

CHAIR DESIGN: INDUSTRIAL AGE TO INFORMATION AGE

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INTRODUCTION

Furniture “constitutes one of the few areas of design with which people are surrounded on a daily basis throughout their lives. And above all, the chair, as a simple support structure or a symbolic throne, represents the design form with which people have the most direct and constant contact.”¹ This direct contact requires the chair to respond to the act of sitting while its low consumption of resources and currency in production allow its design to respond to the context of the times. Moving from the historic solidity of form, the substance of material and the nature of static repose, technology has enhanced the physical design of the chair toward the dematerialization of both form and material, toward an emergent image.

The Vitra Design Museum, in Weil am Rhein, houses the “canon” of chair design, canon referring to “an enduring exemplary collection of books, buildings and paintings authorized (by criticism) for contemplation, admiration, interpretation, and the determination of value.”² Using this term we can visualize the distinction between the furniture collection of the Vitra Design Museum and the collection of other museums and collectors. Historically the chairs of the canon refer to chairs of power. Traditionally, “through the ages in many cultures, authority has been signified by a seated person,”³ reflecting the nature or suggestion of the throne. These are the significant chairs of the previous ages, those designed and constructed through the exercise of power, representing that power, such as the chairs of Louis XV. These chairs represent the elite and the power they hold in the ability to possess and understand the design of the specific chair; the claim of social superiority. The canon has changed significantly in the Industrial Age. The former canon constitutes the aristocracy of the chair paralleling the social aristocracy of blood.⁴

In reviewing the chair collection of the Vitra Design Museum one sees the astonishing spectacle of modern design. There are no thrones or culturally discriminating chairs as was the objective of modern design. In the course of the last 150 years the furniture of the canon has changed to that which has critical acclaim as opposed to that which has the merit of power. Furniture has the ability to be established by criticism. As representational it can be judged on aesthetic values.

The Industrial Revolution produced the climate of mass production and bourgeois taste with the common man’s ability to buy into the products and their design. For the first time the plentiful lower classes could afford to define and own “design.” The Vitra Design Museum houses just this degree of chairs, those designed without heed to power but connected through mass production means to technology instead.

The technology of World War II brought great influence to chair design. From the early design of Charles Eames and

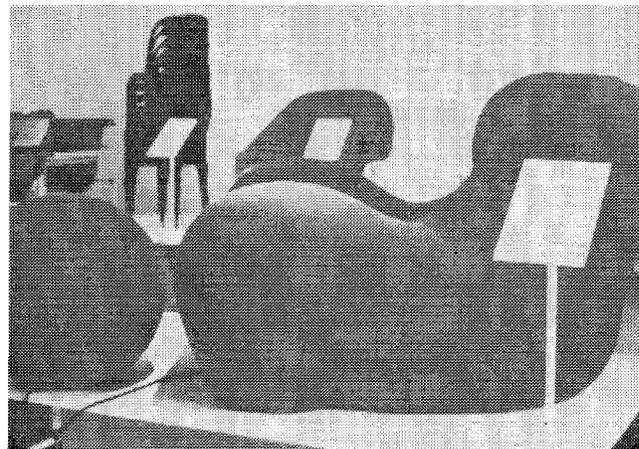


Figure 1: “La Donna” UP-5 by Gaetano Pesce

Eero Saarinen, chairs in the latter part of this century have responded to art, culture and technology. In moving into the Information Age, furniture design has responded to the technology of computers by moving from the biomorphic designs of the 60’s to the generative designs of the 90’s. Pop Art furniture of the 60’s and 70’s mirrored the sexual revolution with voluptuous curves and the technology of urethane foam that allowed the forms to function with industrial design production methods and as functioning applications of use. The chairs of the future respond to cyberspace and our role in the virtual world. As less resources are demanded by our bodies and more by our brains, the chair will reflect the move from body initiated design to mind initiated design.

THE COLLECTION

Through review of the Vitra Museum collection the evolution of chair design becomes apparent. The collection is made up primarily of mid-19th to 20th century chairs that Rolf Fehlbaum, director of Vitra, has been amassing over the last 10 years for his company and includes rare production examples of work by Charles and Ray Eames, George Nelson and Alexander Girard. The bulk of the collection regards chairs from the last half of this century. Fehlbaum was educated in design as a teenager by acting as an interpreter to his parents who were then becoming the Swiss, German and Austrian licensee for Herman Miller. The company then produced “the pioneering designs of Charles Eames under the leadership of D.J. De Pree and the critical eye of George Nelson.”⁵ True to his personal history, Fehlbaum acquired for Vitra, in 1988, a significant portion of the Eames estate, including models and prototypes.

In looking to the future, Fehlbaum stated, “We must also look to the avant garde because it is there that we find the

impulses for the products of tomorrow.”⁶ Using the museum to house both avant garde and production furniture pieces, Fehlbaum has given us a way to view the standards of historic and current furniture design within the Industrial Age.

Before the creation of the museum, Fehlbaum created the Vitra Edition, a program initiated to commission limited-run, experimental furniture from designers, architects and artists. Vitra Edition was an ambitious program designed to give designers and artists the opportunity to experiment with form, material and technology. Limited production of the chairs kept production costs manageable. Some of the designs were chosen to be produced in multiples while others were to be made only once. The first Edition group made its debut in 1987 and included work by; Frank Gehry, the corrugated “Little Beaver” chair and ottoman; Ron Arad, the bolted steel “Well-Tempered Chair;” and Shiro Kuramata, the “How High the Moon” expanded metal chair. The last group of Edition designs premiered in 1988, but there have been single additions since. Currently there are 5 designs from the series that have been produced for market. As work of the late 80’s and early 90’s, the chairs of the Edition express a design negotiation into the immaterial. Gehry’s chairs while substantial in appearance are weightless in substance. Arad’s steel chair visually contradicts the idea of chair and comfort. The metal sheeting belies our image of materiality in the perception of chairs in general, yet offers comfort in the act of seating. Visually the idea of the chair is removed though the use of an inconsistent material. The extremely light “How High the Moon” chair also reflects this separation of materiality and the notion of chair. While steel entered the vocabulary of chairs as the supports of metal-tube furniture of the 20’s, the support material became the whole chair in the 80’s. Having used the experiments of Eames and Saarinen, the structure and finish of the chair became one material.

Through reliance on history and a view to the future, Vitra has attempted a “seemingly swift transformation from a top-drawer but conservative chair producer into one of the most aggressive and discriminating patrons of design in the furniture industry.”⁷ Using the Vitra Museum Collection one is able to observe the changes expressed in chair design in relation to technology. In examining the collection one begins to see the process over time of the implementation of the ideas of cyberspace on the design and production of articles for frequent use.

WAR TECHNOLOGY

“Architects and designers have concentrated all their ingenuity to design chairs having agreeable silhouettes, relative transparency, portability, durability and comfort...In a word, they are the hub of the Modern movement.”⁸ It is these chairs upon which the Vitra Museum relies on to substantiate our current design and the recognizable standards upon which to judge it. The metal-tube furniture experiments of the 20’s gave way to the search for more cost-effective forms and materials in the worldwide depression of the 1930’s. In the second half of the 30’s, designers used anti-orthogonal forms with enthusiasm as a reaction against the image of machine technology of the 20’s. Molded plywood became the material which could express the biomorphic spirit of design of the times. This technology led to innovations in design such as Aalto’s “Paimio” chair of 1931.

During World War II molded plywood was rapidly developed by the aviation industries in Europe and American

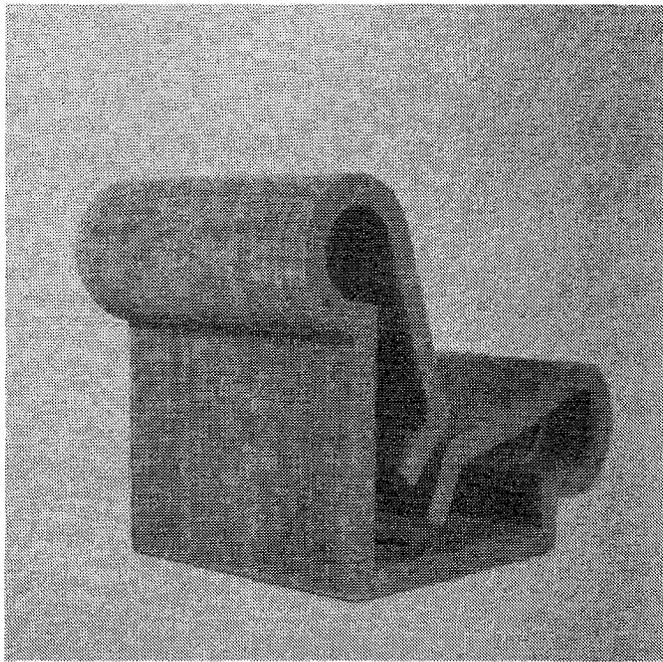


Figure 2: “Easy Edges” by Frank Gehry

into compound curve planes. In 1940-41 the Museum of Modern Art held a competition and exhibition, “Organic Design in Home Furnishings.” First place was awarded to the compound-curve molded plywood and plastic chairs by Charles Eames and Eero Saarinen. As a team they had entered storage units, chairs and tables and in one brief moment shifted the center of modern design from Europe to America. As America’s resources were soon reallocated from furniture manufacturing during the war years, the production of the designs of the competition were delayed until after the war. At that time the competition coordinators arranged to split the designs up between the two leading manufacturers of modern furniture in the U.S. Knoll inherited the Saarinen pieces and Herman Miller was designated to produce the Eames pieces. Both corporations have built on the original designs of Saarinen and Eames, but these designs continue to stand as landmarks to modern design.⁹

The competition entries of Eames and Saarinen used technology to invent form. As the result of new technologies developed in the military, Eames was able to create chairs of three-dimensionally molded plywood, and Saarinen was able to develop shells of fiberglass-reinforced plastic to be lined with foam and covered with a stretch fabric. Rather than resorting to decorative additions both men were able to use technology in profoundly innovative terms as expressions of form.

Shortly after the attack on Pearl Harbor, Eames and his wife, Ray, began work on a molded plywood splint for mass production. That design was followed by an “equally ingenious plywood litter and from 1943 the growing Eames office directed its research toward molded plywood components for the aircraft industry.”¹⁰ At the end of the war the Eameses resumed their chair design work with the experience gained in the wartime need for efficiency, economy and practicality. In retrospect the molded plywood, and later molded plastic, furniture of the Eameses approached more than any other furniture of this century the modern goal of high-style design at low cost.

During the postwar years designers continued to search for other natural materials that would allow the creativity and cost effectiveness apparent in the Eames chairs, but would allow

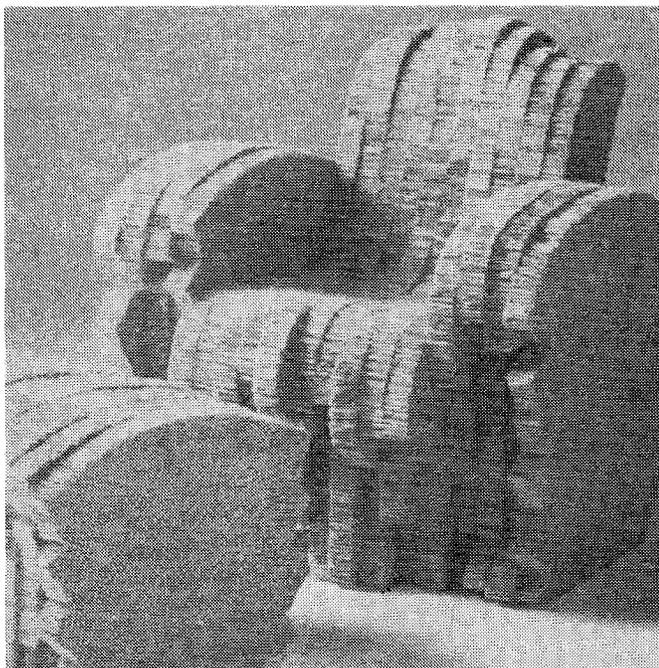


Figure 3: "Experimental Edges" by Frank Gehry

less investment in the manufacturing process as necessitated by countries with war devastated economies.

THE CHAIRS

The post consumer society has created a reliance on the consumption of information as opposed to the consumption of goods. While begun a century ago with the designs of Thonet, the current canon of chair design reflects this minimal reliance on the substantive by moving toward chairs of minimal structure and material in addition to moving toward chairs of high kinetic suggestion. As we move into the world of the Information Age, we need chairs to think upon and not just to sit upon.

Gehry's chair designs over the last 30 years express the dematerialization of form and material. Rejecting the typical chair materials and technology, Gehry introduced corrugated cardboard as the structure, finish and form in the "Easy Edges" line. Using throw away materials to create chairs of substance, the chairs became the antithesis to the Pop culture designs of the 60's. Material being more important than image, Gehry introduced the dimension of ecology to technology. The "Experimental Edges" line blurred the form of the chair through new means of lamination while extending its apparent boundaries beyond the limits of the chair. The dissolution of the form of the chair was further enhanced through the dematerialization of the chair as expressed in the "Knoll Collection," where the material was stretched to its thinnest creating a chair of apparent lightness, suggested form and questionable stability.

SOLIDITY/THINNESS

Gehry's first furniture line "Easy Edges" introduced in 1969, was a reaction against the consumerism of the time but a mirror of its voluptuous forms. In reaction to the minimalist work of the International Style, architects began to create sculptural buildings of special intent in the 50's and 60's, such as Ronchamp, 1954, the Guggenheim Museum, 1959, and the TWA Terminal, 1962. These buildings digressed from the

purely functionalist and geometric aesthetic, moving into space with exuberance while redefining the canon of architecture. Each of these buildings reflects the nature of the automobile as a means of our changing perception. As the auto transformed our lives and vision, it made us also dependent on means of non-replenishable fuel. Postwar construction fueled our need for the auto and created an economy of consumption. As society became consumption dominated, the development sculptural forms in design ideas spurred.

With the explosion of the youth market in the 1960's, chair design evolved in response to renewed affluence and the removal of the barriers of conventional social mores. Design became an expression of the Pop Art movement, in which young people found the means to disassociate themselves from the previous generation and to communicate the ideals of fun and transience. Disregard for environmental issues was a characteristic of Pop Art. In the early to mid-60's consumers and designers "were wholly optimistic about scientific achievements. There was a definite pro-technology dimension to the Pop interior, which exploited the possibilities of new materials and techniques."¹¹

With the consumption of ever increasing amounts of fossil fuels, the chairs of the 60's and 70's reflect a society of consumption. Bold sculptural anthropomorphic forms used high embodied energy in their materials and production methods. Reminiscent of the sexual revolution the chairs depicted sensuality and body forms through graphic means. "La Donna," UP-5 chair by Gaetano Pesce, used red stretch polyester fabric over molded injection foam to project the female form into a functional reclining chair with the added social commentary of the ball and chain ottoman. The inflatable furniture of the 70's used the means of transparency to suggest the first real immateriality. Blow-up furniture quickly responded to its environment as blown-up furniture, temporary aesthetics for a culture of consumption. These overly voluptuous forms of high sexuality contrast greatly with the minimal forms of chair design in the 90's. Philippe Starck's "W.W.Stool" of 1992, a minimal statement of freedom from function, pursues the development of a minimal aesthetic using the stool as a perch for the action between sitting and standing. The three legged stool while of minimal material is of maximum sculptural intent using extensions to move into and dominate its surrounding space.

As the awareness of the planet and its limitations grew, the earth movement began contrary to the plastic movement in furniture. Adverse to the use of high embodied energy materials and production methods of the 60's and 70's, Gehry sought to innovatively use throw-away materials in his Easy Edges furniture line of cardboard of 1969. Easy Edges cardboard furniture line by Gehry, 1969, regarded the concern for the environment long before it was politically correct. Gehry's intended use of throw-away materials for inexpensive, popular furnishings revisited the goals of populous design of Modernism and started the current environment concern in design today.

In 1969 Frank Gehry began his improvisations in furniture design using corrugated cardboard as a material for furniture manufacturing. Seven years before he had started his own architectural firm under the premise of the Los Angeles art movement. As a participant in a NASA-sponsored symposium on art and technology held in artist Robert Irwin's studio, Gehry reconfigured the loft with stacked cardboard partitions, floors and furniture. His inspiration was the built-up corrugated layers of contoured site models. Thinking that the cardboard could be

laminated and cut similar to plywood, he reasoned that comfortable forms could be produced at low cost.

The Easy Edges line became a popular success on its commercial introduction in 1972. Within weeks the chairs had been published in every major newspaper in the U.S. Gehry panicked that he would become known as a furniture designer before he was known as an architect. He suspended production after three months. The Easy Edges line, despite its sudden withdrawal, included 17 different chair designs. As it was retailed in department stores, it was not presented to the public as art furniture, and was bought for residential and commercial use.

MATERIAL/IMMATERIAL

Robert Venturi dematerialized the chair in his laminate experiments of the 1980's. Using patterned laminate as the upholstery, he used the technology of molded plywood to create silhouette chair shapes of extreme flatness de-emphasized through color. In the late 60's Venturi introduced intellectual claims into the pursuit of the design of architecture and the chair. Drawing from the ordinary, Venturi created seemingly simplistic designs of purposeful banality. His structures and furniture belied their ordinary appearance and "are significant because they challenge established norms of propriety; they transgress the decorum of modern architecture."¹² By reasserting "the bourgeois preference for comfort and easy accessibility" he created a design of apparent ordinariness, but one that appeals instead to the cognoscenti who were aware of the "codes" of the "modern" and "postmodern" and could appreciate the transgression.¹³ Venturi's 80's chairs of laminate on molded plywood mimic the original upholstered furniture from which they depart in silhouette, but endorse the ordinary of Pop Art in terms of fabrication and materials. They poke fun at the cultural insignificance of the wall paper-like patterns of the laminate surface used as "upholstery."

While Venturi dematerialized the chair through use of flat materials, Gehry used materials to break the form of the chair. By the mid-70's the professional press had recognized Gehry as an architect of merit. As he passed the critical phase in his career as an architect, he was able to return to furniture design. The Experimental Edges series, begun in 1979, represented a new attitude toward laminated corrugated cardboard. "The tight smooth contours of the earlier pieces were replaced by loose, shaggy forms not unlike Gehry's new architectural aesthetic."¹⁴ The chair designs while still voluptuous in form began to blur their own boundaries by the nature of the imprecise edge of the corrugation. The design process was slow and ultimately caused the chairs to be priced as art furniture, contrary to the desire of Gehry to create accessible furniture.

Ettore Sottsass used the application of flat texture in his "Teodora" chair. With laminate as the upholstery on a throne-like chair, he dematerialized the form with a clear plexiglass back. Leading the question of authority and hierarchies, Ettore Sottsass' furniture through his Memphis Group mirrors the deregulation of governments and the breakdown of the traditional roles of society as recognized in the excess of the 80's. Memphis flouted the notions of good taste as expressed in the reductionism of Modernism. Using traditional means; wood, paint, textiles, and non-traditional means; plastic laminates, material mixtures, Memphis has created the furniture in which the long held rules of structure and form are obsolete. These pieces of exuberance expressed the disquieting nature of societal

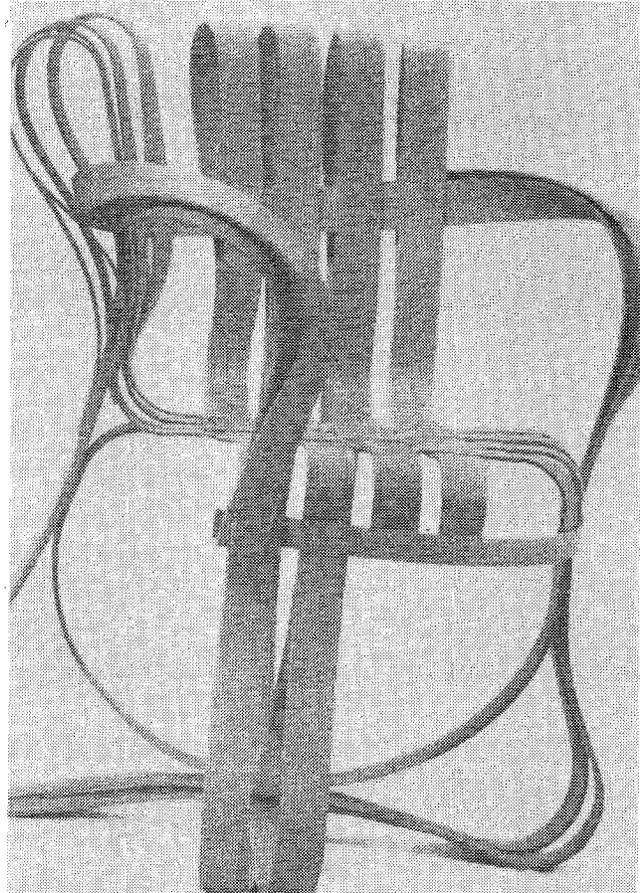


Figure 4: "Knoll Collection" by Frank Gehry

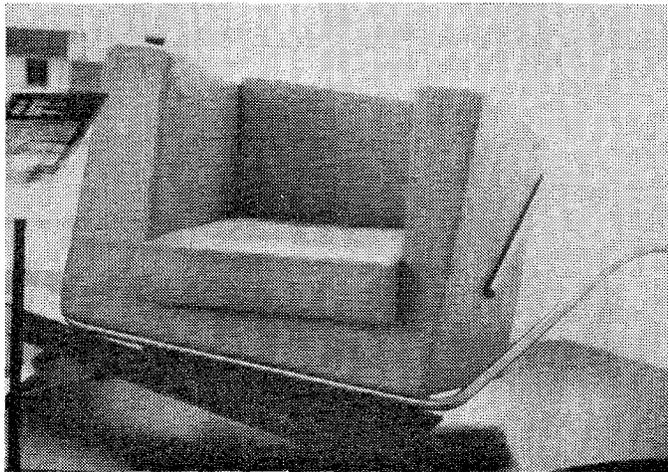


Figure 5: "Vodöl" by Coop Himmelblau

excess and called into question the relevance of the canon of design.

STATIC/MOVEMENT

Verner Panton's "Panton" chair of 1960 continues the ideas as started with Saarinen's single legged "Pedestal" chair. Through the introduction of the cantilever the "Panton" chair suggests movement in the otherwise static chair. Where Saarinen's chair was held to the ground as a tree, Panton's chair moves through space as a wave. This suggestion of motion was to inspire

future chair designs. In 1984, Fehlbaum met Gehry and expressed his desire to produce a chair that would be "a versatile, inexpensive and enduring standard of the sort that every manufacturer dreams of introducing."¹⁵ Gehry began to think of woven wooden strips similar to the traditional bushel baskets of American vernacular design and similar to experiments done in the war torn countries of the 40's and 50's. These countries with economies and resources reduced by war sought a means of post war production using limited resources, such as Noguchi's prototype for a woven bamboo chair that was uniquely Japanese and designed for export. Gehry desired to create a similar chair incorporating both structure and finish in one material. He produced a model of a lightweight woven chair, but the Vitra production engineers decided the scheme was structurally unfeasible and the project was set aside.

In 1989 Knoll approached a reluctant Gehry regarding another furniture project. Gehry's stipulations were accepted by Knoll, and he began the design of which would eventually become the "Knoll Collection." The "Knoll Collection" by Gehry expressed the next generation of design, that of moving away from the sensuousness of the bodily requirements to the negation of the body in favor of the mind, moving into cyberspace. The "Knoll Collection" is a series of bentwood furniture pieces designed with economy and thinness add a jarring suggestion of instability within a comfortable, functional collection.

The current decade, in paying for the copiousness of the 80's government and the general lack of restraint, must determine the rules of the coming millennia. Confused with the unnatural condition of our age, one of the chairs of the 90's is "Vodöl," Coop Himmelblau's turquoise retake on Corbu's "Grand Confort." As one of the last executed designs for the Vitra Edition, it uses a recycled steel beam and unwinds Corbu's chrome into a sinuous, non-confining shape. Precariously balanced it shoulders our own fears of modern life as expressed in the steel 'I' beam that is the chair's support mechanism. As a departure from Corbu's classic chair, "Vodöl" is a satire of Modern furniture.

CONCLUSION

Unwittingly Vitra was fouled by its own reckless abandonment of its ideals. In looking to the avant garde to fulfil its future in the excess of the 80's, Vitra used technology as a veneer, not as a process. The lessons of Saarinen and Eames must be revived. If technology is to be seen as the savior of the 20th century, then the products of the process must reflect the integral inclusion of technology, where technology becomes the chair not the style. Deviating from the authorization of value by criticism, Vitra sought, as was common at the time, to create chairs for art's sake through the Vitra Edition program. Through rapid development the Edition chair designs signify the inclusion of technology as a veneer and not the effects of the technology as an agent to the process.

The Vitra Editions program was a short lived experiment into the viability of art furniture. Reflecting the late 80s mind set that created it, the Vitra Edition collection mimicked the highly speculative ventures of the art and real estate markets and was a divergence from the company's initial goals. Founded on the marketability of the Herman Miller line the company remains a success today based in part on the salability of the Eames furniture line. In changing with the times, Vitra has now

determined to use its development dollars to focus on real world solutions and not the experimental solutions of individual designers pursuing art. Although art is still strongly supported by Vitra, they have refocused the company.

By looking at the collection of the Vitra Design Museum we can see the artful expressions of the concerns of our age, past developments and suggestions for the future. The Museum houses chairs from the pre-industrial era into the post-industrial world. Within it are the first modular prefabrications in furniture and mass production techniques of the machine age. The collection harbors the attributes of human body in relationship to furniture design throughout the past 150 years and has implications for the design of furniture in the future cyberspace.

Furniture within the collection such as the "La Donna" chair by Gaetano Pesce and Gehry's "Easy Edges" of the 60's emphasize the requirements of the body in the service economy. As the Information Age formulates, chairs such as Gehry's bentwood designs of the 90's reflect the immateriality of the era concentrating not on the bodily requirements, but instead on the precariousness of thought and the exchange of information. This may represent a cyclic phenomena, moving from thickness to thinness, but for the first time the design of chairs is extending its borders into the surrounding area. The field of influence of the current design chair, like a throne, is not contained by the boundary conditions of the chair's specific use. Unlike the throne, though, the new chair extends itself into space through means of construction and not through suggestion of power.

Chairs within the Information Age are moving into a negation of the body experience and into the experience of the mind. As in architectural cyberspace the structure and stability of the chair are immaterial. The chair of the future will reflect this virtual instability. Moving from the needs of the service economy, where chair design concentrated on the requirements of the body, as evidenced in the structure of the chair, and into the information age where this concentration dwells on thought, communication and the brain, produces the immateriality of chairs in the 90's and beyond. As centralized authority has been dispersed into the internet, the chair no longer represents the throne.

NOTES

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