley more clearly than his chairs. The chair gives purpose and enchantment to the room at a time when the clichés of modern interiors might easily destroy the aesthetics of good living. In a mature and civilized way Wormley chairs (and there are some 63 of them, distinct and individual) reflect the contentment of the abundant life. Here are chairs designed in a luxurious spirit, confirming the taste and sophistication of their owners. Some are spontaneous in design. The house will have them in numbers. Some will satisfy a longing to settle down. Some are gregarious, move around the house, adapt to any arrangement, get along with people--easy, comfortable, and responsive. Some are pure elegance, appearing singly or in pairs. Some are so impressive one of a kind is enough. Some are retiring, belonging to a man of the house, definitely not for conversation. Wormley chairs are like distinguished people, sharing their individuality and color with all who enjoy them. (27, p.40)

Another designer who has a feeling for contemporary elegance is T.H. Robsjohn-Gibbings. The idea that modern architecture and furniture is synonymous with human comfort has been fairly entrenched in the minds of Americans. People take mechanical conveniences such as climate control, plumbing, electric kitchens, etc., for granted and

just expect them to improve regularly with advancements in technology. However, it is possible to have all the physical apparatus and still have discomfort (forlorn, desolate, cheerless, and inconsolable). To have true comfort the emotions need to be satisfied. According to Mr. Robsjohn-Gibbings modern architecture with all its emphasis on efficiency has ignored the emotions. For example in a modern glass walled house a person feels observed. He feels insecure knowing there is only this transparent screen between him and any intruder. The open plan of the modern house is the equivalent of being trapped on a traffic island at a busy intersection, there is sort of an emotional draft. He feels that the furniture designers are partially to blame. Furniture designers suggest the same pieces for public buildings and for home use, suggesting the cold impersonalness of a public place. In the eighteenth century designs a chair gave one the feeling of security by enfolding the occupant; whereas, many of the modern spindly styles leave the occupant teetering in mid-air both physically and emotionally. A fourth cause for emotional discomfort comes with newness. A feeling of emotional easiness comes from companionship with one's surroundings. People are creatures of three dimensions--past, present, and future. The new style of architecture boasts no connections with the past and predicts

obsoleteness in the near future, so people are part of an experiment. We are being asked to live in a state of experiment and not complain.

It is an understatement to say that the modern house has affected the American's amenities, it has practically destroyed them. If the house is indifferent to the well-being of the inhabitants the inhabitants will be indifferent to the welfare of the house and its furnishings. A quick glance through a current magazine, scanning the advertising, and one can see the change. The objective seems to be the indestructability of furnishings: digging heels in upholstery, writing on walls, or spilling on the carpets. "Who are these new householders for whom furniture and equipment must be scuff proof, mar proof, spot proof, dent proof,--or in other words, guaranteed slob proof." (55, p.182)

We are an enduring race, quite capable of outliving modernity, capable of shaping our environment, capable of re-making architecture in the image of our true selves. When we have done all this--and we will--true comfort and fine amenities will be once again restored to us in full abundance. (55, p.182)

This is an interesting philosophy of design and particularly of contemporary for one who has designed so many excellent pieces. He has designed one of the best known collections in this country, and has had an influence on

furniture trends. Outstanding characteristics of his designs are their elegance, tailoring of the upholstered pieces is impeccable, and the shaping of the wood is done with an eye toward creating an impression of luxury. The frames are beautifully proportioned, and the combination of comfort and elegance, together with light weight, is excellent.

George Nakashima is one of the top craftsmen in the United States. He was trained as an architect at Massachusetts Institute of Technology, worked for a period of time in South India, then returned to the United States to design and produce furniture entirely by hand. Mr. Nakashima's designs are his own and suited for today, but his methods are those of the craftsman. This combination results in furniture of honesty and simplicity, put together by hand and hand finished.

One of the most interesting aspects of Nakashima's growth is the direct uncomplicated way in which handicraft, personal responsibility, and local materials have been increasingly combined over the years with power tools, outside labor, and the resources of a wide distribution system. The designer remains in control of all, and his years of making with his own fingers are evident as much in his direction of others as in his own particular products. (36, p.32)

Nakashima's furniture has made a good contribution to American design. It stands for principles and against mere effects. His designs reflect a love of craftsmanship

and fine materials. He believes the man who designs should also be the man who constructs, whether it be furniture or architecture.

The second group of American designers fall into the classification of avant-garde. Included among the designers in this group would be Charles Eames, Eero Saarinen, and George Nelson. This group represents less than five per cent of the furniture sold, but they initiate the ideas and then are imitated.

Charles Eames furniture has been described as "the most important group of furniture ever developed in this country." He was trained as an architect at Washington University and later studied at Cranbrook Academy of Art. While there he worked with Eliel and Eero Saarinen helping to develop the experimental design department. From 1940, when he won his first prize in a Museum of Modern Art competition, until 1947 he did considerable experimenting under adverse wartime conditions. In 1947 he made an agreement with Evans Products Company to produce his molded plywood chair and with Herman Miller to distribute his furniture. The Eames group represents not only the most advanced part of the Herman Miller collection, but the most advanced furniture being produced in the world today. Charles Eames has made more significant contributions to technological advancement in furniture design than any

other single person. His principles of molding and joining have had enormous influence. In predicting the future of modern furniture the Eames chair is a significant factor. He not only used new materials in a new way, but created a form with artistic and visual personality. Charles Eames has received many awards for his designs. The latest he received in collaboration with his wife Ray was the Kaufman International Design Award. This is given for their total contribution to the world of design. It is especially significant because the selection is made by an international jury of professionals from several major countries. The work that won them this award is notable as it included innovations in everything from architecture to photography. The stamp of their style is almost inescapable.

The second American designer to fall into this group is the late Eero Saarinen. He was born in Finland and studied sculpture in Paris and architecture at Yale. He has been an exception to the theory that second generation talents usually have a difficult time gaining recognition. He has worked in the shadow of his famous father, Eliel Saarinen. The work of Eero Saarinen has profoundly affected the direction and content of contemporary furniture for today's living. His molded plastic chairs mark the beginning of a new tradition in keeping with the technological advances of our day. Compare the lightness of a

Saarinén chair in relation to its overall dimensions. One particular chair often referred to as the "Saarinén Chair" has a 40 inch width and 33 inch depth and is on steel legs, which almost gives it the appearance of floating. Another attempt on his part to eliminate the "forest of legs" so often characteristic of contemporary rooms was the pedestal group. This group offers a new design silhouette. Each of his designs have been revolutionary. Furniture design was just one small area of contemporary design in which his influence was profoundly felt. His many dynamic architectural endeavors are living monuments to his ability and advanced ideas.

George Nelson a third man who has been influential in promoting the progress of contemporary design has accomplished this both by his writings and his inventiveness. Nelson was trained as an architect. He was educated at Yale and then went to Rome where he did post-graduate work at Catholic University. He spent two years in Europe studying ancient architecture. He decided it was so good that he couldn't improve upon it so became a convinced modernist. For several years he was on the staff of Architectural Forum magazine and is still a consultant. He has written several books, among them "Tomorrow's House". The storage wall was his innovation. This revolutionized storage by moving it from closets and chests to

modular box or shelf units which were to land on walls or rest on ladder like frames. Another revolutionary development to come from his office was the swag-leg group of furniture. This design was the collaboration of several individuals, but is marketed under George Nelson's name. George Nelson's name is to be found in many areas of home furnishings: furniture, storage pieces, lighting fixtures, and others. In the words of Mr. Nelson it is easier to understand his philosophy of design.

Good design, like good painting, cooking, architecture, or whatever you like, is a manifestation of the capacity of the human spirit to transcend its limitations. It enriches its maker through the experience of creating, and it can enrich the viewer or user who is equipped to respond to what it has to say. But it is a statement and not a gadget. The purpose of good design is to ornament existence, not to substitute for it. (48, p.72)

What the avant-garde designers did 15 to 20 years ago has been widely copied today. Designs that were once accused of being crude, stark, and monotonous, are now more refined. Designers have proven that the machine can be made the servant of the most sensitive artistry.

The third and last school of thought regarding contemporary design in America is the Scandinavian (or Danish) inspired. This is characterized by exquisite joinery of oil finished woods and sculptured shapes. Among Americans producing designs of excellent quality are Jens Risom and

Larry Peabody. Also several American firms are having part or all of the frames of their furniture designed and produced in Europe, shipped to the United States in a knocked-down form, then assembled and the upholstery work done in this country.

Jens Risom was born and received his training in Denmark before he came over here to start his factory. He has been able to adapt his designs to present day American manufacturing methods. His firm makes furniture designed for today's living, using new methods, new materials, and new knowledge when it has proven its worth. He has not discarded lessons learned through the ages when it can be fitted into the contemporary scene.

Larry Peabody, who also produces some outstanding pieces, has studied and worked in Denmark. He designs for about three different firms.

The Scandinavian design influences are now so mingled with American design that it often takes a very discerning person to tell the difference. Then again there are copies made without any reference to its organic nature or the craftsmanship required.

The Danish history of heterogeneity, enterprise, originality, and love of finish in the arts leads to results that have appeal here; such characteristics are prominent in our design and throughout our own culture.

A deep cause exists for American enthusiasm for Danish design.

Three aspects of design are recognized for the past 200 years.

1. Correct design strives for perfect articles, a trend alive today in Europe under slogan of "quality".
2. Expressive design aims for the maximum effect; its commercial application, point-of-sale-appeal, is a major factor in much American industrial designing.
3. Organic design blends form, structure, and utility into an object that may be somewhat imperfect but is not frozen in a formula, that is suited more to a room than a crowded sales floor, and that embodies the eloquent record of creative effort. (4, p.106)

Americans tend to lean to the third of these, or organic design. The Danes feel the same way and that is probably why Americans feel firmly drawn even to some of the daring Danish or Scandinavian designs.

In each of the schools of thought regarding design in the United States the primary objective has been to develop styles that will meet the needs of the average American and to produce styles that can be produced by mass production methods.

SIMILARITIES AND DIFFERENCES BETWEEN SCANDINAVIAN AND AMERICAN DESIGNS

During the past quarter of a century there has been a turn in furniture design toward practical concepts, durable and easy to maintain surfaces, and good styling. This happy turn of events probably has several contributing factors. As we know the change in style of architecture was influential and the change in social and economic conditions contributed; but possibly it is largely the young designers who have contributed the most. Most of the outstanding designers are about 35 years of age. They are from a generation that has grown up in small homes where the women of the family are their own domestic staff. The furniture they design is practical to the point of serving more than one purpose. It is designed for casual living.

For the most part designs are executed in the popular styles of the Scandinavian, but are refined with delicate ornament and handsome cabinetry details that were once common only in the high priced items.

A sign of the growing trend for Danish design is the increased number of imports available in our stores. In addition to the imports we find several United States firms working in cooperation with the original Danish designers.

The function and design of furniture is a result of the direct relationship between the maker and the consumer.

This is not only true where the type of furniture developed is the prerogative of the craftsman, but is true everywhere today. In present day manufacturing techniques cabinet-makers use a lot of machinery. Some pieces have a solid "handmade" look, spelling comfort and hominess and are best defined as a continuation of traditional elements without being an imitation of the past. This effect is associated with Scandinavian furniture regardless of whether it is made entirely by hand or not. Its attraction is honest simplicity and unaffected directness with which the furniture is put together, suggesting that the craftsman did the designing as he was making each piece.

In a comparison of American and Scandinavian designed and manufactured pieces of furniture one needs to consider many things. As was said earlier in many cases it takes a very discerning person to tell the difference, and then again in other cases the quality of design and craftsmanship sold in the name of "Danish Modern", "Scandinavian Inspired", and other similar descriptions bears little resemblance to the native products. Many American firms have developed a style of contemporary furniture that shows the influence of Scandinavian design, and is suited to American manufacturing techniques in such a way that the fine sculptural detail is maintained. Then there are firms who have just taken the general lines, produce the

furniture of inferior quality material, use machine techniques entirely, and market the product in the name of "Danish Modern". This is the quality of product which comes into the homes of many of the American consumers.

Following are some illustrations showing the beautiful way that some of the Scandinavian designers have used material and line to produce some exceptionally fine pieces. In many instances there is an illustration showing how a technique or idea has been used in an American manufactured product.

PLATE I

Winner of the Museum of Modern Art Good Design award and the Diplome d' Honneur at the Triennale in Milan, Italy, is this design by Finn Juhl. A design by Mr. Juhl is a sculpture in wood. The piece always has elegant lines, is comfortable to sit in, and very refined in color and material. One can easily observe how clearly he separates upholstery and frame, which gives a floating appearance to the chair. He uses subtle but emphatic joints which are a sure sign of fine cabinetmaking. There is a perfect blending of forms, forthright braces, modulated frames, and inviting cushions.

The floating device by which the seat and back of a chair are held or suspended away from the legs is widely

PLATE I



(31, p.9)

copied everywhere since Juhl's work became known outside of Denmark.

PLATE II

Hans Wegner tends to structurally unify the containing and supporting parts of a chair. In several instances a single back leg will run into the chair back or the chair sides. In this case the back legs become a support for the back of the seat, and the seat itself is held directly by the legs at four corners without any sling or separation.

The curves of a Wegner chair are never arbitrary, they are dictated by function and the material from which it is made. He is not influenced by fashion, fad, or rushed to meet a market date. Not until he is satisfied with the design of a piece does it go on the market. The influence of Hans Wegner and Finn Juhl has been very evident here in the United States and will undoubtedly increase. This development offers its problems to industry for work of this type requires a degree of skill, patience, and integrity not too common in the American furniture industry. For successful realization of the type of things shown here a collaboration is necessary of the best cabinetmakers.

PLATE II



(19, p.65)

PLATES III, IV, AND V

In each instance the top illustration is a design by Folke Ohlsson, Swedish designer, who has probably had more influence on American furniture design than any other single Scandinavian designer. The lower pictures on each plate illustrate an American designed and manufactured piece that shows obvious inspiration from the Ohlsson original.

In the original design observe the careful attention to details, such as the sculptured look resulting from fine craftsmanship, careful joinery, and oil finished woods. The second illustration shows how the American manufacturers have adapted the design to machine techniques, used a stained and lacquered finish, and in many instances have used an inferior quality or less expensive type of filling.

Illustration No. 1

Folke Ohlsson design
Oiled solid Beech and Walnut wood
Latex foam filling and cushion
Wool upholstery fabric
\$344.00 in Portland, Oregon

Illustration No. 2

Wood not identified with a walnut stain and
lacquer finish
Filling Body Linters 75%
 Fiber 25%
 Cushion Foam 100%
2 loose cushions 2 3/4" thick
Textured rayon upholstery fabric
\$149.50 in Corvallis, Oregon

PLATE III



Number 1



Number 2

Many of the differences are very subtle and need careful observation. In The Folke Ohlsson Chair one can see the beautiful proportion in the back, the almost perfect division of the three spaces. The framework in the upper illustration has soft rounded curves at the intersection of the frame; whereas, in the lower the frame comes together in a sharp right angle. When looking at the upper chair one can observe the soft curved contour of the cushion and front portion while the lower illustration is squared across. If we could see the back the beautiful shape of the molded back is very obvious in the upper illustration. Most of Folke Ohlsson's furniture is partially produced by mass production techniques in Swedish factories.

Illustration No. 3

Folke Ohlsson design
Oiled solid walnut
Rubber strap webbing 2" wide
Cushions Latex foam 100%
Back 3" thick
Seat 4" thick
\$194.00 in Portland, Oregon

Illustration No. 4

Wood not identified with a walnut stain and
lacquer finish
Plastic webbing 2" wide
Cushions Urethane foam 100%
\$39.95 in Corvallis, Oregon

PLATE IV



Number 3



Number 4



Number 5

Illustration No. 5

Wood not identified with a walnut stain and
lacquer finish

Plastic webbing crossed from both ways

Filling Body Linters and foam
 Cushions Foam

\$99.50 in Corvallis, Oregon

The top illustration shows the subtleness of design so characteristic of Folke Ohlsson. In the lower left example the company has not attempted to produce the finesse of design of the original. This chair is planned to meet a market need in the low price range. Each section is designed for a machine and produced by machine. In the lower right illustration the manufacturer has undoubtedly tried to achieve the handmade look. This chair is a machine made piece, but the company has designed machines especially suited to the look they hope to achieve. It does not have the soft contour or the perfection of proportion of the original, but has design characteristics acceptable to many Americans.

Illustration No. 6

Folke Ohlsson design

Solid Teak or Walnut

Webbing Linen from Italy

Filling Latex foam

\$300 - \$415, depending on cover, in Portland,
Oregon

Illustration No. 7

Wood not identified with a walnut stain and
lacquer finish

Seat of plastic webbing 2" wide

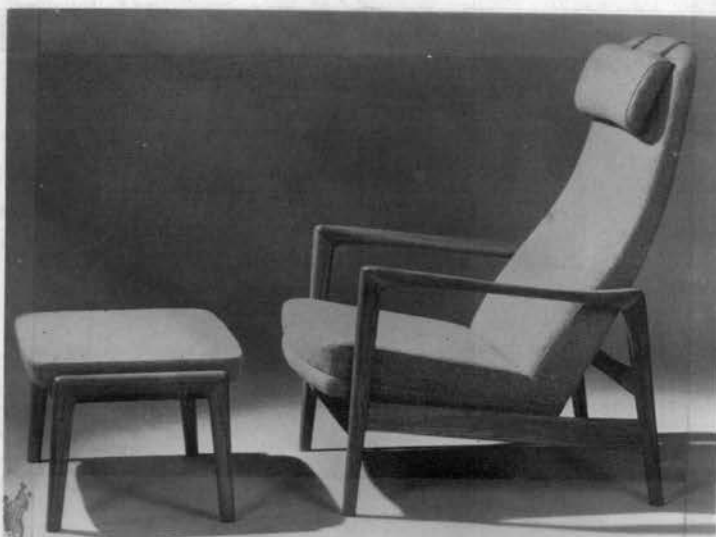
Back of plastic coated spring webbing

Filling Latex foam 100%

Loose seat and back

\$159.50 for chair and ottoman in Corvallis, Oregon

PLATE V



Number 6 (6, p.55)



Number 7

Here again most of the things that have been mentioned before are true: the feeling of proportion, the soft curves of the cushions as contrasted to the sharp squared off lines, the position and angle of legs and braces, grain of wood, finish, subtle curves in joints. These small details are the things that put Folke Ohlsson designs in a special classification. He designs for mass distribution and is still able to incorporate details of craftsmanship characteristic only of the Scandinavian designer and workmen.

PLATE VI

The upper illustration shows a contemporary rocker designed by O. Molgaard Nielsen and Peter Hvidt of Denmark. Perfect balance has been achieved and still there are no projecting runners to bruise ankles. The lower illustration is an American designed piece having very short runners and a similar type of exposed framework. The imported chair shows evidence of hand craftsmanship and sculptural effect of arms, legs and runners; whereas, the lower shows evidence of an entirely machine produced product.

PLATE VI



Number 1



Number 2

Illustration No. 1

Oiled teak

Cushions interspring covered with Urethane

Back 3" thick

Seat 4" thick

\$176.00 in Portland, Oregon

Illustration No. 2

Walnut finish (wood)

Cushion Urethane foam 100%

Back 3" thick

Seat 3" thick

Strap webbing 2" wide

\$44.95 in Corvallis, Oregon

PLATE VII

The No. 1 illustration is an import designed by Bernadotte, Count of Wisborg. These chairs are designed for either home or office use, where distinguished furniture is called for. The extremely fine workmanship is evident here. Notice the sculpture detail around the back.

Illustration No. 2 is a very fine piece of American made furniture showing a similar type of construction. Here is an example of American workmanship showing evidence of handicraft. The beautifully sculptured back rolls into the contoured arm.

PLATE VIII

Illustration No. 1 is by a Swedish designer, Sonna Rosen. It is appropriately described as a "sun fan" chair. This comfortable looking piece was designed for

PLATE VII



Number 1 (31, p.24)



Number 2

PLATE VIII



Number 1 (6, p.38)



Number 2

machine production. The frame is of shaped solid wood; the fan back is of birch rods.

Illustration No. 2 is made by an American manufacturer. The curve is of a laminated wood. The structure and design of the two chairs are almost identical. The American manufactured one has the "catkin" detail in the back rungs and a plastic covered padded seat.

PLATE IX

Both illustration No. 1 and No. 2 are Jens Risom designs. Risom is an American designer who was educated and trained in Denmark and Sweden.

Jens Risom occupies a special place as a prime mover in inaugurating the Scandinavian aspect of the modern movement in the United States. It is the Scandinavian love for crafts, for the materials of crafts and the techniques of crafts that Risom has impressed on design in this country.

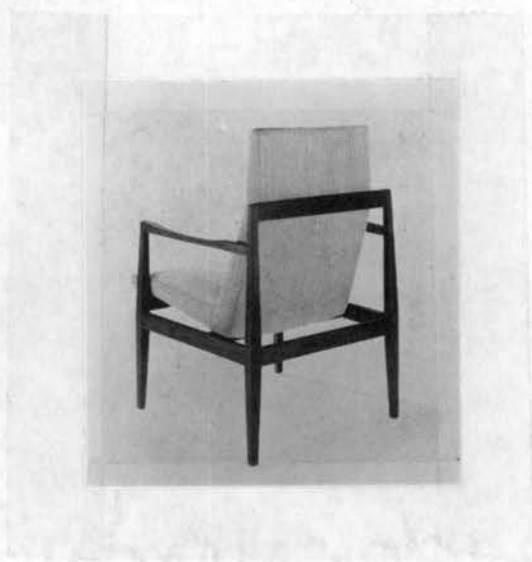
The whole philosophy and approach of his design is that of the Scandinavian crafts; devotion to material, aesthetic appreciation of the way a thing is made, dictation of a thing's appearance by what it is made of and how. (10, p.150)

Nearly all of Jens Risom's furniture is made of wood. Risom says "People need wood. The human being needs a live texture, a depth texture, and a certain visual security in furniture, which a piece of wood can give." (10, p.150)

PLATE IX



Number 1 (9, p.9)



Number 2 (10, p.53)

The exploitation of the material produces the major visual effect of a Risom piece of furniture. Wood grains are naturally beautiful so he capitalizes on them by using them in the direction they run, and finishes them with linseed oil. Wood invites a sculptured treatment, and in fact it looks even more like wood when gently, subtly formed.

Risom's 'signature' lives in the total organization of a design, and more particularly in the easy simultaneity of opposites. Every Risom piece has a light air, but also a non-floating sense of gravity, comfort, and solidity. By means of both visual and actual 'beef' at joints where it counts, psychologically and mechanically and a low-slung appearance through heavy horizontals at or just below the seat. A Risom design is compact and well contained, however commodious, but within its clear definitions there is a tense, complex and quietly dynamic play of thrusts, and a Risom chair always possesses a fluid, organic look, tailored to flatter and please the human anatomy. (10, p.151)

Jens Risom develops his style not through isolation of one or another of the criteria--visual, functional, or structural--but in a blend of all three.

Illustration No. 1 is designed for a quick change of upholstery fabric. Similar to many of the Swedish imports it can quickly have a summer and winter wardrobe. Many homemakers purchase two sets of covers that can be zippered off and easily changed. A person's first reaction to this chair is its extreme comfort, and then one is attracted to the added feature of maintenance and versatility. The foam

cushions are tied and snapped to the chair frame so they will always stay in place. The chair is not only convenient and comfortable but also gracefully shaped.

Illustration No. 2. In this illustration the functional part of the chair, the cradle, is separated from the structural support. The cradle is designed in a soft, organic way that recognizes and flatters the human anatomy. The structural frame is in severe horizontal frames. The legs are not perfect squares and are subtly shaped so the outside line of the lower leg is parallel with the inside of the upper leg, these lines at 90° angles to the floor. Opposite lines are also parallel, but taper slightly inward. This treatment gets the heaviest cross section at a point most needed in the legs for both actual and visual strength--where stretcher meets the leg. The most crucial structural point of the chair is where back and seat meet, so this is where the cradle-frame becomes broader, for the appearance of strength as well as actual strength. The location of the legs are calculated to prevent tipping forward or backward. The stretcher across the back is not necessary structurally but is included because the eye feels a need for security here. (10, p.153)

PLATE X

Illustration No. 1 is an import from Denmark showing a chair of exceptional technical interest. The side frame and arms are molded from one piece of laminated wood. The design was worked out for knock-down shipping but shows none of the characteristics of this type. It was designed by Hvidt-Nielsen.

Illustration No. 2 is a Charles Eames design of a contemporary chair that is also of molded plywood construction. At the present time this is considered by many to be the ultimate in chair design. It is comfortable, resilient, and close to being indestructible. It is designed for mass production techniques using tools of an advanced type. Both of these chairs show designs that were planned for machine techniques.

This has only been a few illustrations of the similarities and differences between Scandinavian and American design. It shows that there is Scandinavian design influence in this country, and it also shows that America has designers who are moving ahead technologically. In the past 25 years when most of the advancements in contemporary design have occurred many of the technological advancements were made by Americans and were applied to American industrial conditions.

PLATE X



Number 1



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pany

Number 2

(46, p.26)

America's industrial tempo is geared for machine production and as a result it is impossible to produce the beautifully sculptured designs that are produced by European hand labor. Most of the finish applied to furniture in this country is done by machine techniques and again it is impossible to achieve the beautiful finish of the hand rubbed imported models.

CONCLUSION

Is design at the crossroads? Is the novelty of modernity wearing out? If so what will replace it? These are undoubtedly the questions facing every designer, manufacturer and consumer of furniture today.

In the United States the primary objective of the furniture industry has been to produce furniture suitable for mass production, and mass distribution, and at a price for the average consumer. The average American family is a home-centered unit without extremes of wealth or poverty. Furniture is not a symbol of status so selection is on the basis of comfort, utility, care required, and aesthetic values. Since the architects have presented us with a style of architecture that demands a different style of furniture, American designers have been challenged with the problem of producing furniture that will meet all the above requirements. In reviewing the developments in furniture it is interesting to note that of the chairs considered to be "technologically inventive" seven of the 10 are by American designers. The chairs in this group have many applications both to the home and to business. They can take the rugged playfulness of children and are still elegant enough for formal dining. Each is comfortable and modestly priced. The outstanding American designers have taken the spirit of a design and have adapted the

applicable and worthwhile aspects to a design that can be produced by machine techniques and the skill of American workmen. The average workman in American factories is trained to use one tool: he does not carry through on each step as is done by many European factory workers.

The following illustrations show some of the truly American furniture:



(16, p.182)

This chair is a signpost to the probably future of modern furniture. This chair designed by Charles Eames is significant because of the new principles he incorporated into the design. He used new materials in new ways

and also created a form with distinctive and artistic personality. He incorporated into the chair information on how to mold plywood, and information on comfortable posture and body contours. He attained resiliency in a hard seat by two methods: frame of tubular steel and laminated wood; rubber shock mounts electronically welded to wood and steel.

The design of this chair is what really sets it apart. It is a total design package integrating new techniques with modern art forms into a unified design.

Charles Eames has also contributed the molded plastic, and molded wire chairs which are both readily adapted to industrial conditions in this country.



(40, p.25)

The first example emphasized the role of material and structure in chair design. Another factor, more difficult to explain, is the designer's sense of form illustrated

in the above chair by Eero Saarinen. That this chair fulfills its function goes without saying and its total three-dimensional effect is powerful. Saarinen has designed many other chairs and each has a character and personality very much its own.



(58, p.215)

George Nakashima's designs probably exemplify the traditions of the craftsman's approach to furniture more than any other American today. He designs his own pieces, and executes the designs in his own workshop. He applies the use of power tools wherever and whenever it is applicable. He trains his employees to turn out the type of handcrafted product that the public has learned to associate with the name Nakashima. One could possibly see a

resemblance in some of his chairs to the Colonial Windsor, but they have a personal style which puts them out of the class of reproductions. His designs are his own designs and are suited for today.



Paul McCobb demonstrates very effectively how a designer in cooperation with industry can adapt a Colonial style factory to the production of contemporary furniture. His designs are inspired by the Shakers. This is an excellent example of how a designer can take the available equipment in a factory and come up with a completely fresh expression. Most of the parts of the chairs fall into the general category of turnings. He planned the designs so

that many parts could be made at one time and then cut to fit the required units. This example shows how production methods and facilities can influence design. His designs are readily accepted due to the fresh clean look, durability, and low cost.



(46, p.76)

Mr. T.H. Robsjohn-Gibbings has had a real influence on furniture trends. He believes that furniture should be elegant, and comfortable. His philosophy is that a home should offer emotional security to its members and one way to acquire this emotional security is with furniture that

one has to respect. Most of his chairs are in solid wood with some degree of upholstery. The elegance of his designs comes from the beautiful proportion, tailored upholstery, shaping of the wood, and the appearance of being light in weight. He has possibly been influenced some by Danish designers but he has developed a style that has warmth and beauty and can still be produced by factory techniques.

From this small sampling we can see that many American furniture designers have developed a style very characteristically their own. Accomplishments by one's own countrymen are apt to be overlooked because of the nearness to them. There is no question but what Scandinavian designers have influenced the American designers. Their influence has been felt throughout the world. The greatest amount of copying occurs in the furniture in the lower price range. Here an idea is copied almost exactly, but all the fine detail is lost: the subtle curves, the contour of an arm or leg, the beautiful joints, the oiled and hand rubbed finish, the tapering of an arm or leg, often the bending of a piece of wood to avoid a joint. These are the details that put handmade imports in a class by themselves. The less expensive American factory made designs are not necessarily poor designs, they have just lost the handicraft look of the piece that inspired the design.

If mass production is the aim of American industry then designs should be planned to take advantage of present day technology. The nature of the market has changed so that a consumer is looking for pieces that will serve more than one purpose. A chair must be moved from room to room, as well as be used by people of various ages and sizes. The style of our architecture has made it necessary to design furniture to fit into the houses. Traditional furniture just did not fit into the glass and wall-free contemporary house. The sculptured Scandinavian designs and the styles presented by the avant-garde group of the United States most nearly fits these needs.

Is Danish design faltering today? During the past few months even the Danish designers themselves have been critical of their own designs. They criticize the commercialized characteristics and the supposedly decadent tendencies of today. One critic said some of the new Danish design was showing the nervous silliness of character sometimes called "marketability". This is not so noticeable in the wood as in the steel, plastic, and leather series. Others have used terms such as "sterile" to describe the design. Another said, "How can it be sterile" and still be copied? Another criticism was that in the scramble for the American dollar the designers make what appeals to Americans. American wholesale buyers are inclined to repeatedly buy

the same styles with just a few new designs. This is the safest way to buy. Anytime when people of a country are safe and secure the art will decline, and when they become dissatisfied it will awaken fresh incentive. The Scandinavians are possibly at this point. A recent French furniture show illustrated how very international the expression of form has become.

The Scandinavian form is recognizable-- it is softened, and there is a more lavish use of hand crafted wood. West Germany has a heavy, angular style, the Italians are the most chic and at the moment the Belgians and Dutch are the most impressive when it comes to functional design. But how long will these differences remain? Soon we won't be able to tell one country from another.
(67, p.198)

The Bauhaus principles have influenced all our present day conditions of living: architecture, art, and furniture. In the United States the idea of "form follows function", or make it right and you have the design, principle has prevailed for the past quarter of a century. "Interior design has advocated simplicity, avoidance of clutter, austerity, 'less is more' or just space, essential furnishings plus plants and art--no floral fabrics." (5, p.17) This philosophy just took a fragment of the Bauhaus message and made a whole story of it. Now we are at the cross-roads. Bauhaus ideas will undoubtedly still prevail at least in public buildings and be reflected in homes. Most

people want their homes to be a refuge and not a reminder of the outside or the office. People are fickle and bore quickly. This plus the speed of technical and social development makes the formulation of new theories very difficult because the basis is forever changing. Bauhaus has always had its dissidents. Today the challenging cry could easily be "form follows fantasy".

What lies ahead? What can be anticipated? The modern movement as exemplified by the Bauhaus advocates is not moving off the scene, but is just being set back. Furniture will incorporate richer warmer details, but the silhouette will not change. Europeans have always combined modern with periods, and interior designers in this country will explore more into the past: antiques and Colonial American. The trends appear to be toward curvilinear lines to replace the squared off lines in seating pieces, sculptural forms, a continued use of wood, but a refinement of details and finish.

"But the demands of young and old for a good chair still haven't been totally satisfied and the chair hasn't lost its fascination." (40, p.25)

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