
ABSTRACT

The Australian National University
Institute of the Arts



Canberra School of Art
MASTER OF ARTS (VISUAL ARTS)
1994

Ian John Guthridge

THE COMFORTS OF THE MODERNE
THE NEW EPOCH AND EFFICIENCY

Sub- Thesis
20%

PRESENTED IN PART FULFILMENT OF THE REQUIREMENTS OF THE
MASTER OF ARTS (VISUAL ARTS)

ABSTRACT

COMFORT: research into the shift in the historical meaning of comfort associated with the home. The work explores the division between practical needs and those that arise from aesthetic needs so as to develop a synthesis between the two. The Sub-thesis examines the polemics within the debate about the approaches to the domestic interior that occurred during the early decades of this century and argues that a more subjective meaning of comfort is important to the needs of well-being. The outcome of the study took the form of an exhibition of furniture at the Canberra School of Art Gallery from March 23 to April 2, 1994. This comprised of the Studio Practice component (80%), together with the Subthesis (20%), and a Report which documented the aspects of the course of study undertaken.

ACKNOWLEDGEMENTS:

1	Introduction	Gordon Bull George Ingham David McNeill	3
2	The Committee	Supervisors Nigel Lendon	9
3	Executive	Convenor	15
4	The New Coach and Offspring		27
5	Appendix		43
6	Bibliography		47

CONTENTS:

1	introduction.	5
2	The Comforts of the Moderne.	6
	<i>footnotes.</i>	25
3	The New Epoch and Efficiency.	27
	<i>footnotes.</i>	45
4	bibliography.	47

These papers both relate to the sharp division between two fundamentally different approaches to the domestic interior that were evident in the Paris Exposition of 1925. In analysing the differences, which were increasingly polarised in attitude, we are faced with separate but often interwoven issues: social, economic and cultural. Within the polemics of the debate traditional notions of comfort, formerly associated with the home, became negative in value as they were perceived to be redundant. The new priority was not to set standards of luxury within domestic culture and the comfort that this implied, but to provide for a set of normative needs stripped of ornamentation.

This first paper deals with luxurious Deco proper, its mode of production and the ideological posture that was bestowed on one of its most ardent followers Emile-Jacques Ruhlmann: traditionalist, acclaimed hero, to some the equal to the great ebenistes of the eighteenth century. Cultural traditions will be seen to have an important role for a more subjective meaning of comfort and the relationship of visual symbolism and decoration to the needs of psychological and social wellbeing.

This second paper will deal with the opposition against the decorative arts tradition as expounded by Le Corbusier : member of the Parisian avant-garde, critic, whose Purist ideas were to be influential to the theoretical development of Modernism and its prejudicial interpretation of decoration and reductivist view of comfort.

THE COMFORTS OF THE MODERNE

The Exposition of 1925 from which Art Deco was to later take its name consecrated the work of those leading decorative artists who had been developing their individualistic styles a decade earlier¹. Edward Lucie-Smith characterises it as "Luxury Deco- an aristocratic and fashionable style, still with many links with the nineteenth and even the eighteenth century."² While there was a diversity in what Alastair Duncan called "the last of the great culinary styles,"³ the overall stylistic unity of the show displayed an image of the domestic interior which evoked extraordinary luxury.

Jacques-Emile Ruhlmann represents better than anyone this penchant for stylish luxury. Acclaimed the consummate stylist of Deco taste, Ruhlmann was one of the most prolific ensembliers of the period. His workshop *Etablissements Ruhlmann et Laurent* produced what was probably the best made furniture of the time, reaffirming the traditional arts and crafts practice of the superbly wrought object.⁴ His metier lay in supplying some of the richest people in the world with the most expensive and sumptuous interior decors and furnishings. His work became a status symbol, de rigueur for the established elite.

Historical assessment has not placed the "Luxury Deco" of Ruhlmann in the

vanguard of progressive design: it was dismissed as being reactionary and the pretension of "obscure establishment architects and rubbishy artists."⁵ But Ruhlmann is no less valid as designer as those who served the outpourings of industry, and it is from his activity as an ensemblier that a wider criterion of comfort can be found: one in which decoration will be seen to have an important role.

The imposing manner of Ruhlmann's *Hotel du Collectionneur* at the 1925 exhibition can be characterised as the epitome of the *moderne*, the apotheosis of 'pure' Art Deco,⁶ even though it was representative of the more traditional *constructeur* who took their examples from the past.⁷ Designed in collaboration with Pierre Patout, its ornamental style reconciles all the significant tendencies characteristic of the *esprit de geometrie* within Art Deco.⁸ Suggestive of a classical pavilion, the monolithic style of its exterior is determined by a pluralism which appropriates both the ancient, exotic and modern. There was a popular demand for anthropological, ethnographical and archaeological sources all having been legitimised by the avant-garde, particularly in Cubist, Fauve and Expressionist works. This penchant for paradoxical elements can be criticised as superficial, simply being a contrivance to create meaning by dramatically embellishing the structure. To the promulgators of functionalism the precedence of appearance over performance was synonymous with deceit as it disguised the fundamental integrity of the structure.

To Le Corbusier at the time the prevailing fashion for what he termed an "indulgence in iconolatri" was, "no more than an accidental surface modality,

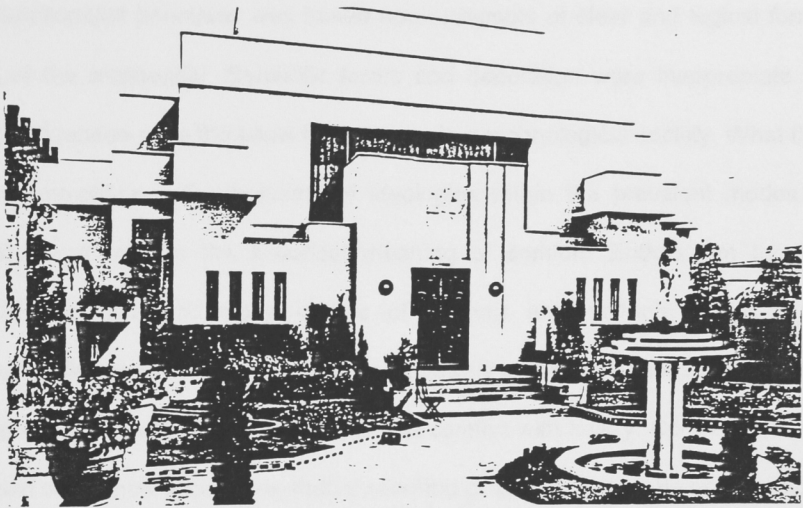


Fig. 1. Jacques - Emile Ruhlmann, view of Hotel du Collectionneur, Exposition des arts decoratifs, 1925.

Fig. 2. Jacques - Emile Ruhlmann, rear view of Hotel du Collectionneur, Exposition des arts decoratifs, 1925.

superadded to facilitate composition, stuck on to disguise faults, or to duplicate for the sake of display."⁹ For early modernist writers like Le Corbusier the objectivity of wholly functionalist principles was based upon precepts of clear and logical forms purified of the inessential. Symbolic forms and decoration were inappropriate as science and reason were the basis for progress in a technological society. What this criticism exemplifies is the breaking of ideologies within the prevalent modes of production and shift in the historical meaning of comfort. Enthusiasm for the supposed aesthetic and moral virtues of modern engineering's approach to industrial production with its unprecedented analysis of the work situation overruled the historically embedded notion that equated comfort with luxury. Comfort became concerned with a new imperative- that of securing greater for the same or less effort. The superfluous became dispensable as efficiency pervaded every level of living.

Efficiency was the intrusive palpable mark of modernity and as such carried a potential for altering culturally embedded norms. Its logic eschewed products of custom as the appearance of good working order had to be visually emphasised. While the extraneous decoration and overt reference to period style that was employed in the *Hotel du Collectionneur* were allied to the prevailing fashion for luxury and splendour that was evident at the Exposition of 1925 its use of decorative elements is of critical importance. The use of traditional motifs and forms(the simplified pilasters; the low porticoes on either side of the rotunda; the sculptural elements) emphasise the articulation of the structure's volumes and were loosely adapted into an expressive narrative which was not alienating to most people. They belonged to a symbolic order which is itself functional in providing cultural

continuity: the patrimony of the past even though their parameters were placed in a Neoclassical syntax that was taken and extended into the new realities of contemporary life.¹⁰ While the tiered construction provided a recognizably progressive image of modernity in its cubist-like masses it also indicated the scale and distribution of the interior and allowed the ceiling heights to be varied. The proportion and volumes given to each room was governed by the distinction between *petits appartements* and *grands appartements*; the logic of difference being that of a planned gradient between sociability and increasing intimacy - a warmth and security which corresponded to a criteria of comfort and convenience that French society of the time were accustomed to.

In the first instance, intimacy is found in the private areas: the bedroom, the attached boudoir and bathroom. The physical aspect of the interior architecture, the decoration, the furniture and objets d'art used through each of these rooms was governed by the room's purpose. The height of the ceilings was progressively scaled, the bedroom to one half of that of the main salon, and the adjoining bathroom to one third to contrast the proportions. The furnishings are harmonized with the decor and grouped together in a confined space. Overall there is a delicacy in the use of materials and a sense of tactile pleasure and refinement creating an atmosphere distinguished by its privacy.

In contrast to this, the main salon emphasizes sociability. It is a statement of contrasts and overt symbolism having its legacy in the late eighteenth century. Dedicated to music, it was a triumph of luxurious effect calculated to celebrate the



Fig. 3. Jacques - Emile Ruhlmann, bedroom Hotel du Collectionneur, 1925.

grand style. The space was dominated by an immense, drum-shaped glass-beaded chandelier executed by Viau. The cupola decoration above illustrated Beethoven's symphonies, while a macassar ebony piano by Gaveau stands beneath it. The walls are hung with a silk lampas by Stephany, while over the fire place was the neo classical painted panel of Jean Dupas- The Parrots. Various chairs by Rapin, Sogot and Jallot, and a large laquered cabinet by Dunand are amongst the numerous examples of cabinetwork that completed the furnishings. For the greater part the decor and furnishing within the salon are integral to the dramatization of the interior space. While stylistically the interior owes a debt to richness of past it was an amalgam of elements not concerned with historical accuracy as there is a superimposing of the simplicity of the present over that of the past. His eclecticism was considered and disciplined as nothing detracts from what is a total interior.

Ruhlmann's considered style was based on classicism and its traditions. His combinations and contrasts of form and symbol was noted and praised by the art historian Christian Zevos at the time. It was held that he was the most brilliant representative of a style that was rooted in classicism and rationalism; *Hotel du Collectionneur* carried a seduction which coincided with established cultural values and the prevailing sense of French prestige.

While Ruhlmann received wide acclaim and unstinted praise from many critics and the popular audience, some were less laudatory and referred to *Hotel du Collectionneur* with deep disgust. Gabriel Mourey even viewed the pavilion as displaying, "either a completely cynical spirit or a rare insensitivity."¹¹ Ideologically,



Fig. 4. Jacques - Emile Ruhlmann, main salon Hotel du Collectionneur, 1925

for Mourey and other critics Ruhlmann's pavillion connoted the privileges of the upper classes and was the preserve of the fashionable elite, the *beau monde*. In the shifting social tide increasing concern for social reform saw this "devotion to the powers of wealth," and "lack of comprehension of the needs imposed by modern life,"¹² as inevitably corrupt and exploitative. Ruhlmann was in the words of Le Corbusier, one of the, "buffoons who believe in decorative art- who satisfy a cultivated clientele's taste for luxury."¹³

Such a point of view showed not only an aesthetic but political bias towards collectivist ideas of social planning. Viewed retrospectively this appears to be antithetical to Ruhlmann in every way as it attempted to create a new working class culture which would displace established cultural patterns and social inequalities. It was a self appointed morality which ignored the fact that the underprivileged classes aspired to the concept of comfort that meant luxury.

Despite this criticism and the moralism espoused about creating solely for the rich, Ruhlmann, like the other foremost *artistes-decorateur's*, was constrained by other realities. The historical context that surrounded the 1925 exposition is seldom discussed by critics, who are often primarily concerned with the theoretical issues of aesthetics.¹⁴

Tremendous change had also been wrought by the times. The armistice in 1918, while affording victory simultaneously generated a crisis of confidence. France emerged from the War nearly ruined. The economic reality was that most of the battles had been fought on the soil of northern France and large areas were

completely devastated: more than 300,000 buildings had been destroyed or damaged; and almost 1.4 million men, an entire generation, were dead or missing and countless were maimed. Eager for a sense of normalcy the exhibition under the benign patronage of the French Ministry of Industry and Commerce, was less an international event than a means for official rectification in the post-war era of reconstruction.¹⁵ It was a way to demonstrate to the world that France had emerged from the destructive conflict with her creative energies undiminished. Reasserting the pre-eminence of French products in matters of style was not only a way to restore glory to French cultural traditions, it would provide stimuli to a depleted economy.

Concern for our national industry and our national prosperity makes an urgent appeal necessary for the defence of French taste. Applied art to industry (wrongly termed decorative arts) will be henceforth at the heart of our effort. Since we are no longer a major producer, let us at least be able to be tasteful. In this way we will be able to resist foreign overproduction and give to certain highly esteemed, but rare craftsmen the support they deserve.¹⁶

As Paul Greenhalgh points out, machine production and its potential benefits had not been a pressing concern for the French prior to the war. Industrialization had remained incomplete leaving a large part of the economy in stagnation and undeveloped. While Germany, Britain and the United States had aggressively consolidated their industrial output and expanded their markets the French national economy relied heavily upon the goods produced by its *industries de luxe*¹⁷ in its trade in the world market. It was a strategy sustained by the notion that France was

the artistic epicentre of the world. Distinguished by unassailable quality and an elegance which drew its inspiration from the *ancien regime*, it catered to a select clientele where individual patronage remained important. It saw the production of objects that were determined by aesthetic considerations, rather than the economy of the manufacturing process, perpetuating what was basically an 18th century methodology reliant upon a mode of production that had its framework within traditional artisanal skill and its traditional disciplined manipulation of rare and luxurious materials. The superbly wrought object expressed and symbolized the superlative French standards of craftsmanship.

The art of furniture making was an important part of this milieu. Individually designed pieces of furniture were executed through impeccable, laborious means. Machinery was used, but attitudes towards it remained ambiguous because of the encumbrance of past traditions and arts and crafts values. In many respects, given that mass production and the resultant mass consumption dominated world commerce, this was anachronistic. While furniture exports increased by 58 percent in the years prior to the war French manufacturers were showing concern for the considerable influx of imported furniture which was marked by a 378 percent rise.¹⁸ Expanded industrialisation within France itself impinged further upon the importance of craftspeople as industries established during the war changed to domestic production. As they struggled to find the means to accommodate these significant changes the decorative arts were crucial to alleviating the social distress caused by unemployment within the French craft trades.

Ruhlmann had no illusions concerning the inherent exclusiveness in his artistic, cultural and economic concerns. This is commented upon at the time in a preface by Leon Deshairs,

We would have been surprised if Ruhlmann had proposed the construction of a working-class house and exhibited inexpensive furniture there. Not that he does not recognise the social usefulness of applying art to such things; not that he does not know that the simplest object, the most common material may be ennobled by the reflection of intelligence and some talent. But other interests call to him.¹⁹

The methods of fine craftsmanship, the technology and scale of production were by their nature not predisposed to satisfy the larger market; it was simply uneconomical because of its labour-intensiveness. In a cultural context this elite aspect of handicraft production was made more acute by its affinities with the current meanings associated with high art's privileged status. Emphatically, the makers of the period consciously thought of themselves as artists²⁰, and it was in this role they responded to their clients. In order for them to create stridently individualist statements they maintained a pragmatic acceptance of the patronage of a fashion-conscious and privileged elite. Ruhlmann himself acknowledged this when he states,

The movement to develop a contemporary style in interior decoration will only come fully to its own when people of moderate incomes become interested, but owing to the fact that costly experiments must be made in furniture de luxe, before this renaissance in decoration can be effected, it is necessary that this art

be developed under the patronage of the wealthy, just as the art of the older epochs was developed under the patronage of the courts.²¹

Within the course human affairs and in terms of production it is only the rich and powerful with their position of social and cultural hegemony who can afford the services of this kind of artistic work. It is this part of society which pursues and preserves the outputs of new creative production. Present sociology attests to this as we find an understanding of this within the writings of Jean Baudrillard when he states,

Ideologically, the cult of the ephemeral connotes the privileges of the avant-garde. Up to date models are the preserve of the privileged classes. Fashion effects a compromise between the need for innovation and the need to preserve the underlying order unchanged.²²

Ruhlmann's pieces of furniture were designed as works of art, the production of which was inherently unique and personalized²³. An important ingredient of this pursuit was the exploitation of the rarest and the most exquisite of materials for his furniture. Rich veneers, such as palisander, amboyna, amaranth, macassar ebony, and cuban mahogany were embellished with intricate inlay patterns; exotic materials such as ivory, shagreen, tortoiseshell or lizard skin figured prominently; as did the luxury of lustrous lacquer work.²⁴ Against this devotion to only the rarest and the most exquisite of materials, Le Corbusier was to write,

Good sense has gradually rejected the tendency towards luxuriousness as inappropriate to our needs. Its last resort has been a devotion to beautiful

materials, which leads to real byzanttiism. The final retreat for ostentation is in polished marbles, with restless patterns of veining, in panelling of rare woods as exotic to us as rare humming-birds, in glass pastes, in lacquers copied from the excesses of the Mandarins and thence made the starting point for further elaboration.²⁵

For Ruhlmann, beauty lay in the tension between graceful proportions and discreetly rich materials. Firmly based on the notion of *equilibre, mesure, harmonie et logique* his forms were elegant, refined, and more simple than his predecessors but no less costly in the perfection of detail and craftsmanship. Mass production did not interest him,²⁶ only the best was demanded, regardless of cost. And the cost in labour in achieving pieces of refined and fastidious finish. Ruhlmann's furniture was beyond the means of all but the most prosperous; the average price for one of his larger pieces was frequently more than the cost of a reasonably large house. In 1924 he charged 46,800 francs for a coiffeuse, 59,000 for a commode and 79,000 for an amboyna bed - the pound was worth about 24 francs. Whereas in respect to time, Jules Deroubaix, one of Ruhlmann's staff of craftsmen worked for two to five months on a single piece. While these qualities may seem peripheral they do carry with them concepts of trust, integrity and reassurance. Aesthetically each piece could be appreciated for its construction and the beauty of its materials.

we have to translate the beauty of pure, rational form into fine materials...We often see poor, rebarbative machine-made pieces masquerading as rationalism, and it has to be said that they are aesthetically indigestible.²⁷

Most of his furniture was conceived in the traditional terms of *ebenisterie*

and *menuiserie* - those techniques of veneering and those of solid construction by which French cabinetmaking was distinguished. As a body of practice French cabinetmaking had accrued detailed and implicit knowledge of furniture, its construction and its use. In a sense it seems odd for Rulhmann to choose traditional orthodoxies while attempting to achieve a contemporary profile, as craftsmanship itself is often seen as constrained by its own parameters and circumscribe in its views; "paralyzed by the weight of too-rich traditions, which causes always to look backwards to the past."²⁸

Rulhmann's insistence on tradition was not an attempt to faithfully imitate precedents as he was aware of contemporary developments where mobility and practicality were important. What he attempts to do is reconcile tradition and innovation within the bounds of an identifiably French tradition of fine craftsmanship. Rulhmann took as his point of departure the legacy of two centuries of fine cabinetmaking but was limited by a strong instinct for evolution rather than revolution. Whether opting for traditional solid construction or the newly developed laminated wood covered with veneers in which the actual construction of the piece often completely concealed, Rulhmann utilized the subtle and complex skill from which fine craftsmanship not only derived a living but also a pride. While their efforts were directed at an opposite end of the spectrum to mechanized production their labour reaffirmed a unity of hand and spirit. The fact this represented a creative human element in production imbued its artifact with intrinsic qualities which were cherished in use.



Fig. 5. Jacques - Emile Ruhlmann, boudoir Hotel du Collectionneur, 1925.

Ruhlmann exhibited throughout the *Hotel du Collectionneur* sixty chairs and ninety armchairs each with variations,

An armchair for a living room must not be conceived like an office armchair, which in turn must be very different from an armchair for a smoking room. The first must be simply welcoming, the second comfortable, the third somewhat voluptuous. Each of these arm chairs must have their own shape.²⁹

Each Ruhlmann model was conceived in a form and style that presupposed the allotted role of the total interior. The seating furnishings of the salon were firmly based on the purity of form and refinement of the Empire period. The various chairs were upholstered in fabric reminiscent of Aubusson tapestry, the dark macassar ebony tapered legs are relieved by decorative tracings of inlaid ivory within the simple silhouette; silvered bronze sabots sheath the feet ends.³⁰ Paramount was the sense of history part of which was a residual decorum from past aristocratic tradition. The elegance and solemn dignity of the chairs demonstrates a playing of French cultural references which fulfilled the need for social expression of tradition beyond the recognition that they are about wealth and position. Contrasting to this the wing chairs that were part of the furnishing of both the boudoir and bedroom are distinguished by an absence of formality. Their form and coverings of silk and fur accommodate a more personal and intimate need. While there is a physiological need for a chair in respect to comfort there is also a demand which has little to do with the practical consideration of sitting. Typically the purpose was to consider every aspect of comfort, both physical and visual.



Fig. 6. Jacques - Emile Ruhlmann, main salon Hotel du Collectionneur, 1925.

There was no single Ruhlmann style as difference and individual eccentricities were an integral part of Ruhlmann's strategy; each piece often had its own particular uniqueness and character while remaining within a framework of traditional models. Most characteristic was the differential relation that he adopted for various types of furniture which recalls the subtle hierarchy governing their use and the social significance that was associated with that use.

Within the framework of Modernism this diversity was an aberration to the new logic in which "standard need" was stressed. The accumulations of difference and variety were replaced by the coherency of sameness as working order determined form. External factors such as meaning and association, of which decoration was an integral part, were rejected as inessential to the primacy of physiological criteria. Whereas to Ruhlmann,

There is more to an object than its purpose, and it is that excess presence that gives it its prestige significance.³¹

Even now visual symbolism and decoration are open to different interpretations. By definition they are often regarded as an addition, an elaborate embellishment. Paul Greenhalgh views dismissively the methodology employed by the Art Decoists to achieve a modern profile. He sees the blending of different traditions as "stylistic gratification" which has little relationship to the technology, economy or cultural role of furniture.³²

While his notion of comfort was selected at great cost, Ruhlmann's

consummate attention to detail accommodated the varying and sometimes contradictory demands of comfort. His strategy of luxury provides a tangible affirmation of the fact that psychological fulfilment is of equal importance to people's wellbeing - their comfort is not detached and rational but manifold in its nature, coloured by a myriad of sentiments, memories and emotions. Visual and tactile elements and the projection of values onto an object are of critical importance, often they can substitute for convenience. What Ruhlmann's, *Hotel du Collectionneur* offers is a plurality of style and creation based on popular belief that the domestic should provide serenity - a sense of security which was comprehensible to all. The assurance of quality contributed to this.

FOOTNOTES

¹Its inception was much earlier as the Deutsche Werkbund's exhibit at the Salon d' Automne held in Paris in 1910 had a decisive influence on the style in formal terms its spare formal composition can be traced that of the Wiener Werkstatte and even back to those of Charles Rennie Mackintosh. Apart from Jacques-Emile Ruhlmann among these included Jean Dunand, Hector Guimard,, Francois Decorchemont, Louis Majorelle, Edgar Brandt, Pierre Chareau, Robert Mallet-Stevens, Jean Puiforcat.

²Lucie-Smith. E., **FURNITURE: A Concise History**, pp.169.

³Ducan A. , quoted in **FURNITURE DESIGN**, pp.129.

⁴In respect to craftsmanship , Edward Lucie- Smith in **FURNITURE: A Concise History**, states that Ruhlmann's, "work easily equalled the technical standards set by his eighteenth-century predecessors, and in some respects, such as drawers actually surpassed them." pp. 173.

⁵John Willett, **Art and Politics in the Weimar Republic**.

⁶Paul Greenhalgh sees the building as having all the feature of art deco, " the ziggerat stepping towards the summit, a suggestion of classicism in stripped pilasters and the use of a frieze, decorative motifs taken from sub cubist painting, sculptural elements that were strange, mannered abbreviation of Roman relief carving," *The Prefabricated and the Mass- Produced*, **Ephemeral Vistas: The Epositions Universelles, Great Exhibitions and World Fairs**.

⁷Olmer Pierre, distinguishes the two trends that developed within Art Deco, Labelling them constucteurs or logiciens and les fantaisistes, see Greenhalgh. P., *The struggles within French Furniture.*, pp 71 **Modernism in Design**.

⁸The decorative motifs of the esprit de geogetrie were described by Andre Vera in, *The Decorative Doctrine of Tomorrow*, published in **Le Martin** in 1918.

⁹Le Corbusier, **The Decorative Art of Today**, pp.118

¹⁰See Peter Fuller, *Should Products be Decorated ?*, **Design**, No416. pp.35.

¹¹Gabriel Mourey, cited in Waldemar George, "L'Exposition des arts decoratifs de 1925. Les

tendances generales", L'Amour de l'art, 1925 pp.285-286. quoted in, [The Decorative Arts in France](#) pp.20.

¹²ibid.

¹³Le Corbusier, Quoted in, [Ruhlmann. Master Of Art Deco](#), pp.14.

¹⁴The Societe d' Encouragement', the Societe des Artistes Decorateurs and the Union Centrale combined to lobby successive government to accept the parameters of a major international exhibition and sponsor it officially. Finally in 1912 the French Chamber of Deputies voted to hold the Exhibition in 1915 and commissioned an official committee under the Ministry of Industry and Commerce to make the arrangements, but, because of the war it was necessarily postponed several times.

¹⁵See: Tom Kemp, [Economic Forces in French History](#). for an account of the structure of French consumer goods industry.

¹⁶Leon Rictor, Proposition relative a la participation de la Ville de Paris et du Departement de la Seine a l'Exposition internationale des arts decoratifs et industriels modernes en 1923", *Bulletin du Conseil Municipal*, No 71, 1920, p.1. Quoted pp.51., [The Decorative Arts in France](#).

¹⁷This importance is detailed by: Paul Greenhaugh, *The Struggles within French Furniture* pp.56., [Modernism in Design](#).

¹⁸See Sylain Bloch, "Les Industries d'art," *Le Petit Messenger des Arts et des Artistes* 35 (December 1, 1916). quoted in; [Modernism and the Decorative Arts in France](#) pp.247.

¹⁹L'Hotel du collectionneur, prefaced by Deshairs. L., Paris, Editions Albert Levy, 1926, Quoted pp.59., [Art Deco](#).

²⁰The activities of the Societe des artistes decorateurs in the years that followed its founding in 1901 was active in the issue of artistic status. In 1902 they successfully petitioned the then government to change the law on artistic property.

²¹Jacques-Emile Ruhlmann. quoted in, [Twentieth-Century FURNITURE DESIGN](#), pp.131.

²²Jean Baudrillard. TRAVERSE No2 '[Le Design](#)'.

²³The uniqueness was exemplified by the practice of marking his works with an *estampille*; naming each chair after its first purchaser; work was often displayed elevated on cushions effectively denying access.

²⁴Lacquer work was executed by Jean Dunard independently in his own studios.

²⁵Le Corbusier. [Decorative Arts of Today](#), pp. 96.

²⁶In respect to mass-production Ruhlmann was quoted to say, "You've caught me off my guard. So, far, I have never even thought of mass-producing my furniture. My own view is that we first have to win an elite which is the arbiter of taste over to the new spirit, which is not to say that we should be thinking only of the elite." *Formes nouvelles programme nouveau* 1925 Guillaume Jannneau.

²⁷Jacques-Emile Ruhlmann, quoted in Camard pp.54. [Ruhlmann. Master of Art Deco](#).

²⁸Gaston Varenne, quoted in *Lucien Rollin, Architecte- Decorateur of the 1930s*, [Arts Magazine](#) Vol56., pp.109.

²⁹Emmille-Jacques Ruhlmann, quoted in Arwas, pp 59. [Art Deco](#).

³⁰The prototype was described as the Fontainebleau chair.

³¹Jacques-Emile Ruhlmann, quoted in Camard p.15. [Ruhlmann. Master of Art Deco](#).

³²See , *The Struggles Within French Furniture, 1900-1930*. [Modernism in Design](#), *The prefabricated and the mass-produced*, [Ephemeral Vistas: The Expositions Universelles, Great Exhibitions and World Fairs](#).

THE NEW EPOCH AND EFFICIENCY

Architecture is in the smallest things and extends to everything man makes; the apotheosis of the decorative arts in the year 1925 thus marks, admittedly by a paradox, the awakening of the architectural movement of the machine age.¹

Unencumbered by the desire to emulate the architecture that typified the Beaux Arts tradition Le Corbusier and Pierre Jeanneret's contribution to the 1925 Exposition, their *Pavillon de L'Esprit Nouveau*, was conspicuously minimal and reticent. It embodied an attitude which rejected all ornamentation and extraneous symbolism as an aberration because it was superfluous to domestic needs. Relegated to a marginal site and for a while cut off behind fences it was uncompromisingly antithetical to very concepts the exhibition was intended to affirm.² The pavilion's main structure was that of a box, which at the time was described as manifesting the, "prosaic literalness of a cold storage warehouse cube"³. It was not an attempt to shock the bourgeois; as it was a statement of principles which identified modernity with the progressive forces of industrial and commercial efficiency. What it represented was a technical ideology based on the ground of rationality. The decorative arts with their tradition of the superbly handwrought object were in Le Corbusier's view at an impasse; incapable of

development, an anathema to the modern meaning of architecture. He is explicit when he states,

Decorative art as opposed to the machine phenomenon is the final twitch of the manual modes; a dying thing. My conception was thus to show something conceived for the machine, thus conceived for mass production. The house is a cell within the body of a city. The cell is made up of vital elements which are the mechanics of a house. These elements can each in turn be a purely original cell, viable, human, useful to each and every one: standardised. Decorative art is anti-standardisational. Our pavilion will only contain standard things created by industry in factories and mass-produced; objects truly of the style of today.⁴

The *Pavillon de L'Esprit Nouveau* stood as a didactic realization of Le Corbusier's earlier theoretical work which found in industrial production and the machine aesthetic the means through which to establish justification for his architectural metaphor. Le Corbusier's ideas were aligned with a specific cause within the avant-garde's selective view of history. It was a response founded in the romantic myth of the *Zeitgeist*, the declared spirit of the age, which was belligerently focused on the present and the new. Unequivocally, they exploited an image of modernity which found aesthetic and moral virtue in the outputs of the industrial culture of the time. Mechanical imagery was infused into a new concept of beauty in which the virtue of sameness was elevated. Mass produced objects were presumed to have, in terms of beauty, merits not merely equal but superior to the elaboration produced by the technical virtuosity of the crafts tradition. In the age of mechanical

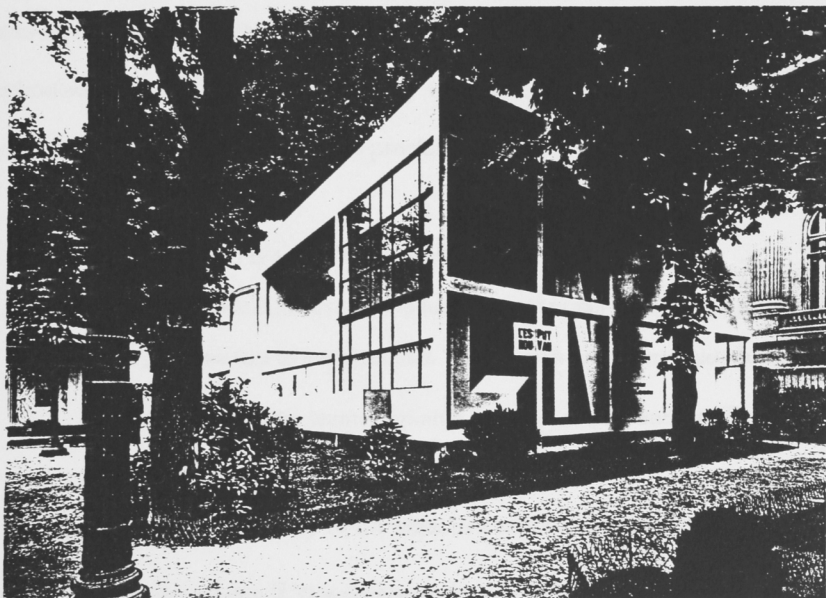


Fig. 1. Le Corbusier and Pierre Jeanneret, view of Pavillon de L' Esprit Nouveau, Expositon des arts decoratifs, 1925.

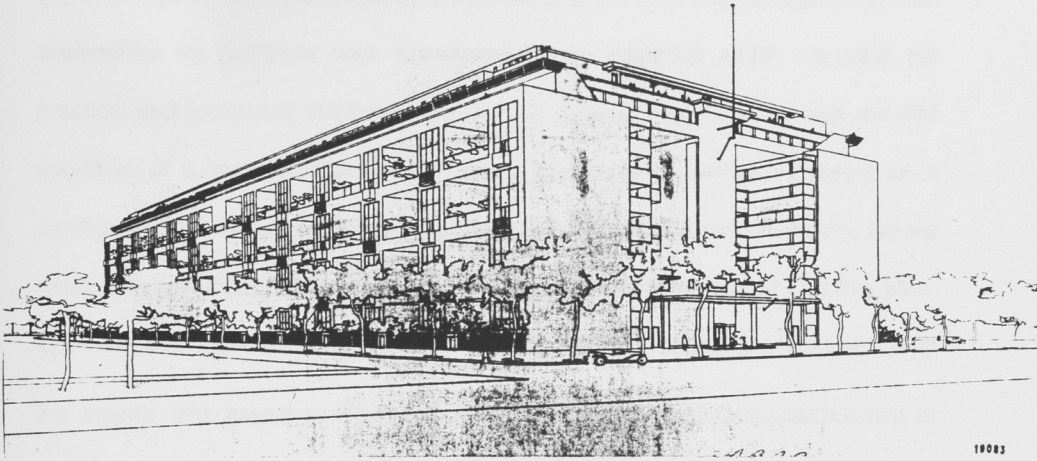
Fig. 2. Le Corbusier and Pierre Jeanneret, side view of Pavillon de L' Esprit Nouveau, 1925.

production emphasis was placed on the invariance of the generic.

The *Pavillon de L'Esprit Nouveau's* principal structure was a detailed prototype of a *immeuble-villa*⁵, a cellular living unit, it was an adaption of the general type of terraced apartment that had been proposed in the perimeter blocks of his *Ville Contemporaine* that had been displayed in plan form at the 1922 Salon d'Automne.⁶ A synthesis of progressive materials and techniques it demonstrated the possibilities of generic construction as it was both highly standardized and reproducible: "nothing but a collection of single figures put on top or next to one another by the architect."⁷ While the severity of its formal vocabulary was largely an evocation of the mode of production selected to build it, its plain white exterior, flat roof and stripped fenestration, also carried a set of ideas which reveal a underlying passion for order which is more than an interest in simple Cartesian articulation for it embodies a social criterion. According to view at the time, human needs were universal- thus Le Corbusier was to proclaim,

Exactitude and order are the essential condition...In place of individualism and its fevered products, we will prefer the common place, the everyday, the rule to the exception. The common rule seem to us now the strategic base for the journey towards progress and the beautiful.⁸

Diversity was to give way to an objective rationalism, the specificity of which was founded on absolutes.⁹ The commonplace, everyday analogies that abound in the *Pavillon de L'Esprit Nouveau*, signal the totality of "the one best way," in which



19083

L'ESPRIT NOUVEAU

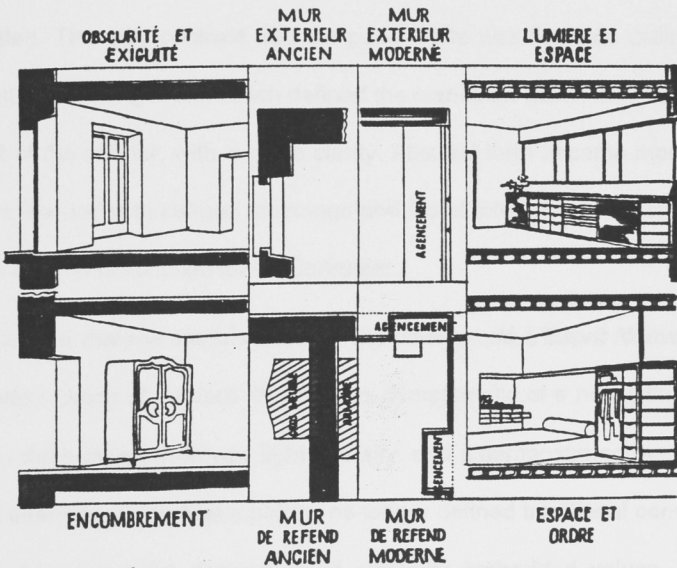


Fig. 3. Le Corbusier and Pierre Jeanneret, perspective view of immeuble - villas, 1922.

Fig. 4. Le Corbusier, detail of advertisement for Innovation storage, L' Esprit Nouveau, 1924.

all aspects of mass urban living, from the furnishings, the house itself, to the entire city and beyond, are determined by a new condition.¹⁰ The eclectic use of style as exemplified by Ruhlman was substituted by an aesthetic which elevated the practical and functional, stressing only the use value of objects. Utility was the first condition of a pure architecture. Whereas Ruhlmann's pavilion consisted of a combination of rooms: a vestibule, gallery, living room, saloon, bedroom, dining room, office, bathroom and boudoir; Le Corbusier's exhibit consisted of a free plan, open and flexible which is intended to allow for an efficient and economical use of the interior. The predominantly white walls¹¹ dispensed with the accumulation of detail and difference, the gilded dentil, rechampi panelling, damask hangings are abandoned as inessential and worn-out concepts. The plain surfaces emerge unconcealed. The only contrast with the pallid white was the blue ceiling and one brown wall of the living room, which defined the planes on which they lie, and hence the extent of the interior, with incisive clarity. Abstract form became more important than forms imbued with cultural meanings and literal references as architecture had nothing to do with historicism for Le Corbusier.

While as a *maison standardisee*,¹² the *Pavillon de L'Esprit Nouveau* evoked the purported needs of modern life and was symptomatic of a new attitude towards the home - the building itself was light and airy, and it demonstrated the advantages of flexible interiors - its radical topology no longer defined traditional conventions as rationality demanded the destruction of culturally embedded values. There was rejection of the meanings and values which had prevailed in respect of the image of the domestic comfort. These included those associated with the intimacies of

domesticity that of the hearth and family.

The house will no longer be an archaic entity, heavily rooted in the soil by deep foundations, "built firm and strong," the object of devotion on which the cult of the family and the race has so long been centred.¹³

Things which people collected and placed around them represented attempts to provide a content which was deemed by its nature to be inherently bourgeois as they were not useful. The repertoire of the past and the established customs that related to the use and display of objects were disowned. Instead, they were determined in accordance with the physiological needs necessary to meet the domestic requirements of the household. Domestic objects- *équipement* as Le Corbusier called them - had value only when they fulfilled the minimal criteria of their primary purpose: functioning according to the laws of 'economy'. The propensity to luxury and idleness which had been central to the concept of domestic comfort in the past was for Le Corbusier to give way to simplicity and efficiency. The fact that the home had become a little emptier was a point in favour,

For our comfort, to facilitate our work, to avoid exhaustion, to refresh ourselves, in one word to free our spirit and distance us from the clutter that encumbers our life and threatens to kill it.¹⁴

Paul Greenhalgh in his essay, *The Struggles Within French Furniture*, sees the *Pavillon de l'Esprit Nouveau* as questioning the morality of consumption.¹⁵

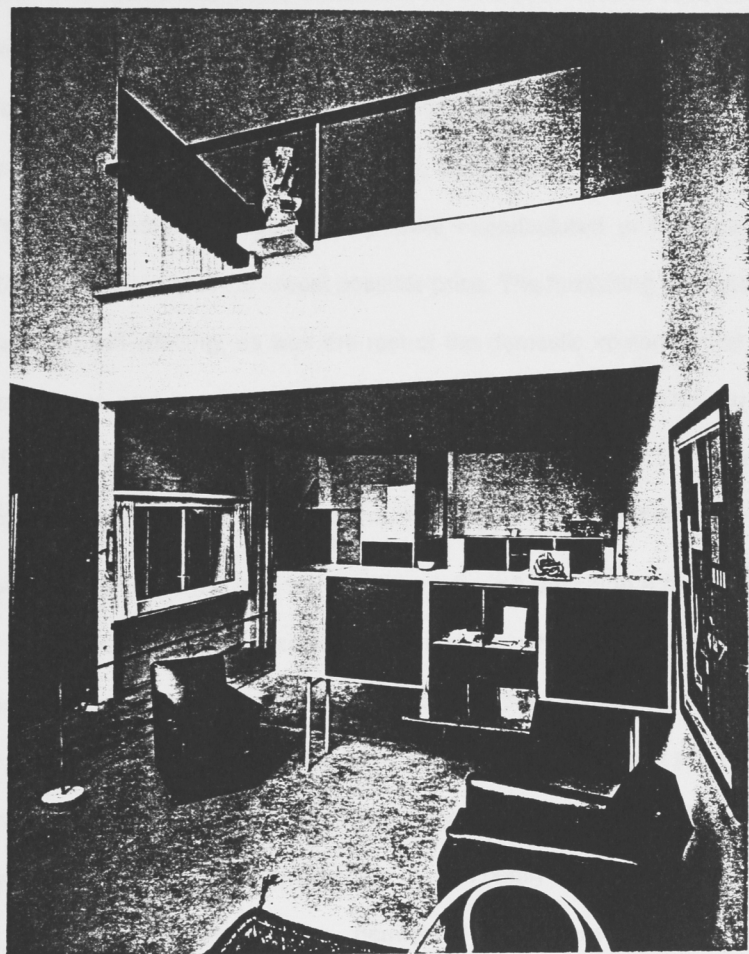


Fig. 5. Le Corbusier and Pierre Jeanneret, interior view Pavillon de L' Esprit Nouveau, 1925.

Everything suggested that people no longer needed "many" things. Le Corbusier seized upon a minimal condition to make an argument. Whereas Ruhlmann exhibited sixty chairs and ninety armchairs, Le Corbusier showed numerous No.14 Thonet bentwood chairs; club armchairs by the English company Maple and standard Parisian cast-iron park pieces. All fitted the purist attitudes of Le Corbusier in terms of their technological production, each being an embodiment of the principles of mass production as they were manufactured in factories in large quantities inexpensively at the lowest possible price. The furnishing was anonymous, discreet and self-effacing, as was the rest of the domestic content: good servants purified by use and function. Stripped, the *Pavillon de L'Esprit Nouveau* afforded little time for the leisurely or the decorous as its objects were determined by characteristics derived from the machine. The domestic environment is reduced to one of a mechanical entity, the "machine for living in" (*machine a habiter*)¹⁶. There was an inversion of the traditional hierarchies which could be considered inappropriate and unhomey - the kitchen became the smallest room whereas the bathroom was nearly as large as the living room. The intimacy that prevailed within Ruhlmann's bathroom was lost in an array of gymnastic equipment - the *Pavillon de L'Esprit Nouveau's* bathroom had more to do with bodily exercise, in which personal and intimate surroundings were permeated and transmuted by a purely physiological criteria of comfort.

The furnishings of the interior were based on the belief that machine aesthetics and industrial production necessitated a rethinking of existing conventions. To

the status of art Le Corbusier sought to use forms that were synonymous with this.¹⁷ Many of the objects of furniture were selected from manufacturers' catalogues and were normally associated with industrial or public use rather than a domestic setting. What was of fundamental significance for Le Corbusier was that an object of use should not be decorated. Any pretension to art confused the elementary distinction of function that of utility. He states,

To tell you the truth decorative art means equipment, beautiful equipment. We are not dealing with individual, arbitrary or eccentric cases; we are dealing with norms and creating model objects.¹⁸

In selecting common everyday objects Le Corbusier demonstrated his commitment to new technology to which the ideal "rational form" was inextricably linked. Unlike the fashionable products of the *artistes- createurs* they were the culmination of a process determined by the laws of factory evolution in which all that is inefficient or inessential had been progressively eliminated by the exigencies of economic manufacture. Hence the idea of certain classes of objet-type¹⁹ *the chair, the table, the bed* is presented. While Le Corbusier had a knowledge of the rationalism of the Deutsche Werkbund and of Herman Muthesius's theory of types and a concept of form as primordial and independent, the nature of his vocabulary in itself indicates other values he absorbed as a member of the Parisian avant-garde.²⁰ Words like "technical", "logical" and "solution "and his questioning of the identity of objects based on a concept of mechanical selection²¹ imply a specific

methodology and belief system which at the time had gained widespread legitimacy throughout the industrial world. The significance of the *Pavillon de L'Esprit Nouveau* was not so much the disposition of its spaces and the breakdown of the multifarious types of furniture within conventional decor so not to disrupt the efficiency of the coherence of the rooms; the anonymity and purity of the *Pavillon de L'Esprit Nouveau* was intrinsically linked to techniques that underlied industrial engineering, the new drive that could be found in factories. The corollary to Le Corbusier's purification of form was the purification of effort.

Thanks to the rigorous programme of the modern factory, the objects produced are of a perfection that they inspire a collective pride in the teams of workers.... This collective pride replaces the old artisanal sensibility by raising it to (the level) more general ideas. This transformation seems to us to be a step forward; it is one of the important factors of the modern life. Today the evolution of work leads through utility to synthesis and order. This has be defined as "taylorism", and, as such, in a pejorative sense. To tell the truth, it is a question of nothing other than the intelligent exploitation of scientific discoveries.²²

The first two decades of this century saw the emergence and effective application of a system of industrial management which became widely known as a definitive solution to the planning of work: Scientific Management.²³ Its popular exposition gained a universality which was both revered and reviled throughout the industrial world of that time. It was a comprehensive concept of management which



Fig. 6. Le Corbusier and Pierre Jeanneret, interior view Pavillon de L' Esprit Nouveau showing No 14 Thonet bentwood chairs, 1925.

by the 1920s was extended into areas of labour productivity, technological efficiency, corporate organization and ultimately the spheres of political and social life. It implied a revolution in the nature of authority as its expectation was one of totality. Its objective was greater productivity of both man and machine; work became time-pressed and systematically regulated in all its aspects by a complex system of codified rules.

What Le Corbusier advances in the *Pavillon de L'Esprit Nouveau* is explicit delineation of Taylorism both as an aesthetic and a social ideal. Its approach assumed that there was a precise optimum for each process, by the application of scientific method this optimum could be quantified, determined and set as a standard for procedure and result - the aim was to find the one best way to speed the output of the collective effort. All possible relations: manual and machine processes, materials, tools and equipment were investigated and analysed in order to form combinations which would provide the most economical condition.²⁴

Adopted into the place of work Taylorism's organisational structures dramatically increased the efficiency and speed of production. Workers were studied at their tasks, the motions and effort put forth studied, and anything that did not ameliorate the speed of productivity was discarded. Enforced standardization of work practices assured faster work as did enforced cooperation, as those workers that proved incorrigibly slow were often relocated or simply discharged. Work for Taylor's "first class man" was marginal as it involved concentrating on the performance of a single task. Individual judgement concerning the work at hand was not the worker's responsibility as this was prescribed and predetermined; scientific

method was the arbiter of a days work. Awkward, inefficient and ill directed effort was eliminated and unnecessary waste resolved, as anything superfluous to the work process was discarded, each was co-opted to doing the highest work possible by a continual "rationality" of the processes that surrounded production. Invariably this increased output, decreased costs and enhanced financial return. The capricious uncertainty that existed between the processes of production and the organization of labour was overcome by making both much more predictable.

What Taylorism offered and what awed both politicians and intellectuals alike was the promise of an industrial utopia in which the idea of securing greater production for the same or less effort which would lead to the elimination of scarcity. Efficiency, optimality and expanded output would permit society to transcend class conflict and social division. The essence of this Taylor gave as testimony,

Both sides (management and men) must take their eyes off the division of the surplus as the all-important matter, and together turn their attention towards increasing the size of the surplus.²⁵

The change precipitated by Taylor's ideas are not always immediately perceptible as they impinge upon the modern psyche, it transcended differences in economic and political structures to become one of the most forceful determinants of industrial culture. As a system of planning it had larger social and political ramifications, the effects of which are still evident today as its objectives and structure have left an indelible mark not only the workplace; they also affect the more intimate spheres of living as it was applied to all human effort: "the

management of our homes, farms, of the business of our tradesmen, of our churches, of our governmental departments."²⁶ This followed the idea that the orderly factory created orderly men and eventually led to a more orderly world. The virtues of this new industrial world is what is mirrored in Le Corbusier's urban schemes of the twenties.

While both Taylor and Le Corbusier purport to have an apolitical position the political potential of their concern for social planning is clear as its authoritarianism is implicit. Both press towards a total control of society in terms of which arguably removed the element of personal judgement. For both, standards were something that could be imposed from without. Individualism gives way to a rationalism based on a prescribed hierarchy to which the individual was to adapt. Despite their espoused egalitarianism, both set up a high minded relationship of master and slave since in Taylor's and Le Corbusier's vision it was only a special class of men that were fit to administer.²⁷ Their enthusiasm is for what is essentially an organizational hierarchy predicated on expertise which as Mary McLeod suggests overturned traditional determinates of power.²⁸ It became the prerogative of a professional elite to detail and order the essential and reject all that was inessential according to their own interests, needs and motives. It was in this context that the engineer becomes not only the master of the realm of the machine but also as the potential manager of social and economic planning. In terms of Le Corbusier's outlook, his depiction of *the homme-type* is analogical in image - the "hero of modern life".

the prodigious effort of the period has created an elite of marvelous fecundity; an elite which has yet to find a place in the social machinery or in the government and which is dying of hunger.²⁹

What is critical is that Taylor's ideas embodied an attitude which militated against difference as they were confined solely to a motive of expediency. The overarching pattern was to impose technical standards to optimize material results, nothing more, and nothing less. Due to the underlying reductive nature of their classifying aims his solutions were prototypical. By reason of his rationale for "joint obedience to fact and laws" not only was the character of work changed per se but notions of comfort transformed through causal implication. In the hands of the engineers both are viewed exclusively in terms of a physiological criteria. The abstract laws that govern machine production are revealed to be precisely those principles which order work. As a result, the human effort is determined by a functional performance which is analogous of the machine. As Giedon points out, "the stretching of human capacities and the stretching of steel derive from the same roots." Work was simply the culmination of a process of functional perfection as the concern was with speed, economy and productivity at what ever the cost.²⁹ Its absolutist nature was concerned with sameness and by virtue of this hardly expresses an individual's hopes and aspirations.

Whereas historically the worker's labour had been both the source of skill and knowledge it became just a source of effort. The traditional relationship between creation and production was overthrown by a quest which separated manual work

from mental work. In short, those that used their body in productive effort was divested of their greatest asset, the knowledge associated with their specific skills - their craft. This knowledge was implicit and personal as it was derived from service within a craft rather than from any science. Its significance was that it comprised not only a detailed understanding of the processes associated with production such as materials and tools it also contained ways of preserving the body from painful forms of exertion. Tools were important to this and in a way symbolic. Arguably Le Corbusier's railings against the decorative arts and its craft tradition in its own way further the alienation of the skilled craftsperson from what was his capital- his knowledge.

The notion of the machine as the embodiment of efficiency which was the basis of the ideology of functional perfection is suspect as it imposed serious restrictions on expression. Taylor's view which came to be a distinctive characteristic of Le Corbusier's polemic was strictly mechanistic. The problem of "machines for sitting in, for filing, for lighting, type-machines", is that they had the ominous potential for alienating people. Expropriated to the ranks of the engineer tools were reduce to objects of convenience. Objects that were equated with the measured and analyzed world of the factory had no appeal at all to those who had laboured all day long, day after day under a single source of authority. The reality of this was even known at the time.

If one tries to persuade us with a violence that has nothing persuasive about it that a house is a 'machine for living in'- No. A house is not a factory where one works and in order to make a little paper money one performs a few mechanical gestures, always the same. To be sure, a

performs a few mechanical gestures, always the same. To be sure, a house must respond to logic, reason, and good sense, It [the house] is a place where a welcoming spirit, intimacy, feeling of sensuality and the satisfaction of personal preferences.³⁰

The objection to the technocratic vision of the "one best way" that Le Corbusier sets forth in the *Pavillon de L'Esprit Nouveau* is as much one of ennui as it is political. The totality of his "standard need, standard function, standard objects, standard furniture", cannot in reality fulfill the vagaries of the subjective needs that relate to domestic comfort. Comfort is not a question of simple physical amenity - technical definitions that are derived from scientific rationalism are bound to be unsatisfactory as they are emotionally detached. While rational form can provide solution to utilitarian needs its implicit criticism is its inherent vacuity. It fails to provide a genuine account of external factors that give rise to satisfaction such as the emotional, psychological and social role of the object. The projection of these upon an object can substitute the logic of rationalists order. Furthermore, the notion of luxury that was enmeshed in the meaning of comfort is critical to wellbeing as much as it is part of human dream and desire. For as Paul Follet declared a few years after the events of 1925.

We know that necessity alone is not sufficient for man and the superflous is indispensable to him³¹

FOOTNOTES

¹Le Corbusier, The Decorative art of Today, pp.127.

²The centrality of the French Decorative Arts.

³W. Franklyn Paris, *The International Exposition of Modern Industrial and Decorative Art in Paris*, Part II, "General Features," Architectual Record, Vol. 58, No.4 (October 1225), P.379, quoted in Rybczynski, Home: A Short History of an Idea, pp.186.

⁴Le Corbusier, *Le Pavillon de L'Esprit Nouveau*, quoted in Arwas, Art Deco, pp.46.

⁵Le Corbusier in the preface to the 1959 edition of *L'Art decoratif d'aujourd'hui* cites that the immeuble-villas concept had been inspired by two visits to the Carthusian monastery of Ema in Tuscany in 1907 and 1910.

⁶Le Corbusier's proposal had larger urban connotations: Plan Voisin projected an elite capitalist city for three million inhabitants and entailed transforming the centre of Paris. When it was first displayed in 1922 it was regarded as reactionary by the Communist newspaper *L'Humanite* because of the ideological implication of the organization of its residential districts.

⁷Peter Serenyi's." see; Le Corbusier, Fourier. pp. 278.

⁸Le Corbusier, *Vers Une Architecture*, Quoted in Banham, Theory And Design in the First Machine Age, pp.249.

⁹The main themes of Le Corbusier's formal polemics on design appeared in a series of articles published in *L'Esprit Nouveau* these later were source for :The Collection de *L'Esprit Nouveau* and published by Cres as *La Peinture Moderne*; *Vers une Architecture*; *L'Art Decoratif D'Aujourd'hui*; and *Urbanism*.

¹⁰See "... architecture embraces every detail of household furnishing, the street as well as the house, and the wider world still beyond both. My intention was to illustrate how, by virtue of the selective principle (standardization applied to mass-production), industry creates pure forms; and to stress the intrinsic value of this pure form of art is the result of it." *Reconstructing Art Deco*, *Modernism and the Decorative Arts in France: art Nouveau to Le Corbusier*, pp. 193.

¹¹See *THE LAW OF RIPPONLIN A COAT OF WHITEWASH* - " There may be some people who think against a background of black. But the task of our age - so strenuous, so full of danger, so victorious, seems to demand of us that we think against a background of white.", Le Corbusier, The Decorative Arts of Today.

¹²The question is whether Le Corbusier interests in the possibilities of standardization were more to do with his professional contacts with industrialists and others within the business world of the time than purists aesthetic. The Voisin company donated 25,000 francs towards the project, while both Ingersoll-Rand and Roneo advertised their products in *L' Esprit Nouveau*.

¹³Le Corbusier, Towards a New Architecture, pp. 219.

¹⁴Le Corbusier, The Decorative Arts of Today, *Type Needs-Type Furniture*. pp.74

¹⁵Paul Greenhalgh, *The Struggles Within French Furniture, 1900- 1930*, Modernism in Design, pp.77.

¹⁶This definition first emerges in, Vers une Architecture.

¹⁷Le Corbusier's formal polemics against the decorative arts and its tradition of craftsmanship appear in articles that were published as contribution to *L'Esprit Nouveau* and then in Vers une Architecture and, L'Art decoratif d'aujourd'hui.

¹⁸Le Corbusier, Quoted in Camard p.14.

¹⁹ The use of 'objet-type,' 'type-needs'and 'type-furniture owes much to the Typisierrung and Typenmobel of Muthesius and Bruno Paul.

²⁰As Mary McLeod points References to Taylorism abound in much of Le Corbusier's writings of the twenties from Apres Le cubisme.

²¹The idea of mechanical selection was presented by Le Corbusier and Ozenfant in the article *Le Purisme* published in L'Esprit Nouvea, January 1921

²²Le Corbusier, Apres le cubisme, quoted in Troy, Modernism and the Decorative Arts in

in themselves constituted a complete and mature thesis. The years at Midvale where formative for they provided Taylor with an encounter with the growing social and productive dissension that had beset organized industry and the explicit need to reconcile capital and labour. It is the ideas generated at this and the deep concern with the aspect of totality of organization that give genesis to his subsequent writings.²⁴Taylor's management "system" was set out in a series of writings the first of these, *A Piece-Rate System: A Step Toward Partial Solution of the Labour Problem*, was formally presented as a paper to the American Society of Mechanical Engineers in 1895. This was subsequently followed by, *Notes on Belting* in 1893, *A Piece-Rate System* in 1895, *Shop Management* in 1903. *Principles and Methods of Scientific Management* was first published in 1911.

²⁵Frederick Winslow Taylor, *Principles of Scientific Management*.

²⁶Frederick Winslow Taylor, *Principles of Scientific Management*, pp.8.

²⁷As Taylor stated, 'I can say without the slightest hesitation that the science of handling pig-iron is so great that the man who is fit to handle pig-iron and is sufficiently phlegmatic and stupid to choose this for his occupation is rarely able to comprehend the science of handling pig-iron.'

²⁸Mary McLeod, *Architecture or Revolution: Taylorism, Technocracy, and Social Change*, *Art Journal*, pp. 138.

²⁹S Francis Delaisi, "Faut-il emettre 150 milliards de billets de banqe? L' Esprit Nouveau, no8, pp.927-937, quoted in, *Architecture or Revolution: Taylorism, Technocracy, And Social Change.*, pp.139.

³⁰Sigfried Giedion, *Mechanization takes Command*, pp98.

³¹Leandre Vaillat, *La Tendence internationale a l'exposition des arts decoratifs*, *L'illustration*, no.4313, October 31, 1925. pp.459.

³²Paul Follet, 1928 Lord and Taylor exhibition catalogue, quoted in Battersby *The Decorative Twenties*.

BIBLIOGRAPHY

- Arwas. V. N.**, Art Deco, Abrams, New York, 1980.
- Banham. R.** Theory and Design In the First Machine Age, MIT Press, Cambridge Massachusetts, 1980.
- Banham. R.**, Chairs as Art, New Society , 1967.
- Battersby. M.**, The Decorative Twenties, Walker & Co., New York, 1969.
- Brunhammer. Y.**, **Tise. S.**, The Decorative Arts in France La Societe des Artistes Decorateurs, Rizzoli, New York, 1990.
- Camard. F.**, Ruhlmann. Master of Art Deco, Thames & Hudson, London, 1984.
- Garner. P.**, Twentieth Century Furniture, Phaidon, London, 1980.
- Giedion. S.**, Mechanization Takes Command, Oxford University Press, New York, 1948.
- Greenhalgh. P.**, The prefabricated and the mass-produced, Ephemeral vistas: The Epositions Universelles, Great Exhibitions and World Fairs, 1851-1939, Manchester University Press, Manchester, 1988.
- Greenhalgh. P.**, The Struggles Within French Furniture, 1900 - 1930, Modernism in Design, Reaktion, London, 1990.
- Le Cobusier.**, The Decorative Arts of Today, MIT Press, Cambridge Massachusetts, 1987.
- Lucie-Smith. E.**, Furniture: A Concise History, Thames and Hudson, London, 1979.
- McLeod. M.**, "Architecture or Revolution": Taylorism, Technology, and Social Change, Art Journal 43/ 1983.
- Merkle. J.,A.**, Management and Ideology, Berkeley, 1980.
- Ostergard. D. E.**, edited by, Bent Wood and Metal Furniture: 1850-1946, The American Federation of Arts, New York, 1987.
- Rybczynski. W.**, Home: A Short History of an Idea, Penguin, New York, 1987.
- Sembach. K.**, **Leuthauser. G.**, **Gossel. P.**, Twentieth Century Furniture Design, Taschen, Koln,

Sparke. P., An Introduction to DESIGN & CULTURE in the Twentieth Century, Unwin Hyman, London, 1986.

Taylor. F.R., Principles and Methods of Scientific Management, Harper & Bros, New York, 1911.

Troy. N. J., Modernism and the Decorative Arts in France: Art Nouveau to Le Corbusier, Yale University Press, New Haven, 1991.

Von Moos. S., Le Corbusier: Elements of a Synthesis, MIT Press, Cambridge Massachusetts, 1979.